



SAIF 上海高级金融学院
Shanghai Advanced Institute of Finance

SAIF

SAIF 2024 **Carbon Inventory Report**

2024

Overview

In recent years, the global process of addressing climate change has significantly accelerated. The statement that "climate change is one of the most significant challenges facing humanity in this century" has become a global consensus. In September 2020, China made a strategic decision to "strive to achieve carbon peak before 2030 and carbon neutrality before 2060."

Against the backdrop of severe climate change, guided by the national dual-carbon strategy and driven by its own social responsibility, the Shanghai Advanced Institute of Finance (SAIF) at Shanghai Jiao Tong University (hereinafter referred to as "SAIF" or "the Institute") has identified carbon peak and carbon neutrality as key priorities in its institutional development strategy. SAIF has systematically assessed and quantified its greenhouse gas emissions for 2024, established emission reduction targets, and developed low-carbon pathways for both its operations and supply chain carbon emissions. Through these efforts, the Institute aims to achieve a steady reduction in greenhouse gas emissions over time.

Greenhouse Gas Emissions of the Shanghai Advanced Institute of Finance at Shanghai Jiao Tong University in 2024

Scope1

Direct greenhouse gas emissions of SAIF

299.42 tCO₂e

Scope2

Indirect emissions by SAIF from electricity use in operation

674.80 tCO₂e

Scope3

Indirect emissions generated by SAIF due to upstream and downstream connections in the supply chain

786.79 tCO₂e

Compilation Basis

SAIF completed the quantification work in accordance with the Greenhouse Gas Protocol and by referring to the relevant guidelines of ISO14064-1:2018 "Specification and Guidelines for the Quantification and Reporting of Greenhouse Gas Emissions and Removals at the Organizational Level." When calculating other indirect emissions under Scope 3, SAIF referred to the Corporate Value Chain Accounting and Reporting Standard.

