GS Caltex

EXPANDING THE POSSIBILITIES OF ENERGY

GS Caltex
Sustainability
Report

2023

ABOUT THIS REPORT

GS Caltex has annually issued a Sustainability Report since the inaugural report in 2006. The 2023 report is based on global standards and includes a materiality assessment which incorporates benchmarking leading enterprises in the oil and gas and chemical sectors, alongside the views of internal and external stakeholders. This report transparently discloses major achievements in various ESG areas.

Period

This report covers the period from January 1, 2023, to December 31, 2023. In consideration of reporting timeliness, it also includes significant activities and achievements that occurred in the first half of 2024. Additionally, any newly disclosed quantitative and qualitative performance is clearly denoted, and for quantitative results, data for the past three years(2021-2023) are provided to facilitate trend analysis and comparative evaluation.

Scope

This report has revised our data calculation methods and expanded the disclosure scope to enhance reliability. The reporting primarily encompasses **GS** Caltex Headquarter, Yeosu Complex, Lubricant Plant, and Distribution Centers. Also, some environmental quantitative data, including greenhouse gas emissions, now incorporate activities and outcomes from 15 subsidiaries. We plan to continuously extend the disclosure scope to include subsidiaries. We provide explanatory notes for any data with differing scopes or revisions to clarify the reasons.

Standards

This report is prepared in accordance with the Global Reporting Initiative(GRI) Standards 2021. We have aligned our reporting issues with the Oil & Gas Sector Standard(2021) and the Sustainability Accounting Standards Board(SASB) industry standards to address industry-specific issues. In addition, we engaged stakeholders as per the AA1000 Stakeholder Engagement Standard(AA1000SES) to integrate diverse perspectives. We also partially implemented the IFRS S1 and S2 standards from the International Sustainability Standards Board (ISSB) and plan to extend their application in the future.

Assurance

This report has been assured by a third-party assurance provider, the British Standards Institution(BSI), to ensure the objectivity and reliability of the content and data. Type 2 assurance was performed on the GRI Topic Standards for Energy, Water and Wastewater, Emissions(greenhouse gases, major air emissions), Employee Training and Education, and Occupational Health and Safety. The assurance statements can be found in the appendix to this report.

Company Name	**GS** Caltex Corporation
Address	**GS** Tower, 508 Nonhyeon-ro, Gangnam-gu, Seoul
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Published by	**GS** Caltex ESG Planning Team
Contact Information	+82 02-2005-1840 / sea302@gscaltex.com

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INTERACTIVE USER GUIDE

GS Caltex Sustainability Report 2023 has been created as an interactive PDF that incorporates links to relevant pages in the report.
Clicking on any icon in the main body or on a content title at the top of each page will take you to the relevant page.

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INTRODUCTION

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CEO Message



Board Chair & CEO
Saehong Hur

Dear Valued Stakeholders,

On the publication of our 19th Sustainability Report, which details our ESG management activities and achievements for 2023, I would like to express my sincere gratitude to all our stakeholders, including our dedicated employees, shareholders, customers, suppliers, and the local communities who have supported and trusted **GS** Caltex. Your efforts and support have been instrumental in making **GS** Caltex what it is today.

To effectively respond to the paradigm shift facing the global energy industry, **GS** Caltex is committed to practicing and internalizing ESG management under the goal of 'sustainable and profitable growth.' Beyond our traditional role of providing a stable energy supply, we are making diverse efforts to actively address climate change and contribute to building a sustainable society.

Firstly, **GS** Caltex aims to transform into a Lower Carbon Refinery. We are initiating greenhouse gas reduction projects identified through the Marginal Abatement Cost Curve(MACC). In addition, to fulfill the new roles assigned to the energy sector in providing new energy, which is lower carbon energy, we are establishing a new portfolio for sustainable growth. This includes lower carbon businesses such as hydrogen/CCUS, bio, and waste plastic recycling.

In 2023, **GS** Caltex successfully conducted demonstration projects for sustainable aviation fuel and bio-marine fuel, bringing us a step closer to the commercialization of biofuels. Concurrently, to respond to the accelerating impacts of climate change, we analyzed physical risks from climate change, such as floods and typhoons, which could significantly affect our company and subsidiaries. In addition, we are expanding our management scope by calculating indirect greenhouse gas emissions(Scope 3).

GS Caltex is continuously developing its management systems to ensure sustainable operations. We expanded and restructured the ESG Committee in 2021 from the CSR Committee, which has been operating since 2010. ESG committee establishes strategic directions and plans for ESG management and carbon reduction and discusses responses to ESG disclosures. Furthermore, starting in 2024, we will enhance our momentum for lower carbon businesses by establishing company-wide business councils under five themes: Biofuel, Recycle, Gas, White Bio, and Lower Carbon.

High ethical standards and social responsibility in the areas of Social(S) and Governance(G), as well as Environment(E), have become essential requirements for corporate management. **GS** Caltex is diligently strengthening and implementing ESG activities in various areas, including safety and health, supply chain, compliance, etc. Prioritizing a safe workplace for the company and our suppliers, we operate all work processes under the Safety, Health, and Environment(SHE) management policy, fostering an advanced safety culture.

GS Caltex will continue to recognize the essence and value of ESG management from a long-term perspective, fulfilling our social responsibilities and striving to meet the expectations of our stakeholders. We are committed to becoming the most respected centennial company in the energy and chemical sectors, leveraging industry-leading competitiveness. We ask for your continued support and advice on **GS** Caltex's journey of challenge and transformation towards this goal.

Company Overview

GS Caltex

GS Caltex, South Korea's first private oil refinery, has diversified and differentiated its business portfolio in refining, lubricants, and petrochemicals through bold investments and technological innovations. We provide distinctive products and services both domestically and internationally. While being reborn as a Lower Carbon Refinery through carbon reduction in existing business areas, we are expanding into lower carbon businesses for energy transition, including hydrogen · CCUS, bio, and recycling. Through our subsidiaries, we are extending our network and sustainable impact, aiming to become a leading comprehensive energy company in the energy and chemical sectors and continue creating sustainable value.

GS Caltex

Company Name	**GS** Caltex Corporation
Date of Establishment	May 19th, 1967
Address of Head Office	**GS** Tower, 508 Nonhyeon-ro, Gangnam-gu, Seoul
Number of Employees	3,242(based on the business report)
Industry	Oil & Gas, Lubricants, Petrochemicals

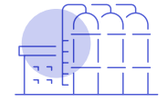
Business Areas

Petroleum



By operating a crude oil refining facility with a capacity of 800,000 barrels per day and a heavy oil upgrading(HOU) facility producing 275,000 barrels per day, we generate high-quality petroleum products such as gasoline and diesel.

Aromatics



Our aromatic production facilities have an annual capacity of 2.8 million tons, producing basic chemicals like benzene, toluene, and xylene, used across automotive, electronics, construction, and apparel industries.

Olefin



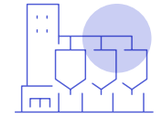
We have an annual production capacity of 850,000 tons of ethylene and 930,000 tons of propylene. With our MFC(Mixed Feed Cracker) newly operating since 2021, we've been converting by-products such as ethane and LPG into more valuable petrochemical products like ethylene.

Polymer



With an annual production capacity of 500,000 tons of polyethylene, 180,000 tons of polypropylene, and 300,000 tons of composite resin, we have built a stable portfolio from raw materials to products, ensuring the supply of high-quality products through recognized technology.

Base Oil



With a production capacity of 27,000 barrels per day, we produce high-quality base oil using advanced hydrocracking technology. We supply automotive and industrial lubricant raw materials both domestically and internationally.

Lubricants



Utilizing our own high-quality base oil and innovative technology, we manufacture over 180 types of Kixx lubricants, exporting globally.

Lower Carbon Businesses



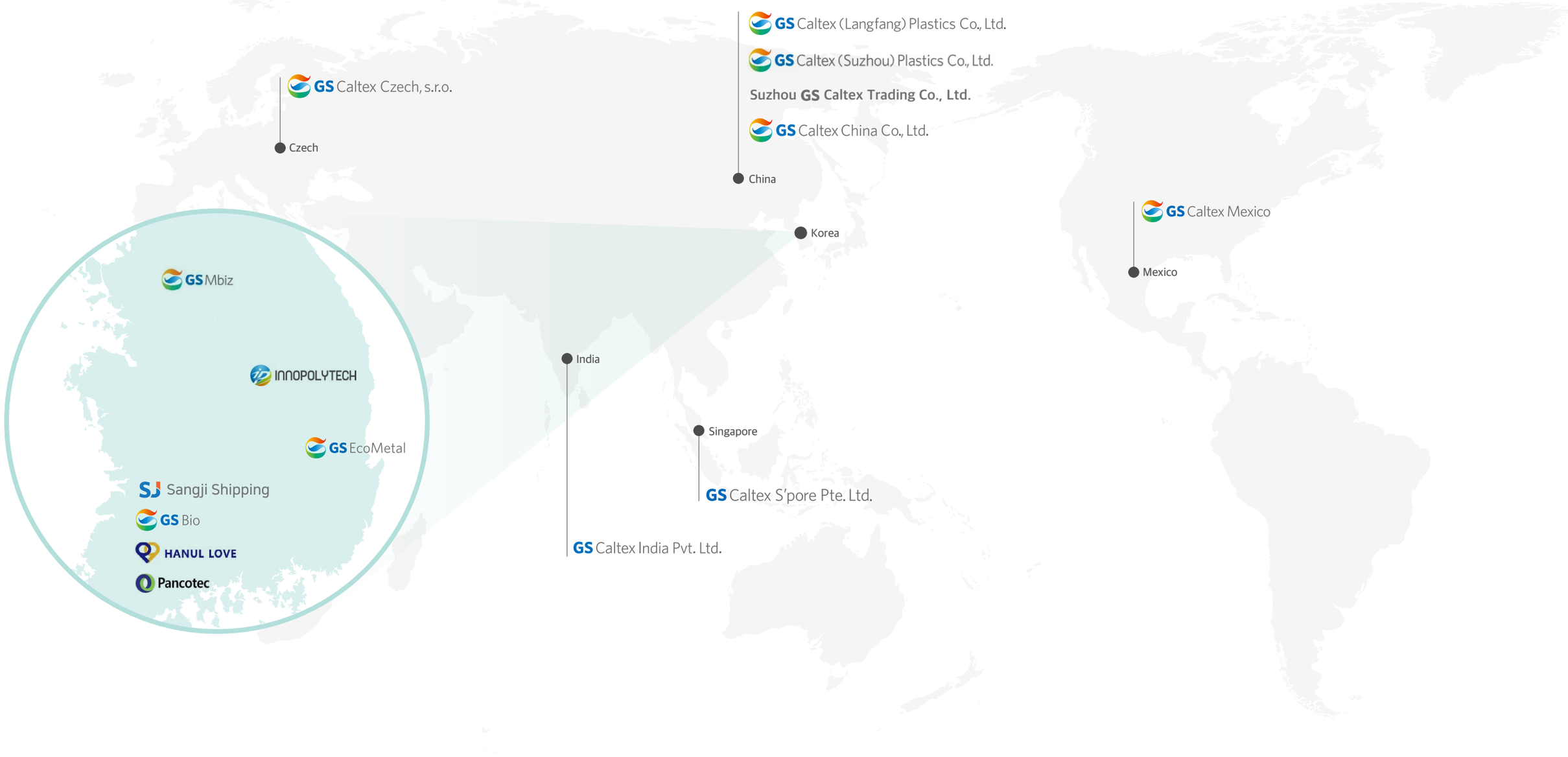
We supply lower carbon energy through our hydrogen and CCUS business and EV charging network. We contribute to a circular economy through mechanical and chemical recycling of waste plastics. Additionally, we produce biofuels such as biodiesel, bio-marine fuel, and sustainable aviation fuel and manufacture bio-chemicals like GreenDiol and 3-HP using white biotechnology.