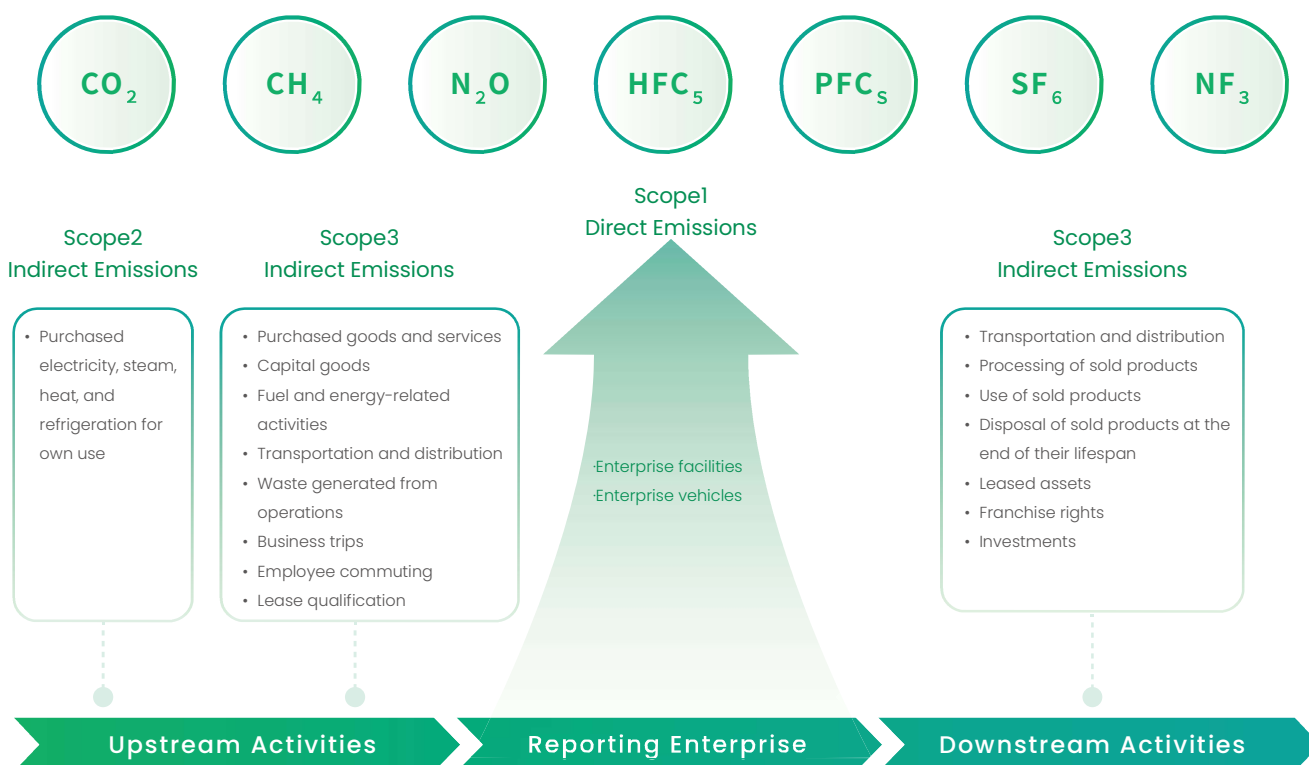
Measurement and Calculation Scope

SAIF follows international standard practices and adopts the operational control method to define emission activities. The greenhouse gas inventory is compiled solely based on the emission facilities and business activities within the organizational boundary.

The inventory boundary encompasses three main entities, all of which are office buildings: the SAIF Building in Xuhui, Shanghai; Beijing Center; and the Greater Bay Area Center. When the organizational boundary changes due to expansion, relocation, or other factors, the inventory report will be revised accordingly.

ISO14064-1:2018 annotates and regulates seven types of greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), nitrogen trifluoride (NF₃), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

The institute has calculated greenhouse gas emissions across Scope 1, Scope 2, and Scope 3. According to the Greenhouse Gas Protocol, Scope 1 is defined as "emissions from operations owned or controlled by the reporting enterprise"; Scope 2 is defined as "emissions from the consumption of purchased or acquired electricity, steam, heating, or cooling by the reporting enterprise"; and Scope 3 is defined as "all indirect emissions occurring in the reporting enterprise's value chain (excluding those included in Scope 2), including both upstream and downstream emissions."



Emission Category

SAIF's carbon inventory encompasses all direct emissions (Scope 1) and indirect emissions (Scope 2) within the organizational boundary, as well as selected indirect emissions (Scope 3). Since Scope 3 emissions are optional for reporting, SAIF has carefully selected applicable categories and gradually expanded its accounting scope based on significance, business relevance, influence, and data availability. For the period 2019–2022, Scope 3 categories included paper consumption, tap water usage, business travel, and employee commuting. From 2023–2024, the Scope 3 categories have been expanded to include all relevant emission sources. Details are provided in the table below.

 Table: Greenhouse gas inventory categories from 2019 to 2024

Scope	Category	In 2019	In 2020	In 2021	In 2022	In 2023	In 2024
Scope1	Fixed Combustion Source Emissions	×	×	×	×	×	×
	Mobile Combustion Source Emissions	✓	✓	✓	✓	✓	✓
	Process Emissions	×	×	×	×	×	×
	Fugitive Emissions	✓	✓	✓	✓	✓	✓
Scope2	Purchased Electricity	✓	✓	✓	✓	✓	✓
	Purchased Heat	×	×	×	×	×	×
Scope3	Purchased Goods and Services	✓	✓	✓	✓	✓	✓
	Purchased Assets	○	○	○	○	✓	✓
	Fuel and Energy-Related Activities (Excluding Scope 1 and 2)	○	○	○	○	✓	✓
	Upstream Transportation and Distribution	○	○	○	○	✓	✓
	Waste Disposal	○	○	○	○	✓	✓
	Business Travel	✓	✓	✓	✓	✓	✓
	Employee Commuting	✓	✓	✓	✓	✓	✓
	Upstream Leased Assets	×	×	×	×	×	×
	Downstream Transportation and Distribution	×	×	×	×	×	×
	Processing of Sold Products	×	×	×	×	×	×
	Use of Sold Products	×	×	×	×	×	×
	Final Disposal of Products	×	×	×	×	×	×
	Downstream Leased Assets	×	×	×	×	×	×
	Franchise	×	×	×	×	×	×
	Investment	×	×	×	×	×	×

Note: ✓ Represents inclusion in the accounting. ○ Represents non-inclusion in the accounting. × Represents that there is no relevant emissions involved.