R&D



Incorporating our existing businesses in refining, petrochemicals, and polymer materials, we are advancing core technologies in various fields through the development of new lower carbon technologies.

Subsidiaries



Subsidiaries

Composite Resins/ Lubricants	InnoPolytech	Manufactures and sells composite resins used in automobiles and home appliances, with high-performance production infrastructure.
	GS Caltex (Langfang) Plastics Co.,Ltd.	Produces composite resins used in automobiles and home appliances, and supplies products to LG Electronics, Samsung Electronics, Hyundai Motor Company, as well as local companies in China and global electric vehicle companies.
	GS Caltex (Suzhou) Plastics Co.,Ltd.	Produces composite resins used in automobiles and home appliances and supplies them all over Asia, including Vietnam, Thailand, and China.
	GS Caltex Czech, s.r.o.	Produces composite resins used in automobiles and home appliances and supplies them all over Europe.
	GS Caltex Mexico S.de R.L.de C.V.	Manufactures composite resins used in automobiles and home appliances and supplies products to Mexico.
	GS Caltex India Private Limited	Produces lubricants, securing a stable sales network in India and developing B2B clientele.
Lower Carbon/ Recycle	**GS** Bio	Specializes in bioenergy, reliably producing biodiesel since 2010 with plans for expansion in response to increased demand.
	GS EcoMetal	Leads in circular economy, recovering rare metals from spent catalysts in refining processes, and main products are molybdenum and vanadium.
Marketing/ Transportation	**GS** Mbiz	Engages in e-commerce and petroleum product sales, and operates Auto Oasis, maintenance servicing franchise, and businesses in petroleum products distribution, marketing, and logistic service.
	Sangji Shipping	Provides maritime transportation services, operates and manages petroleum and petrochemical vessels, and supplies marine fuel oil to ships in major ports in Korea.
Trading/ Commerce	**GS** Caltex Singapore Pte. Ltd.	Specializes in import and export services, purchases crude oil, and exports petroleum and petrochemical products, while also conducting its own business (Standard biz), including MGO Bunkering.
	Suzhou **GS** Caltex Trading Co., Ltd	Trades aromatics, olefins, and polymers produced by **GS** Caltex in China, securing stable sales through effective customer management.
	GS Caltex China Co., Ltd.	Trades lubricants and base oil, marketing these products in the Chinese market.
Other	Pancotec	Offers maintenance and management services for factory facilities, specifically providing services for the production equipment at the Yeosu Complex.
	Hanul Love	Operates as a standard business establishment for people with disabilities, managing in-house welfare facilities at the **GS** Caltex Yeosu Complex.

ACHIEVING SUSTAINABILITY

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ESG Framework

Goals

Sustainable and Profitable Growth

Direction



Environmental

Addressing climate change through lower carbon business and activities



Social

Sustainable growth for people and society



Governance

Sound and responsible corporate governance

Major Activities

Environmental	Social	Governance
Advancing carbon reduction projects/activities	Strengthening safety and health management	Operating ESG committees and sector-specific committees
Expanding lower carbon businesses	Expanding ESG management across the supply chain	Advancing ethical/compliance management
Continuously reducing environmental impact	Protecting human rights	Enhancing digital security

Enabler

Deep Transformation

Fundamental innovation to achieve sustainable performance in a rapidly changing business environment, including climate change and energy transition

Business Transformation
Improve the overall practice and profitability throughout the value chain

Digital Transformation
Implement data-based decision-making and utilize digital tools

Green Transformation
Drive carbon reduction in existing businesses and expand lower carbon businesses

ESG Major Achievements

	Major Activities		2023 Key Achievements
Environmental Addressing climate change through lower carbon business and activities	Advancing carbon reduction projects/activities	Establishes organizational systems and management frameworks for GHG reduction in existing businesses, identifies and implements GHG reduction projects/activities throughout all processes	• Conducted climate-related physical risk analysis • Completed product-specific LCA and Scope 3 emissions calculation • **GS** Caltex reduced GHG emissions by approximately 230,000 tons YOY[1)]
	Expanding lower carbon businesses	Actively pursues lower carbon businesses such as bio, recycling, and gas(H_2, CO_2) in response to the energy transition trend	• Conducted demonstration projects for sustainable aviation fuel/bio-marine fuel • Acquired new global certifications : bio-marine fuel(ISCC EU), bio-asphalt(NEN), CR naphtha(ISCC Plus), CR propylene(ISCC Plus)
	Continuously reducing environmental impact	Continuously manages air, water, waste, hazardous chemicals, and soil to minimize environmental impacts at operational sites	• Achieved a 75% waste recycling rate • Reached an 8% water recycling rate • (**GS** EcoMetal) Completed construction of wastewater reuse facilities, expanded rare metal recovery facilities from spent catalysts
Social Sustainable growth for people and society	Strengthening safety and health management	Enhances safety and health management system and internalizes safety culture to prevent industrial incidents and protect the safety and health of employees and suppliers	• Strengthened safety management systems using digital technology
	Expanding ESG management across the supply chain	Conducts ESG evaluations and consulting focused on key suppliers to manage supply chain risks and enhance ESG levels among collaborators	• Performed ESG assessments on 163 companies, including crude oil suppliers, a first among domestic refineries • Established a supply chain ESG policy
	Protecting human rights	Operates under a human rights respect policy for all stakeholders including employees, subsidiaries, and contractors, managing diversity respect, fair employment and performance evaluations, development, and welfare benefits systems	• Obtained Best Family Friendly Management certification • Implemented 100% employee training and conducted Human Rights Impact Assessments(HRIA)
Governance Sound and responsible corporate governance	Operating ESG committees and sector-specific committees	Operates C-level-centered ESG committees and key management area-specific committees to strengthen ESG management systems and integrated risk management	• Conducted four ESG committee meetings under the CEO • Established area-specific business councils for greenhouse gas reduction and lower carbon business sectors (starting in 2024)
	Advancing ethical/ compliance management	Strengthens corporate ethics and compliance management activities under the corporate code of conduct	• Implemented compliance training for all employees • Revised business regulations related to fair trade and anti-corruption • Recorded zero fair trade issues
	Enhancing digital security	Enhances overall digital security management systems and risk management activities to protect customer and employee personal information	• Completely revised security policies and established detailed security activity regulations • Conducted information security training for all employees • Renewed information security certifications and recorded zero related incidents

1) Due to the result of the objection, 2023 emissions Data changed in August 2024

ESG Management System

Key ESG Committees

GS Caltex operates an ESG committee under the CEO to discuss and make decisions on key ESG-related issues at a company-wide level, meeting 4 times a year. The ESG committee determines the company's ESG management strategies and action tasks for carbon reduction and discusses preparation for mandatory ESG disclosures. Additionally, separate committees for different ESG areas are in place, and five new business councils support decision-making.

ESG Committee	Reviews and decides on company-wide ESG strategy direction and implementation	
• Membership	Executive members	
• Frequency	4 times a year	
• Details about ESG Committee (Schedule and Key Issues)	Mar. 6, 2023	Detailed implementation plan for carbon reduction action tasks
	Jul. 31, 2023	Analysis of ESG disclosure standards and company strategy
	Aug. 28, 2023	Management strategy for GHG emissions trading system
	Nov. 13, 2023	Report on the progress of carbon reduction action tasks
	Apr. 8, 2024	Results of materiality assessment and direction for sustainability reporting

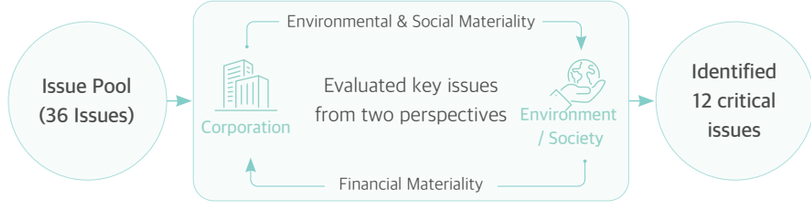
Safety Leadership Committee (SLC)	Discusses and makes decisions on SHE policies, strengthens safety leadership capability, and shares SHE best practices
Safety and Environment Committee	Communicates and makes decisions on SHE-related issues, reviews the implementation of the Serious Accidents Punishment Act, and the status of the safety culture transformation program
Digital Security Committee	Reviews information security policy and management systems and discuss major security issues such as security breach incidents
Human Resources Committee	Discusses and shares HR policies and issues
Corporate Compliance Committee	Shares company-wide compliance status, performance, issues and plans
Operational Safety and Health Committee	Discusses Labor-management deliberations and resolutions on important issues related to the safety and health of workers
Risk Management Committee	Reviews policies and strategies for risk management activities
Strategic Investment Adjustment Committee	Selects and prioritizes optimal investment(proposals) at the company level
Employee Reward & Discipline Committee	Discusses and makes decisions on employee reward and punishment
Business Council	Executes new business initiatives, establishes strategies/roadmaps, shares status updates, and agrees on key matters

1) Five New Business Councils:
Lower Carbon Business Council related to greenhouse gas reduction
Biofuel Business Council for biofuels
Gas Business Council for hydrogen/CO_2 capture
Recycle Business Council for MR/CR plastic recycling
White Bio Business Council related to white bio business

Double Materiality Assessment

Double Materiality Assessment Process

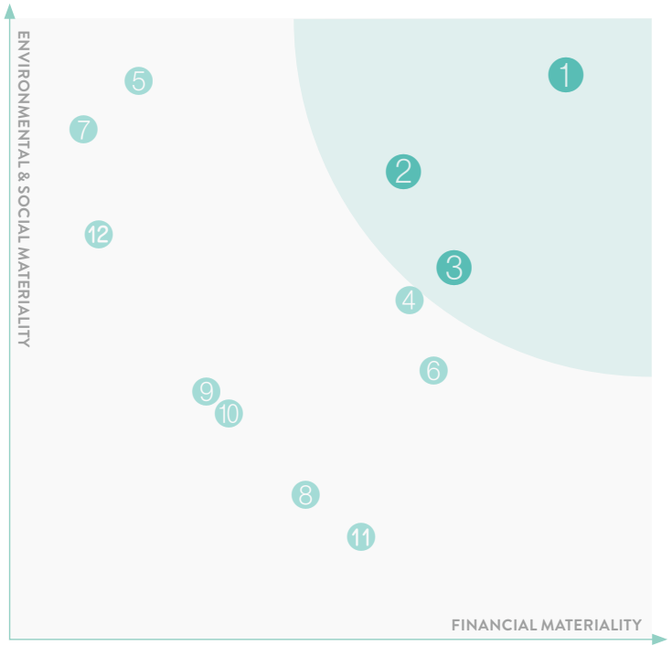
GS Caltex conducts an annual materiality assessment to identify key issues, which are then disclosed in our Sustainability Report. The process and results are verified by an independent third-party to ensure reliability. We select critical issues based on industry characteristics using the GRI sector standards(Oil & Gas) and further identify a total of 36 issues through analysis of major international standards like ISSB, SASB, social issues, and major industry trends. Also, from financial, environmental, and social impact perspectives, we have chosen 12 reporting issues and 3 key issues. The results of the materiality assessment are reported to our top management, and detailed disclosures of our management approaches, activities, and outcomes for these issues are provided in the report.

STEP 1	ESG Issue Pool Development	Media Research	• Analyzed 1,068 relevant articles out of 3,142 exposed in 2023
		Industry Benchmarking	• Analyzed ESG activities and disclosure information of leading companies
		ESG International Standards Analysis	• Analyzed requirements of international ESG standards and identified issues
		Stakeholder Engagement	• Gathered opinions through regular communication channels for each stakeholder group
STEP 2	Identification of Actual and Potential Impacts	Impact Analysis	• Categorized issues that currently and potentially impact • Identified future issues that are uncertain but could have significant impacts
STEP 3	Double Materiality Assessment	Double Materiality Assessment	• Assessed the impact of the environment/society on the company (Financial Materiality) • Assessed the impact of the company on the environment/society (Environmental & Social Materiality).
			
STEP 4	Prioritization and Selection of Reporting Issues	Deduction of Reporting and Key Issues	• Conducted double materiality assessments from the perspectives of Financial Materiality and Environmental & Social Materiality

Financial Materiality	ESG International Standards Analysis	• Integrated requirements of international financial impact standards including ISSB, ESRS, SEC, DJSI, SASB, WEF
	GS Caltex Management Data	• Review domestic and international regulatory and legal issues relevant to **GS** Caltex
	Media Research	• Identified media articles related to ESG from a financial impact perspective • Assessed positive and negative financial impacts from media-exposed articles
	Stakeholder Engagement	• Analyzed key items from investment institutions' requirements • Analyzed surveys from external stakeholders
Environmental & Social Materiality	ESG International Standards Analysis	• Analyzed and incorporated environmental and social perspectives from international standards like GRI Standards, ISO 26000, UNGC, SDGs, IPIECA
	Benchmarking	• Analyzed disclosure information from domestic and international peers and leading companies • Addressed major issues and analyzes from industry ESG initiatives and non-financial issues within the industry
	Media Research	• Identified media articles related to ESG from a non-financial impact perspective • Assessed positive and negative environmental/social impacts from media-exposed articles
	Stakeholder Engagement	• Reflected expectations and concerns of stakeholders regarding the societal impacts of non-financial activities • Analyzed surveys from internal stakeholders

Results of the Double Materiality Assessment

Three key issues have been identified: GHG reduction activities to respond to climate change, expansion of business and investment to facilitate the transition to a lower carbon society, and industrial safety and health management at work sites. From a financial impact perspective, major issues include GHG reduction activities to respond to climate change, industrial safety and health management at work sites, and suppliers' ESG assessment and management. From an environmental and social perspective, priorities have been set for expansion of local community contributions, GHG reduction activities to respond to climate change, and ethical management/fair trade. These key issues are disclosed in detail in this Sustainability Report.



No.	Materiality Issue	Actual(A)/ Potential(P) Impact	Positive(+) /Negative(-) Impact	GRI Sector Standards 11. Oil & Gas	Page	Financial Materiality	Environmental & Social Materiality	YoY Change
1	GHG reduction activities to respond to climate change	Actual(A)	Positive(+)	11.1 GHG Emissions 11.2 Climate adaptation, resilience, and transition 11.3 Air emissions	16-23, 68, 69	1	2	▲ 1
2	Expansion of business and investment to facilitate the transition to a lower carbon society	Actual(A)	Positive(+)		21-29, 36, 67	5	4	▼ 1
3	Industrial safety and health management at work sites	Actual(A)	Negative(-)	11.9 Occupational health and safety	39-43, 75	2	6	▲ 1
4	Business diversification and global competitiveness enhancement	Actual(A)	Positive(+)	11.14 Economic impacts 11.21 Payments to governments	24-29	4	7	▲ 1
5	Expansion of local community contributions	Actual(A)	Positive(+)	11.14 Economic impacts 11.15 Local communities	53-56, 77	15	1	▲ 1
6	Suppliers' ESG assessment and management	Potential(P)	Positive(+)	11.10 Employment practices 11.12 Forced labor and modern slavery	45-47, 76	3	10	▲ 5
7	Ethical management / fair trade	Potential(P)	Negative(-)	11.19 Anti-competitive behavior 11.20 Anti-corruption	58-60, 77	25	3	-
8	Advancing integrated risk management systems*	Potential(P)	Positive(+)	Not included GRI 11	65	7	14	▲ 11
9	Ensuring financial soundness*	Potential(P)	Positive(+)	11.14 Economic impacts 11.21 Payments to governments	67	10	8	▲ 9
10	Reducing waste and establishing a resource recycling structure	Actual(A)	Positive(+)	11.5 Waste 11.8 Asset integrity and critical incident management	28, 33, 70-71	9	9	▼ 2
11	Managing industrial safety and health of suppliers*	Actual(A)	Negative(-)	11.9 Occupational health and safety	42-43, 75	6	21	▲ 5
12	Respecting employee rights*	Potential(P)	Positive(+)	11.10 Employment practices 11.11 Non-discrimination and equal opportunity	48-52, 72	22	5	▲ 5

* The results from the 2023 sustainability report's materiality assessment show that compared to the previous year, issues such as "Advancing integrated risk management systems," "Ensuring financial soundness," "Managing industrial safety and health of suppliers," and "Respecting employee rights" have been newly added as reporting issues

** Additionally, issues such as "R&D and technology innovation," "Fair performance evaluation and compensation," "Sound organizational culture," and "Improved accessibility of products and services" have been removed from the report

ENVIRONMENTAL

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Climate Change Response

Continued greenhouse gas emissions are causing global warming effects such as heatwaves, wildfires, sea-level rise, and cold spells. According to the State of the Global Climate 2023 of WMO[1)], 2022 saw concentrations of major greenhouse gases at their highest levels, with the global average surface temperature 1.45℃(±0.12) above pre-industrial levels. The report also highlighted climate refugees, economic losses due to abnormal weather, and populations facing severe food insecurity, which have more than doubled since before the pandemic. Thus, transitioning to renewable energy for decarbonization is critical, necessitating sustainable practices through international cooperation.

Energy and chemical companies, significant contributors to carbon emissions due to fossil fuel consumption, face growing demands for carbon reduction. In response, **GS** Caltex has proactively enhanced its climate change response framework and undertaken risk analysis and strategic planning as a global energy company. **GS** Caltex aims to create a sustainable future by reducing carbon emissions and expanding lower-carbon businesses, including hydrogen, bio, and waste plastic recycling.