Emission Quantification

SAIF's greenhouse gas emissions primarily concentrate in office building operations and the daily activities of employees and professors. In the actual measurement process, after identifying all major emission sources and available data sources, different calculation methods were selected based on the data quality of various emission categories. These emissions were converted into carbon dioxide equivalents using appropriate physical or economic emission factors. The greenhouse gas accounting methods and results for 2024 are as follows:

 **Table: Calculation Methods and Results of SAIF's Emission Categories in Scope 1, 2 and 3 in 2024**

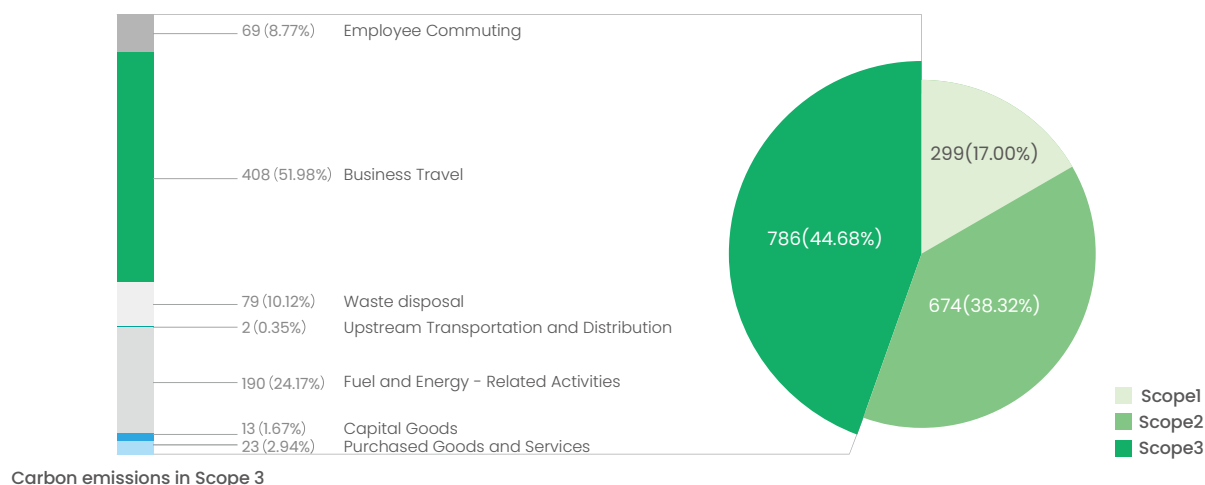
Scope	Category	Emission amount in 2024 (tCO ₂ e)	Emission proportion in 2024	Description
Scope1	Automobile fuel emissions	8.7578	0.50%	This category is composed of long-term leased vehicles over which SAIF has operational control rights. Based on the gasoline consumption data in the fuel invoices and statistical ledgers, the emissions are calculated by referring to the data in the China Statistical Yearbook and the default values in the IPCC 2006 Guidelines.
	Refrigerant leakage emissions	290.6630	16.51%	This category mainly includes the refrigerant leakage emissions from air - conditioning units. It is calculated based on the R410a filling amount in the air - conditioning maintenance records and the corresponding AR6 (100) global warming potential.
Scope2	Purchased Electricity	674.7968	38.32%	This category consists of the purchased electricity for the Shanghai SAIF Building, the Beijing Center, and the Greater Bay Area Center. It is calculated based on the electricity consumption data from the monthly electricity payment notices and the electricity emission factors announced by the national ecological and environmental department.
Scope3	1.Purchased Goods and Services	23.1286	1.31%	It includes all the goods purchased during the reporting period, which are mainly classified into three categories: office supplies, daily necessities, and low-value consumables. The emissions of this category are calculated using the average data method. The weight of all purchased goods is investigated and estimated, and then the emissions are converted into carbon emissions through the full life cycle emission factors in the ecoinvent v3.10, DEFRA 2023, and CPCD product carbon footprint databases.
	2.Capital goods	13.1610	0.75%	It includes all the fixed assets added during the reporting period. This category is calculated based on the expenditure method, which converts the purchase amount of assets and equipment into carbon emissions.
	3.Fuel and Energy - related Activities (excluding Scope 1 and 2)	190.1662	10.80%	It includes the upstream emissions of fuel, the upstream emissions of electricity production, as well as the emissions from electricity transmission losses. This category adopts the average data method, converting the consumption amounts recorded in the statistical ledgers and supplier invoices by using the emission factors of ecoinvent v3.10.