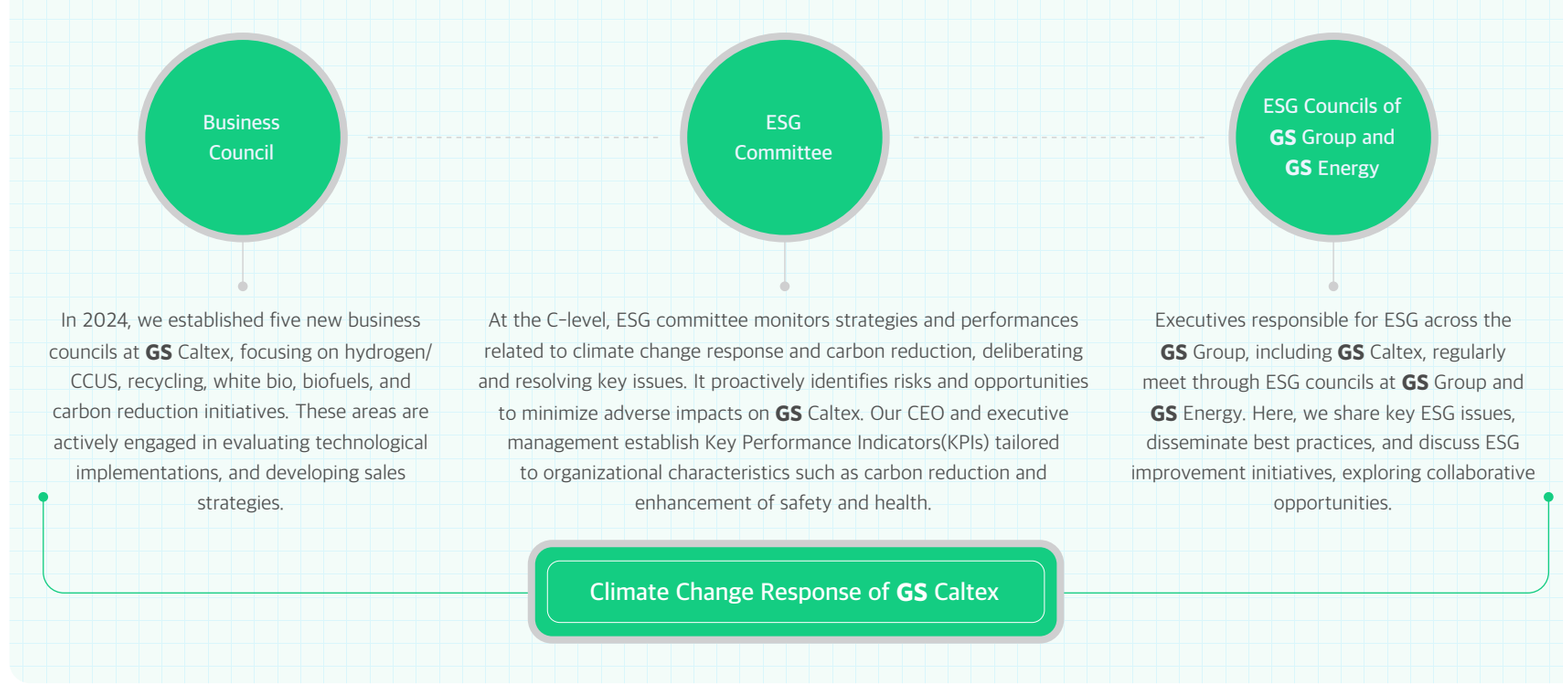
Governance

Strengthening Climate Change Response Framework

GS Caltex is actively engaged in reducing greenhouse gas emissions across its business value chain to align with global carbon reduction agendas and contribute to South Korea's 2050 carbon neutrality goal. Our ESG committee, a C-level decision-making body, reports and directs related agendas such as our carbon reduction strategies and climate-related disclosure. In 2024, we established five Business Councils to enhance collaboration and drive efficient execution across carbon reduction projects and lower carbon business areas. Notably, the Lower Carbon Business Council, involving heads of production, planning, technology research, and policy departments, meets monthly to discuss carbon reduction activities and new technologies, with key decisions escalated to the ESG committee. **GS** Caltex also regularly participates in discussions within the ESG Councils at power & energy companies of **GS** Group and **GS** Energy to elevate our group-wide ESG standards. Training sessions that enhance ESG competencies are conducted to aid management in effective decision-making on issues like Scope 3, mandatory ESG disclosure trend, and integrated ESG management system.

1) WMO : World Meteorological Organization

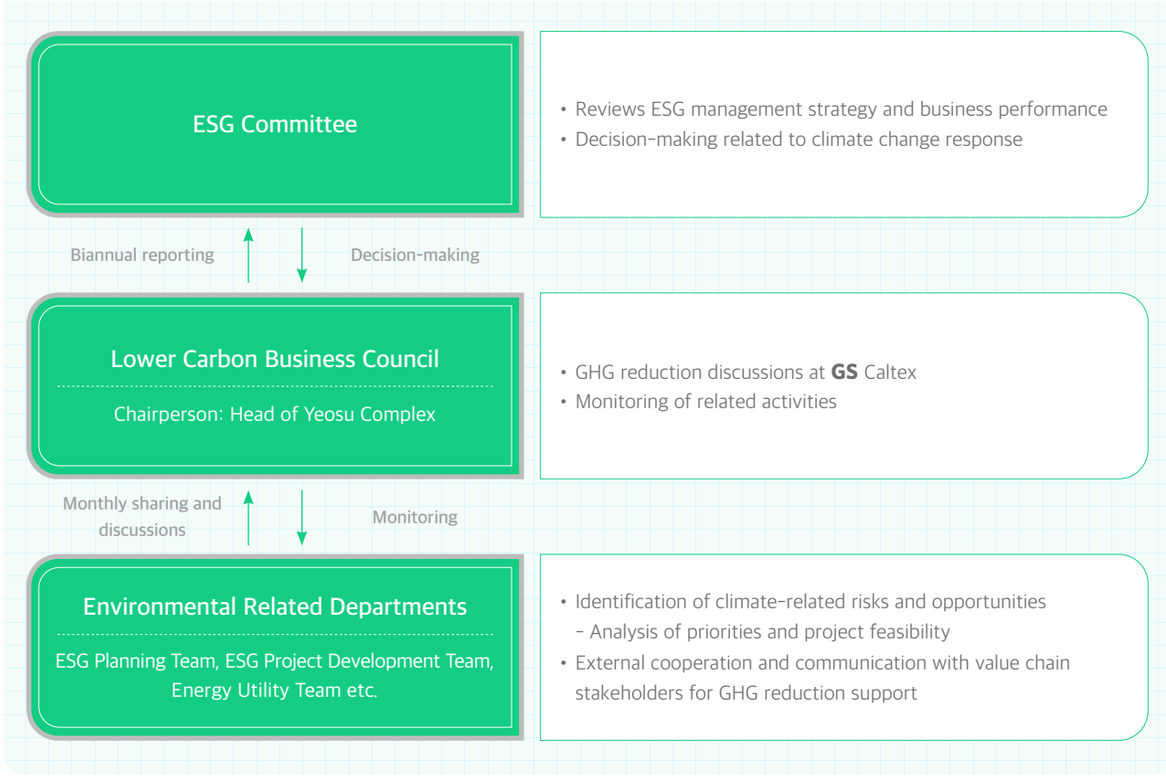
Organizations and Activities for Climate Change Response



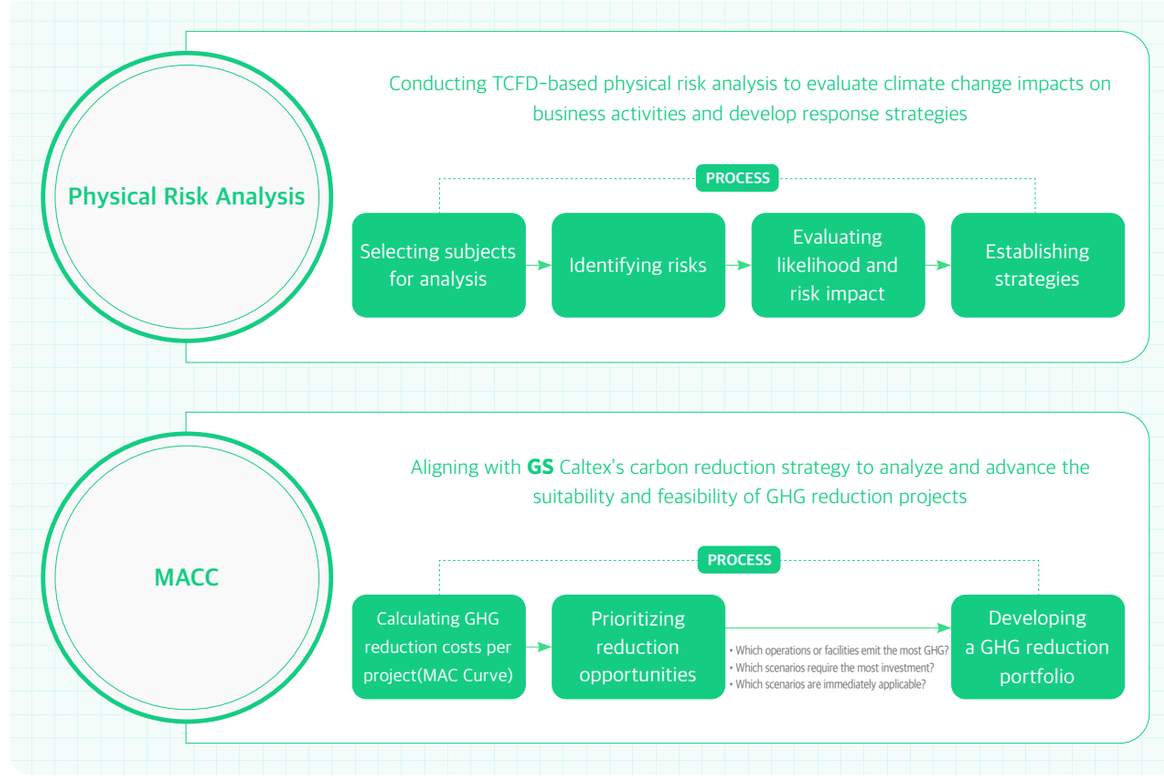
Risk Management

GS Caltex regularly identify climate-related risks and opportunities, such as expanding opportunities for greenhouse gas reduction, to minimize the negative impacts of climate change. We analyze risks by keeping abreast of domestic and international climate regulations and policy trends, sharing findings periodically with relevant organizations to discuss response strategies and inform executive decision-making. In 2023, we conducted a physical risk analysis based on TCFD guidelines and used the Marginal Abatement Cost Curve[1](MACC) to analyze risks. This analysis helped prioritize our initiatives based on climate impact, business alignment, and feasibility. **GS** Caltex then established response strategies for each risk, implemented related activities, and continuously monitors to manage outcomes.

Climate Change Risk Management Process



Sector-specific Risk Management



1) Marginal Abatement Cost Curve(MACC) : Visualizes the marginal abatement cost, which is the cost incurred to reduce one ton of greenhouse gas, by compiling it across various projects into a graph. This enables prioritization of the most effective reduction projects within limited resources

Identification and Assessment of Physical Risks

Risk Identification and Analysis

1 Identification of Physical Risk Factors

GS Caltex has adopted a phased approach to understanding the impacts of climate change on business operations. In 2023, we analyzed the physical risks required by the TCFD guidelines. Among the 12 major risks that could occur at our facilities, we focused on 8 measurable disasters[1] to assess their financial impact.

No.	Classification	Expected risk factors
1	Acute	Increased frequency and severity of extreme weather events such as typhoons and storms
2	Acute	Floods(riverine, urban, and coastal flooding)
3	Chronic	Rising mean temperatures(abnormal temperature increases)
4	Chronic	Rising sea levels
5	Chronic	Changes in precipitation patterns(increased rainfall, hail, snow/ice)
6	Chronic	Water resource and water quality risks
7	Acute	Heavy precipitation(rain, hail, snow/ice)
8	Chronic	Increased frequency and severity of droughts
9	Acute	Occurrence of wildfires
10	Acute	Extreme variability in temperature(atmospheric, freshwater, marine)
11	Acute	Increased frequency and severity of heatwaves
12	Acute	Increased frequency and severity of cold spells and frosts

※ Others: Increased frequency and severity of earthquakes, increased soil erosion and contamination, increased variability in wind patterns, etc.

1) Disasters : Floods(coastal, riverine, urban), abnormal temperatures, droughts, wildfires, typhoons, and water stress
2) CMIP6 : Coupled Model Intercomparison Project Phase 6, a global climate change prediction project
NASHM : North Atlantic Stochastic Hurricane Model
PaSHM : Pacific Stochastic Hurricane Model
IBTrACS : International Best Track Archive for Climate Stewardship
STORM : Synthetic Tropical typhoon generation Model algorithm

2 Risk Analysis Subject Selection

Physical risk scenario analysis was done across 23 domestic and overseas facilities of **GS** Caltex and its subsidiaries. Production facilities were the primary focus, with the **GS** Caltex Yeosu Complex, spanning 6 million square meters and affected by sea level differences, analyzed separately as Complex 1 and Complex 2. The **GS** Caltex Headquarter, Daejeon R&D Center, **GS** Caltex Singapore Pte. Ltd., and **GS** Mbiz Headquarters were included due to their importance, despite being office/research facilities.

Domestic (GSC)	Headquarter, Yeosu Complex 1 & 2, Lubricant Plant, R&D Center, Gunsan Demonstration Center, eight Distribution Centers	Domestic (Subsidiaries)	**GS** Mbiz, **GS** Bio, **GS** EcoMetal, InnoPolytech
Overseas (Subsidiaries)	**GS** Caltex Singapore Pte. Ltd., **GS** Caltex (SUZHOU) PLASTICS Co.,Ltd., **GS** Caltex (LANGFANG) PLASTICS Co.,Ltd., **GS** Caltex Mexico S.de R.L.de C.V., **GS** Caltex Czech, s.r.o.		

3 Physical Risk Scenario Analysis

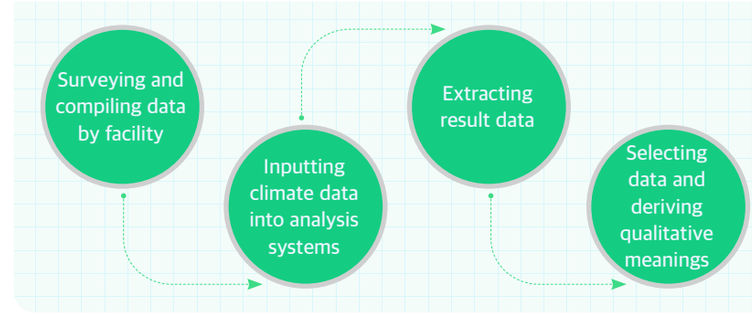
The analysis projected loss magnitudes up to the year 2100 in ten-year increments, adopting four IPCC scenarios based on degrees of global temperature increase : 'Low(SSP 1-2.6), Medium(SSP 2-4.5), High(SSP 3-7.0), and Very High(SSP 5-8.5).'

Scenario	Meaning
SSP 1-2.6	• End of 21st century global average temperature rise of 1.9℃ • A scenario where climate change is mitigated through the development of technologies achieving Paris Agreement goals
SSP 2-4.5	• End of 21st century global average temperature rise of 3.0℃ • A moderate scenario
SSP 3-7.0	• End of 21st century global average temperature rise of 4.3℃ • A high-carbon scenario due to weak climate change responses
SSP 5-8.5	• End of 21st century global average temperature rise of 5.2℃ • A very high-carbon scenario caused by lack of climate change policies and indiscriminate use of fossil fuels

Source : www.weather.go.kr

4 Analysis Process

To improve analysis accuracy, data from 23 **GS** Caltex sites were compiled and utilized. This data was analyzed using systems provided by S&P and PwC, which leverage various databases[2] such as CMIP6, etc. Based on this data, **GS** Caltex estimated potential asset value loss rates.



5 Analysis Results and Response Strategies

For **GS** Caltex, even under the 'Very High(SSP5-8.5)' global temperature rise scenario, the financial impact due to disasters was found to be low, with asset-related losses ranging from 0% to 6%(within a low-risk threshold of 0% to 10%). The types of disasters expected to impact **GS** Caltex facilities, in order of likelihood and impact, are floods, abnormal temperatures, wildfires, typhoons, and water stress. The Yeosu Complex is predicted to be the most affected location, though its financial impact is expected to be less than 10%.

GS Caltex plan to minimize financial risks due to climate change by integrating physical risk types and levels into our short-term(up to 2025), medium-term(up to 2030), and long-term(up to 2050) management plans, reflecting a comprehensive approach to risk management.

Financial Impact and Response Strategies by Scenario

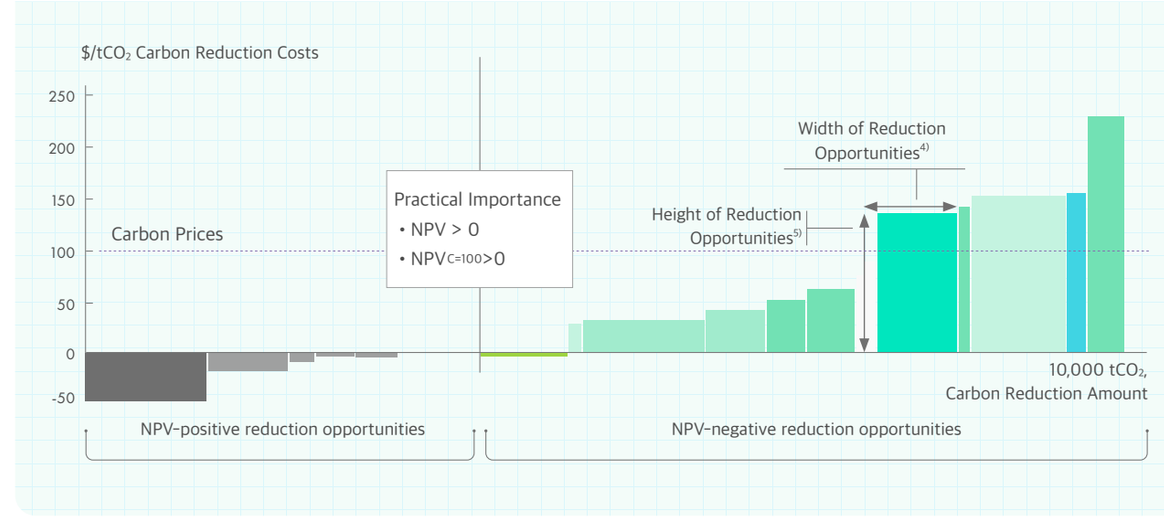
Types of Disasters Due to Climate Change	Acute Disasters : Floods, Wildfires, Typhoons	Chronic Disasters : Abnormal Temperatures, Droughts, Water Stress
Impact on Business Operations(Short-term/ Mid-term/Long-term)	• Acute disasters expected to cause loss of production facilities, disruptions in energy supply, and delays in import/export shipping • Increased insurance premiums and financial losses due to damage to coastal and riverine infrastructure • Increased safety and health risks for employees, with anticipated declines in productivity	• In cases of severe water stress, potential production disruptions due to insufficient water resources for processes • Increased operational costs from higher heating, cooling, and energy consumption, along with increased health and safety risks due to rising rates of employee illnesses
Projected Financial Impact *SSP 5-8.5 Scenario*	Acute disaster loss rate(%) Floods* Wildfires Cyclones '20 '30 '40 '50 '60 '70 '80 '90 * Includes riverine, urban, and coastal flooding	Chronic disaster loss rate(%) Abnormal Temperatures Droughts Water Stress '20 '30 '40 '50 '60 '70 '80 '90 < 0 0~1 1~3 3~6
Financial Impact by Scenario	8.00% 4.00% 0.00% SSP5-8.5 SSP3-7.0 SSP2-4.5 SSP1-2.6 1.10% 2.40% 5.91% '20 '30 '40 '50 '60 '70 '80 '90 ※ Risk levels based on S&P criteria : Annual average asset loss rate of 0-10%(low), 11-15%(medium), 16-100%(high)	
Response Strategies	• For typhoons and floods, reinforce facilities and securely fasten[1] dock equipment to prevent waves overtopping[2] • Some **GS** Caltex business sites, located in reclaimed areas, plan ground reinforcement to prevent erosion • Maintain emergency response teams and personnel at each operation site, undergoing regular training tailored to scenarios • Joint fire and disaster response drills with local fire agencies for rapid response to disasters	• Adjust breaks and work hours for outdoor work during increased heatwaves • Explore options for diversifying water supply routes and strategies for water reuse

Establishing Carbon Reduction Strategy and Direction Based on MACC (Marginal Abatement Cost Curve)[3]

GS Caltex utilize the MACC to align its corporate-wide GHG reduction strategy with the suitability and feasibility of each GHG reduction project. The MACC graphically represents all potential GHG reduction opportunities for a company, allowing analysis of financial impacts, and the relationship between raw materials, energy, and carbon pricing.

Our MACC includes approximately 130 different reduction projects ranging from economically viable energy efficiency projects at current carbon prices to securing renewable energy and CCUS. These projects are prioritized based on the scale of GHG reduction, future carbon prices, and technological maturity. Energy efficiency initiatives and carbon-neutral steam conversion are being pursued sequentially. Regarding CCUS and blue hydrogen, we are developing technologies in collaboration with the government to build carbon reduction infrastructure, preparing them for immediate implementation as soon as technological maturity is achieved.

MACC(Marginal Abatement Cost Curve)



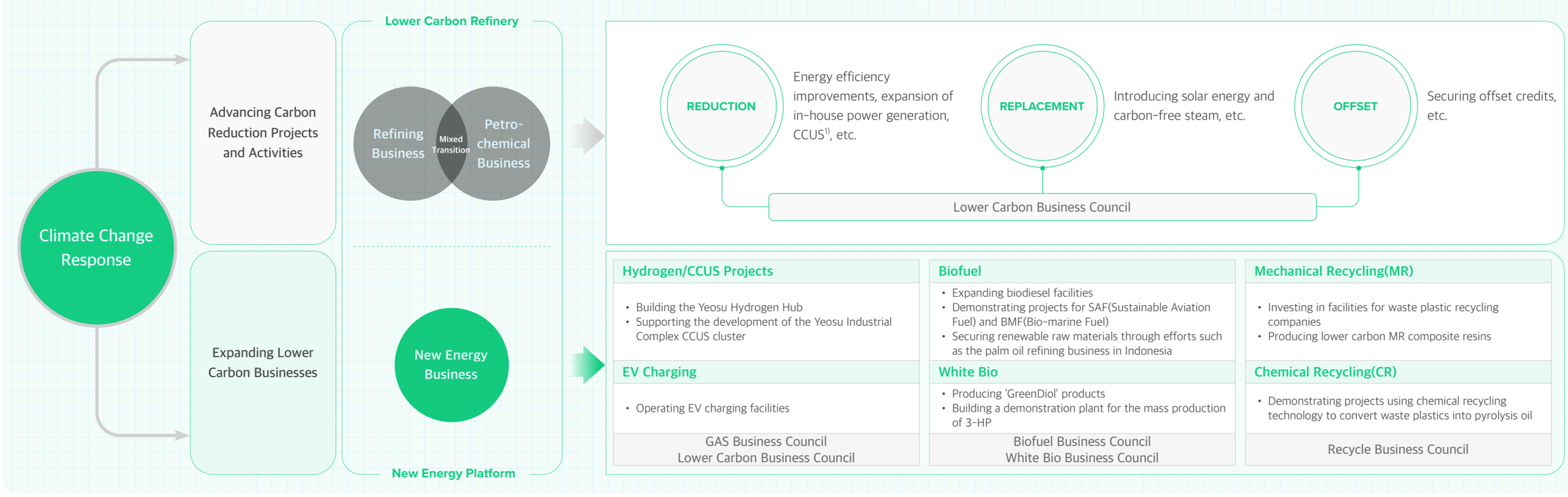
1) Securing ships or cargo in place 2) Phenomenon of waves or water spilling over embankments
3) MACC(Marginal Abatement Cost Curve) : Visualizes the marginal cost of reducing one ton of GHG, collected across various projects into a single graph, enabling prioritization of the most effective reduction projects within limited resources
4) Width : Emission reduction by the lever 5) Height : Abatement cost to reduce 1 tCO_2 by the lever

Strategy

Climate Change Response Strategies

GS Caltex is committed to realizing a Lower Carbon Refinery by enhancing the operational efficiency of its existing oil refining business and transitioning to lower carbon fuels for global energy transition and South Korea's goal of achieving carbon neutrality by 2050. Moreover, we are expanding our portfolio of lower carbon businesses including bio, hydrogen/CCUS, and waste plastic recycling by establishing strategic directions and investment principles.