Scope	Category	Emission amount in 2024 (tCO ₂ e)	Emission proportion in 2024	Description
Scope3	4.Upstream Transportation and Distribution	2.7447	0.16%	It includes the transportation and distribution of all goods and assets during the reporting period. This category is calculated based on the expenditure method, converting the estimated transportation costs into carbon emissions.
	5.Waste disposal	79.6335	4.52%	It includes all the solid waste and wastewater generated by the Shanghai SAIF Building during the reporting period. This category uses the average data method. The estimated annual weight of waste is calculated by using the ecoinvent v3.10 emission factors corresponding to the treatment methods.
	6.Business Travel	408.9388	23.22%	It includes all the transportation for business travel purposes of SAIF's professors and employees during the reporting period. This category combines the distance - based method and the expenditure - based method. For air travel, railway travel, and part of car travel, the emissions are calculated based on the mileage data provided by the suppliers, while for the remaining part, the expenditure amount is converted into carbon emissions.
	7.Employee Commuting	69.0166	3.92%	It includes the daily commuting of SAIF's professors and employees during the reporting period. This category adopts the distance-based method. The college's daily travel modes and average distances are obtained through questionnaire surveys, and then converted according to DEFRA 2023 and the "Beijing Low-carbon Travel Carbon Emission Reduction Methodology (Trial) 2023 Edition".
Total		1761.00	100%	

Result Analysis

After completing the greenhouse gas inventory, SAIF's total carbon emissions for 2024 amounted to 1,761.00 tCO₂e. This total comprises direct emissions under Scope 1 of 299.42 tCO₂e, emissions from purchased electricity under Scope 2 of 674.80 tCO₂e, and other indirect emissions under Scope 3 of 786.79 tCO₂e. Scope 3 encompasses all emission categories relevant to the institution's activities. In 2024, the carbon emissions from SAIF's own operations (Scope 1 & 2) represented 55.32% of the total carbon emissions, while supply chain carbon emissions (Scope 3) accounted for 44.68%.

Figure: Distribution of SAIF's Carbon Emissions in 2024 (tCO₂e)



SAIF continuously tracks and reports total greenhouse gas emissions. As shown in the figure below, during 2019–2024, SAIF’s greenhouse gas emissions exhibited a pattern of fluctuation followed by a downward trend. The specific reasons for these changes are analyzed as follows:

At the end of 2019, when the pandemic began, strict nationwide control measures were implemented throughout 2020. The significant reduction in offline activities led to decreased electricity consumption at the institution. Concurrently, remote work policies limited business travel, resulting in a substantial 27.68% reduction in total carbon emissions that year.