Energy Transition Roadmap



1) CCUS(Carbon Capture, Utilization and Storage) : Technology to capture carbon dioxide at its source, preventing its release into the atmosphere, and using or storing it underground to reduce carbon emissions

Advancing Carbon Reduction Projects and Activities

Greenhouse Gas Reduction Activities in Production Process

Energy Efficiency

Since 2021, **GS** Caltex has systematically engaged in energy-saving and greenhouse gas reduction activities through its Scorpions program, a performance improvement program. In 2023, we executed around 109 energy-saving projects, such as improving process thermal efficiency and recovering waste heat, achieving annual energy cost savings of KRW 20.9 billion, and reducing 79,000 tCO_2eq of greenhouse gas emissions. We also sought new energy-saving and greenhouse gas reduction projects through internal ideas and comprehensive energy audits across all processes. Projects are prioritized and implemented based on MACC. In 2023, our continuous carbon emission reduction efforts were recognized by a specialist oil refinery evaluation agency Solomon, who ranked us in the global 1st Quartile for the Carbon Emission Intensity Index(CEI™), positioning us as a world leader in oil refining sector. Moving forward, **GS** Caltex will continue to discover and execute energy efficiency improvements while effectively managing ongoing projects via our energy monitoring system.

Reduction Activities (2023)	Energy Savings (TJ/year)	GHG Reduction ($ktCO_2eq$/year)	Cost Savings (100 million KRW/year)
Fuel Savings • Fuel savings through heat exchanger replacements, etc.	275	18	49
Steam Savings • Power reduction in turbines through optimization of rotating machinery operations, etc.	871	60.5	159
Electricity Savings • Power reduction in motors through optimization of rotating machinery operations, etc.	4	0.5	1

*Calculation Basis : Reduction amounts calculated using emission factors for each energy source before and after energy efficiency improvements

Expansion of In-house Power Generation and Introduction of Carbon-free Steam

Electricity and steam, which are essential energy sources for our operations, are currently being introduced from outside **GS** Caltex. These are classified as Scope 2 GHG emissions and, therefore, need to be reduced. Beyond improving energy efficiency, we are exploring opportunities for medium- and long-term carbon reductions by expanding in-house power generation and introducing carbon-free steam.

To reduce carbon emissions from electricity usage, **GS** Caltex operates cogeneration facilities that use fuels with relatively low emissions compared to Korea Electric Power Corporation electricity. We are also evaluating the introduction of lower carbon steam to secure additional reductions, such as considering expanding our in-house generation facilities and opportunities to utilize waste heat-generated steam from within the Yeosu Industrial Complex.

Securing Renewable Energy

Replacing industrial power based on fossil fuels with renewable energy is a direct and effective carbon reduction method. **GS** Caltex is advancing a contract to directly procure renewable energy generated from a 110MW large-scale solar power plant located in Chungcheongnam-do and plans to continue directly procuring renewable energy in the future. Additionally, we are installing solar panels using idle spaces such as roofs and parking lots at our business sites including Yeosu Complex, to generate our own power and reduce carbon emissions while preparing for long-term power price increases.

Securing Offset Credits

Offset credits represent emission reductions achieved through projects outside of the emitting entity's operations, which are crucial given the current limited scope for reduction and replacement due to technological and market conditions. **GS** Caltex aims to secure the necessary offset scale by 2030 through external reduction projects. Since 2018, we have been promoting a cookstove distribution project and are identifying new greenhouse gas reduction opportunities that align with changing policy and market conditions. Furthermore, **GS** Caltex is pursuing methodologies to recognize the carbon reduction impacts of our lower carbon businesses, including electric vehicle charging, recycling raw materials including waste plastics, and bio-based materials and fuels.

Establishment of GHG(Greenhouse Gas) Management and Evaluation System

GS Caltex is monitoring greenhouse gas emissions daily through our system, which allows real-time verification of emissions per unit and per process of production. We incorporate the collected data into the Key Performance Indexes(KPIs) of each production sub-organization, reflecting both greenhouse gas reduction amounts and carbon intensity.

As part of the digital transformation, **GS** Caltex is advancing the Lower Carbon Energy Management System(LCEMS) project, which will enable integrated management of energy and greenhouse gases. This system will use AI and machine learning to provide real-time guidance on energy usage, contributing to energy and carbon reductions.

Compliance with GHG Emissions Trading Scheme

GS Caltex, subject to the greenhouse gas emissions trading system, is committed to various internal reduction activities during the third planning period(2021-2025) of the Nationally Determined Contribution(NDC) to meet our 2030 national greenhouse gas reduction targets. We are continually exploring strategies to secure additional emission allowances in anticipation of the expected decrease in free allocations and increase in emission credit price.

Integrated Management of GHG Emissions from Subsidiaries

In 2023, **GS** Caltex calculated and verified GHG emissions of not only its own entity but also of its 15 subsidiaries according to the GHG Protocol. We have conducted multiple workshops and training sessions to enhance the ESG capabilities of subsidiaries calculating their greenhouse gas emissions for the first time. We have also developed and provided a greenhouse gas calculation tool to standardize measurements. Two subsidiaries, Sangji Shipping, and **GS** EcoMetal, which fall under the mandatory greenhouse gas target management system, are diligently verifying their emissions through third parties and reporting to the government annually.

Scope 3 GHG Emissions Calculation

GS Caltex not only measured direct and indirect greenhouse gas emissions(Scope 1 and Scope 2) but also widened the scope to other indirect emissions across our value chain(Scope 3). We developed and refined methodologies for calculating Scope 3 emissions by category and confirmed data reliability through third-party verification.

Detailed category analysis showed that over 99% of our greenhouse gas emissions stemmed from five key categories : Use of sold products(C11), Purchased goods and services(C1), End-of-life treatment of sold products(C12), and Upstream/Downstream transportation and distribution(C4, C9). **GS** Caltex is actively managing our Scope 3 emissions and exploring carbon reduction opportunities by increasing the use of lower carbon raw materials, enhancing recycling of plastics, and diversifying our product portfolio.

Scope 3 Greenhouse Gas Emissions



Category	Emission Activities	2023 Emissions(tCO_2eq)
C11	Use of sold products	88,999,378
C1	Purchased goods and services	9,571,100
C12	End-of-life treatment of sold products	5,430,144
C4	Upstream transportation and distribution	4,103,869
C9	Downstream transportation and distribution	1,044,071
C3	Fuel- and energy-related activities	303,916
C2	Capital goods	269,350
C15	Investments	94,714
C5	Waste generated in operations	22,892
C7	Employee commuting	3,298
C6	Business travel	505
Total		109,843,236

Life Cycle Assessment(LCA)

GS Caltex has adopted Life Cycle Assessment(LCA) on greenhouse gas, which quantifies and objectively evaluates the greenhouse gas emissions from raw material extraction to production(Cradle-to-Gate) throughout the product lifecycle.

In 2023, **GS** Caltex implemented its own methodology, which has been established in collaboration with external experts and is based on international standards ISO 14040, 14044, and 14067 to assess the climate impact of our petroleum and petrochemical products, as well as recycled plastic products. This assessment also extended to subsidiary products, including **GS** Bio's biodiesel, InnoPolytech's composite resins, and **GS** EcoMetal's molybdenum and vanadium.

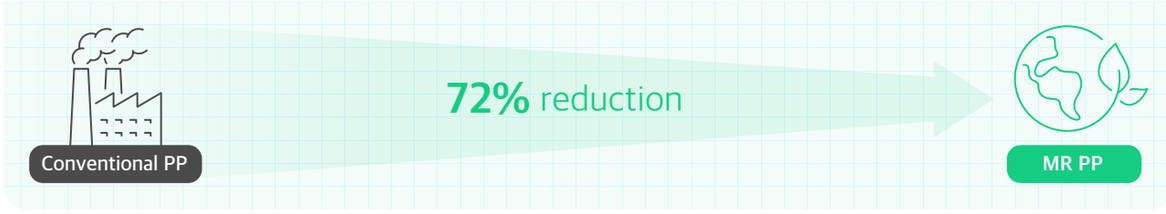
Products Assessed with LCA

Petroleum Products	Petrochemical Products	Recycled Products	Others
LPG, Naphtha, Gasoline, Kerosene, Jet Fuel, Diesel, B-C, Asphalt, Sulfur, etc.	Benzene, Xylene, Ethylene, Propylene, PP, PE, Lubricants, etc.	MR PP, Plastic Pyrolysis Oil, etc.	Biodiesel, Composite Resins, Molybdenum, Vanadium, etc.

Mechanically Recycled Polypropylene(MR PP), produced by our investment company ECO G&R, has been quantitatively confirmed to reduce greenhouse gas emissions by approximately 72% compared to conventional PP. These LCA results have been third-party verified by a global verification agency, ensuring objectivity and reliability. Based on the LCA results obtained for our key products, **GS** Caltex plans to continue exploring and expanding opportunities for greenhouse gas reduction.

Greenhouse Gas Reduction Impact of MR PP

(Unit : kg CO_2eq/kg)



Expansion of LCA-Based Research

GS Caltex is extending Life Cycle Assessment(LCA) to products in the research, development, and demonstration stages. Notably, LCA for white bio products quantitatively assessed the carbon reduction effect of each type of biomass compared to traditional fossil fuels. As part of our Carbon Capture and Utilization(CCU) initiatives, we have gone through LCA on CO_2-based polymers and olefin products to derive the environmental impact of each manufacturing step. These assessments help us preemptively identify elements for carbon reduction, such as process improvements and raw material sourcing strategies. These research findings are crucial indicators used in the development of new products.



Expanding Lower Carbon Businesses

Hydrogen and CCUS Business

GS Caltex is committed to building a hydrogen business value chain for a sustainable future that includes the direct supply of lower carbon hydrogen, which involves reduced CO_2 emissions during production. We plan to continuously drive our hydrogen projects leveraging our extensive experience and capabilities in large-scale hydrogen production facility operations and sales networks, providing reliable hydrogen energy to consumers and realistic carbon reduction solutions to businesses. Additionally, as a substantial measure for greenhouse gas reduction, **GS** Caltex has initiated a Carbon Capture, Utilization, and Storage(CCUS) project in collaboration with the government and domestic and international companies.



Signing ceremony for the lower carbon blue hydrogen production and utilization MOU

Yeosu Hydrogen Hub

In March 2023, **GS** Caltex signed a Memorandum of Understanding(MOU) with Korea South-East Power Co., Ltd. to establish a lower carbon hydrogen value chain in the Yeosu Industrial Complex. **GS** Caltex focuses on lower carbon hydrogen production and CCUS, while South-East Power manages hydrogen and ammonia power generation, establishing a cooperative system for the lower carbon hydrogen value chain. This MOU is expected to contribute to reducing carbon emissions in the Yeosu area and ensuring stable power supply through the planned Yeosu Hydrogen Hub.

Hydrogen Fueling Stations

In 2020, **GS** Caltex launched the 'Convergence Station' capable of hydrogen refueling, in partnership with Hyundai Motor Company, marking the beginning of our hydrogen fueling station infrastructure development. Through investment in the hydrogen fueling station-specialized company, KOHYGEN, we are expanding our network. In January 2023, in collaboration with KOHYGEN, we opened a commercial vehicle hydrogen fueling station in Yeosu and signed a contract to construct a hydrogen fueling station in Pyeongtaek, contributing to the hydrogen mobility ecosystem.

CO_2 Capture, Utilization and Commercialization

At Yeosu Complex, **GS** Caltex is actively exploring options to capture and directly utilize or convert carbon dioxide to reduce carbon dioxide emissions generated during the hydrogen production process. Direct uses include dry ice and industrial, beverage-grade liquefied carbon dioxide. In addition, converting CO_2 through chemical conversion into chemical products and mineralization into construction materials offers potential market value. We are also developing CCU technology to convert CO_2 emitted from refining processes into chemicals and polymers as part of our broader strategy to reduce carbon emissions.

Jeonnam Hydrogen Industry Development Council

GS Caltex participates in the Jeonnam Hydrogen Industry Development Council launched in September 2023, which includes 22 local hydrogen-related companies, public institutions, and educational/research institutions, to discuss regional hydrogen business development strategies. In March 2024, we were elected as the first chairman company of the council and plan to continue our active involvement and support, aiming to help Jeollanam-do become a hub for the lower carbon hydrogen industry.

Launch of Yeosu Carbon-Neutral Industry Policy Forum

In March 2023, **GS** Caltex, along with Yeosu City, the Korea Conformity Laboratories, Yeosu Chamber of Commerce and Industry, Chonnam National University, Jeollanam-do Technopark, and the Korea Research Institute of Chemical Technology, launched the Yeosu Carbon-Neutral Industry Policy Forum. The forum leverages collective intelligence for sharing knowledge on hydrogen and conducting in-depth research on the hydrogen economy to prepare for the 'Era of Carbon Neutrality.' We are actively participating in initiatives like building the Yeosu Industrial Complex CCUS cluster and proposing government policies like the Utility Highway[1] in the Yeosu area.

Korea H2 Business Summit

Since September 2021, **GS** Group has been a member of the Korea H2 Business Summit, the Korean version of the Hydrogen Council. At the second general meeting in June 2023, attended by 17 member companies, **GS** Group and **GS** Caltex emphasized the need to establish a lower carbon hydrogen value chain and the necessity of CCS projects to realize this.

1) The Yeocheon Line's rail space used to transport hydrogen, CO_2, and other substances through a shared pipeline network

EV Charging Business

GS Caltex operates 333 EV(Electric Vehicle) charging stations at 159 locations nationwide, centered around gas and LPG stations, as of the end of 2023. We have predominantly installed ultra-fast chargers above 200kWh to expand our rapid charging hub role.

Since 2023, **GS** Caltex has developed and operated a comprehensive management system, including EV monitoring, to provide stable services. We have expanded charger installations in accessible locations such as taxi depots and large rotaries. Moreover, to enhance customer convenience, we continually partner with automotive manufacturers and financial institutions, diversifying payment options including mobile charging.

Electric Vehicle Battery Diagnostic Business

GS Mbiz

In 2022, **GS** Mbiz launched an electric vehicle battery performance diagnostic service called B±RIDGE[1]. In 2023, the service was provided to both private and corporate electric vehicle drivers, collaborating with public institutions and academic organizations. B±RIDGE allows real-time monitoring of the vehicle's condition, driving habits, and battery performance trends, enabling early risk detection to prevent incidents and protect the future asset value of the battery. Furthermore, it provides benchmarks that can estimate the timing for battery recycling, thus contributing to the efficient reuse of EV batteries in energy storage systems(ESS) and other applications.

EV O&M(Operating & Management) Business

GS Mbiz

To minimize damages due to delayed repairs of EV chargers, **GS** Mbiz provides a nationwide maintenance workforce and system structure to Charging Point Operators (CPOs). As of May 2024, more than 75,000 units are under maintenance across the country, including 60,000 **GS** CHARGEV units and 15,000 HiEV Charger units. Moving forward, **GS** Mbiz aims to quantitatively expand the management of integrated service chargers, planning business diversification that includes non-public charger sales, operations, installation, and construction.

1) B±RIDGE : an electric vehicle battery performance diagnostic service
2) US DOE : United States Department of Energy

White Bio Business

GS Caltex is developing diols and organic acids, which are used in cosmetics, agriculture, and chemical products, utilizing white biotechnology. This technology produces chemicals, materials, and products from biomass, serving as alternatives to fossil fuels like oil and natural gas, thereby contributing to carbon emission reduction and decreasing dependency on fossil fuels.

Diol Products

GS Caltex has developed microorganisms and bioprocessing technologies capable of mass-producing 2,3-Butanediol(2,3-BDO), and we are the world's first to produce it at a demonstration plant. In March 2020, we launched our proprietary cosmetics ingredient brand 'GreenDiol,' supplying ingredients to renowned cosmetics brands. Additionally, we have secured our own production technology for 1,3-Propanediol, used in cosmetics and polymer ingredients, and have started its production and sales in 2023.

3-Hydroxypropionic Acid

After signing a joint development agreement(JDA) with LG Chem in 2021 to develop mass production technology for 3-Hydroxypropionic acid(3-HP), **GS** Caltex completed the construction and trial operation of a 3-HP pilot plant in 2023. 3-HP is a material produced through microorganism fermentation process of plant-derived raw materials and is a next-generation platform chemical that can be converted into major products such as acrylic acid, acrylonitrile, and poly lactate hydrate(PLH), a biodegradable plastic, through chemical reaction. Furthermore, through synergy between LG Chem's fermentation source technology and **GS** Caltex's separation and refining process technology, the development of mass production technology will be completed and prepared for commercialization by 2024.

Major Certifications and Awards for 2,3-Butanediol

COSMOS Certification

An organic cosmetic certification scheme recognized by five institutions across four European countries(France, Germany, Italy, and the UK).
Certification No. : 1670931

Vegan Certification

An official certification by the Korea Agency of Vegan Certification and Services awarded to products that do not use animal-derived materials nor conduct animal testing.
Certification No. : MM001-001 / MM001-002

USDA Certified Biobased Product

Certification by the United States Department of Agriculture(USDA), certifying that the product is 100% bio-based and free from petroleum-derived materials.
Certification No. : Notice of Certification / Application ID: 6858

IR52 Jang Young-shil Award

A weekly award hosted by the Ministry of Science and ICT to honor developers who contribute to the development of significant cost-efficient new technologies.

Biofuel Business GS Bio

Greenhouse gas emissions can be reduced by producing fuel from sustainable biomass sources, since it replaces conventional products made from fossil fuels. **GS** Bio, a subsidiary, manufactures biodiesel and chemical products from bio-materials. With the domestic biodiesel mandatory blending rate set to increase from 4.0% in 2024 to 5.0% by 2030, **GS** Bio is investing approximately KRW 39 billion to expand its factory by 2024 to secure a stable in-house demand. This expansion aims to increase its current annual biodiesel production capacity 100,000 tons.

GS Caltex is also expanding its portfolio of next-generation biofuel products, including Sustainable Aviation Fuel(SAF) and Bio-Marine Fuel(BMF). Specifically, for the production of SAF and BMF, we are securing second-generation raw materials such as Used Cooking Oil(UCO) and Palm Oil Mill Effluent(POME), which have high carbon reduction effects, in collaboration with numerous domestic and international companies.

Bio-Material Acquisition

In 2023, **GS** Caltex established a company in Indonesia, ARC(AGPA Refinery Complex), and agreed to build a bio-material refining facility through a joint investment with POSCO International. With the investment, the construction of a palm oil refining plant is planned for the first quarter of 2024 in the Balikpapan Industrial Complex, East Kalimantan. The facility, to be built on a 300,000m² site, is targeted to start commercial operations in the second quarter of 2025, aiming to produce 500,000 tons of bio-material and edible oils annually. We are also co-promoting a waste material recovery project from the refining facilities, aiming to secure supply stability for biofuels like sustainable aviation fuel and bio-marine fuel and enhance our biofuel production technologies. In this way, we plan to build the entire value chain from raw materials to products by creating a foundation for expanding our biofuel business.



Signing ceremony for palm oil refining joint venture



First pilot operation using bio-marine fuel

Sustainable Aviation Fuel(SAF)

SAF, which consists of similar ingredients as existing petroleum-based conventional aviation fuels, reduces greenhouse gas emissions by about 80% compared to fossil fuels in the process from sourcing to usage. **GS** Caltex participated in the Ministry of Trade, Industry and Energy's 'Sustainable Aviation Fuel Pilot Study' and signed an MOU with Korean Air to promote sustainable aviation fuel trials. In September 2023, we partnered with Neste, a sustainable aviation fuel provider, to commence Korea's first pilot flights, successfully fueling six flights with sustainable aviation fuel by the end of the year. We are actively discussing with suppliers and relevant departments for its formal introduction in Korea and preparing for the ISCC CORSIA[1] certification for internationally recognized bio products.

Bio-Marine Fuel(BMF)

In September 2023, **GS** Caltex became the first domestic refining company to start manufacturing and selling bio-marine fuel through pilot operations, enhancing our competitiveness while contributing to the reduction of carbon emissions in the shipping sector. Previously, we've been supplying certified fuel to our customers through obtaining the ISCC EU[2] certification, which certifies the sustainability and lower carbon qualities of biofuels under the European Union's Renewable Energy. Moreover, in April, we signed an MOU with HMM for the joint promotion of the bio-marine fuel project and another in October with POSCO and H-Line Shipping to jointly promote the bio-marine fuel project for reducing carbon emissions in shipping.