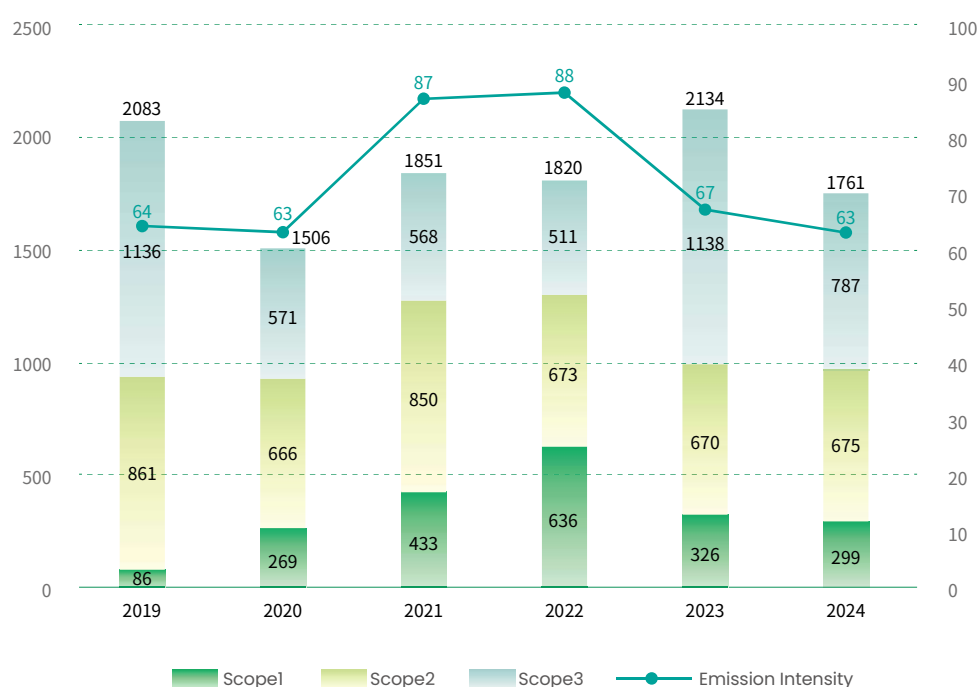
In 2021, as operations resumed and offline courses returned, electricity consumption from SAIF’s lighting, air conditioning, and other equipment increased rapidly, causing total carbon emissions to rise by 22.89% year-over-year.

In 2022, large-scale fugitive emissions from centralized air conditioning maintenance offset the reduced energy consumption caused by pandemic resurgence, keeping total carbon emissions essentially unchanged from the previous year.

In 2023, carbon emissions from direct operations decreased due to reduced refrigerant use and downward adjustments to Shanghai’s electricity emission factors. However, the expansion of Scope 3 accounting parameters caused total carbon emissions to reach their highest level in recent years.

In 2024, with accounting parameters remaining consistent with 2023, total carbon emissions decreased by 17.48% compared to the previous year. This reduction was primarily due to downward adjustments in national electricity emission factors and decreased business travel among SAIF employees.

Figure: The Changing Trends of SAIF’s Carbon Emissions from 2019 to 2024 (tCO₂e, kgCO₂e/m²)



1. Considering data quality and availability, no retroactive estimation has been made for the categories that were not included in Scope 3 from 2019 to 2022.

Appendix

The sources of emission factors for this carbon inventory include

1. The "IPCC 2006 National Greenhouse Gas Inventory Guidelines" released by the Intergovernmental Panel on Climate Change (IPCC) of the United Nations.
2. The "Guidelines for Accounting Methods and Reporting of Greenhouse Gas Emissions of Enterprises" issued by the Ministry of Ecology and Environment of China, as well as the average carbon emission factors for the power grid.
3. The "Beijing Low-Carbon Travel Carbon Emission Reduction Methodology (Trial) 2023 Edition" issued by the Beijing Ecological and Environmental Bureau.
4. UK Government GHG Conversion Factors for Company Reporting 2023.
5. Ecoinvent Database version 3.10 cutoff.
6. China's Product Life Cycle Greenhouse Gas Emission Coefficient Database (CDCP).
7. "2023 Annual Carbon Inventory Report of Shanghai Advanced Institute of Finance, Shanghai Jiao Tong University."