ISCC EU Certification

1) A program developed by the International Civil Aviation Organization(ICAO) to certify aviation fuel that meets CORSIA Eligible Fuels conditions
2) An international certification for biofuels that comply with the European Union's Renewable Energy Directives, ensuring sustainability and lower carbon standards

Development and Expansion of Bio-based Lubricant Products

USDA Certification for 'Kixx BIO1'

In partnership with global bio-based fuel leader Novvi Lcc, **GS** Caltex launched 'Kixx BIO1,' the first bio-based high-performance synthetic engine oil in the domestic lubricant market, in 2022. Made primarily from plant-derived base oils, this product minimizes environmental impact while enhancing fuel efficiency, engine protection, and wear resistance. It has obtained the latest engine oil standards, including API SP[1] and ILSAC GF-6[2], and the USDA Certified Biobased Product[3] certification.

Major Certification

Certification No. : Notice of Certification / Application ID : 9988

Certification No. : BE/027/005

'Kixx RD BIO,' 'Kixx Chain BIO' Earn Eco Label Certification

Expanding into the bio-based industrial lubricant sector, **GS** Caltex developed the high-performance biodegradable products 'Kixx RD BIO' and 'Kixx Chain BIO,' both of which have achieved EU Ecolabel[4] certification. These products exhibit very low ecotoxicity and bioaccumulation as required by the EU Ecolabel, and are readily biodegradable[5]. 'Kixx RD BIO,' a high-performance biodegradable hydraulic fluid, minimizes environmental contamination in the event of leaks in environments like rivers, forests, and ports. 'Kixx Chain BIO,' a chainsaw oil, has passed rigorous performance tests by the German Forestry and Forestry Technology Association(KWF) and considers environmental impacts as a top priority from the raw material selection stage to reduce environmental effects during logging.

In 2023, **GS** Caltex reduced the size of its main retail packaging(1ℓ), reducing plastic use by approximately 30%. We also applied mechanically recycled plastic across 20% of all lubricant product containers(0.8/1/3/4/5/6ℓ) in our manufacturing process to further cut down on plastic usage. Additionally, QR codes inserted on the label containers provide information about the source of the lubricant container's materials, the content of recycled plastic, and the production process, enhancing customer convenience.



High-performance synthetic engine oil made from plant-derived bio-base oil : Kixx BIO1

The First Development and International Certification of 'Bio-Asphalt' in Korea

Since 2019, **GS** Caltex has developed a variety of new asphalt products, including 'warm-mix asphalt', which emits less carbon compared to traditional products. Notably, 'bio-asphalt,' which includes over 5% biomass-based additives during the production process, maintains the same performance as conventional products while reducing the use of fossil fuel-based raw materials. Additionally, it has the low-viscosity properties necessary for recycling reclaimed aggregates from waste asphalt concrete when repairing aging roads. As a result, **GS** Caltex has obtained biomass content certification from NEN[6] and is prioritizing sales in the domestic market. We plan to expand sales to various countries, including Japan, after obtaining additional certifications such as ISCC PLUS[7] and recognized greenhouse gas reduction certifications.

Bio-Asphalt Biomass Content Certification from NEN

In September 2023, **GS** Caltex achieved the first domestic bio-asphalt 5% biomass content certification from NEN. NEN sets international standards for certification and is recognized for its credibility by verifying that its products and services meet strict sustainability and environmental protection standards.

Certification No. : DIN EN 16785-1 : 2016-03

1) API SP : Specification standard for gasoline engine oil established by the American Petroleum Institute(API)
2) ILSAC GF-6 : Minimum performance standard for automotive engine oil issued by the International Lubricants Standardization and Approval Committee(ILSAC)
3) USDA Certified Biobased Product Certification : Certification by the U.S. Department of Agriculture(USDA) that verifies the bio content in Kixx BIO1 products(0W-20 86%, 5W-30 26%)
4) EU Ecolabel : European Union certification awarded to products that are environmentally friendly from production to disposal
5) Readily Biodegradable : According to the OECD 301 B test, more than 60% of the hydraulic oil components degrade within 28 days
6) NEN : Royal Netherlands Standardization Institute
7) ISCC PLUS : Certification aligning with the European Union's Renewable Energy Directives for sustainability and lower carbon products among biofuels

Mechanical Recycling(MR) Business

Circular Economy can achieve both environmental conservation and greenhouse gas reduction by moving away from the traditional linear economic structure of disposing products after use, aiming for resource efficiency throughout the product life cycle. In accelerating transitions towards a carbon-neutral society, including the enactment of the "Act on Promotion of Transition to Circular Economy and Society," **GS** Caltex contributes to building a circular economy through recycling waste plastics.

Circular Economy with Waste Plastics



Investments in ECO G&R and G.E.T, End-of-Life Vehicle Company, and Waste Appliance Preprocessing Company

In 2023, **GS** Caltex completed equity investments in ECO G&R, a partner who has a sourcing network of waste plastic originating from End of Life Vehicles, and G.E.T, a Japanese wasted home appliance plastic recycling firm, contributing to achieving a circular economy. Through these partnerships, we securely obtain high-quality MR materials to produce and sell lower carbon MR composite resins, with ongoing plans to explore and invest in additional partner companies.

Carbon Footprint Reduction Effects of MR Materials

Through LCA analysis of MR materials, **GS** Caltex can measure the carbon footprint from the collection, sorting, preprocessing, and compounding phases of manufacturing. **GS** Caltex conducted the full life cycle assessment(LCA), the first in Korea, for recycling materials derived from ELV waste plastics and obtained third-party verification from DNV[1], a carbon footprint and measurement methodology verification agency. Furthermore, it was confirmed that MR materials can reduce the carbon footprint by over 70% compared to fossil fuel-based polypropylene, calculated based on the National LCI Database[2] of the Korea Environmental Industry & Technology Institute.

RecyClass Certification Achieved by **GS** Caltex Czech, s.r.o.

GS Caltex Czech, s.r.o.

RecyClass
Certification No.:
ISCC-PLUS-Cert-DE105-89134302

In October 2023, **GS** Caltex's subsidiary in the Czech Republic became the first Korean chemical material company to earn the RecyClass 'Recycled Plastics Traceability Certification,' acknowledging its contributions to the circular economy. RecyClass offers a recycling certification exempt from the European plastics tax, setting standards for the 'recyclability' of plastic products and promoting the circulation of plastic resources among businesses.

Chemical Recycling(CR) Business

Chemical Recycling(CR) of Waste Plastics to Pyrolysis Oil

Chemical Recycling(CR) technology, decomposing waste plastics chemically into raw material, allows for replacing traditional carbon-based raw materials used in petrochemical processes with pyrolysis oil made from waste plastics. This enhances resource efficiency and reduces carbon emissions, which is key to implementing a circular economy. **GS** Caltex utilizes such recycling technologies, which achieves a virtuous cycle of 'production-consumption-recycling' to produce pyrolysis oil from waste plastics and feed it into refining and petrochemical processes as part of our resource circulation business model.

GS Caltex is considering establishing a waste plastic pyrolysis oil plant with an annual capacity of 50,000 tons by 2027 and plans to input the pyrolysis oil into an oil refining facility to produce and sell resource-efficient products. In addition, we are exploring various business models to ensure economic viability and business feasibility across the waste plastic value chain, including sourcing, sorting, preprocessing, purchasing pyrolysis oil, and constructing pyrolysis oil plants. We are continuously collaborating with domestic and international companies and expanding cooperation with local governments like Seoul Municipality to enhance recycling efforts.

ISCC PLUS International Certification

GS Caltex has attained the ISCC(International Sustainability & Carbon Certification) PLUS certification, a global standard assessing sustainability and lower carbon credentials throughout the product lifecycle, from raw materials to production and sales. This certification is highly regarded in the eco-certification sector, validating our commitment to sustainability and reducing carbon footprint. In November 2022, we obtained ISCC PLUS certification for polypropylene, benzene, and ethylene. By the first half of 2024, we have expanded the certificate scope to naphtha and propylene and plan to continue expanding our range of certified products.

ISCC International Sustainability & Carbon Certification
Certification No.: ISCC-PLUS-Cert-DE105-89134302

1) DNV(Det Norske Veritas) : Established in Norway in 1864, a certification body providing inspections and certifications across various industries in over 100 countries, aimed at protecting life, property, and quality
2) LCI DB(Life Cycle Inventory Database) : Data listing quantities used and produced in product systems, from material extraction through production, transport, use, and disposal, per unit of product functionality

R&D Activities for Enhancing Competitiveness in the Energy & Chemical Industry and Reducing Greenhouse Gases

GS Caltex proceeds research and development based on the technological capabilities established through the refinery and petrochemical business to enhance business competitiveness and reduce greenhouse gas emissions. We differentiate capabilities by discovering and promoting our R&D initiatives, such as improving energy efficiency and process reliability, developing Carbon Capture and Utilization(CCU) technology to convert CO_2 into chemical products, and specialty asphalt and composite polymer materials to promote a circular economy.

Research Areas		Research Initiatives
Energy	Refining and petrochemical processes	• Developing solutions to reduce process fouling and corrosion of facilities, improving energy efficiency and process reliability
	Specialty asphalt	• Developing bio-asphalt using biomass additives to recycle waste asphalt concrete into aggregate, reducing waste generation • Developing warm-mix asphalt, which reduces CO_2 and Volatile Organic Compound(VOC) emissions • Developing low-noise, permeable porous asphalt
	CO_2 reduction and new energy	• Developing CCU technology to convert CO_2 emitted from refining processes into chemicals and polymers • Exploring and identifying R&D opportunities in biofuel production technology and clean hydrogen production, transportation, and storage
Chemicals	Next-generation composite materials	• Developing highly functional lightweight composite material of e-mobility & urban air mobility • Developing biomass-based composite materials
	Recycling initiatives	• Developing sorting and refining technologies for plastic recycling • Developing sustainable MR composite materials using waste plastics (automotive, appliances, households)

1) USDA Certified Biobased Product
2) EU Ecolabel Certification
3) The Royal Netherlands Standardization Institute

Globally Certified Lower Carbon Products

Lower Carbon Products and Materials		Certifications	
Mechanical Recycling	Lower carbon MR composite resins	RecyClass	RecyClass Certification **GS** Caltex Czech, s.r.o.
Chemical Recycling	Polypropylene, Benzene, Ethylene, Naphtha, and Propylene	ISCC International Sustainability & Carbon Certification	ISCC PLUS Certification
Biochemical	GreenDiol (2,3-BDO)	ECOCERT COSMOS APPROVED; Vegan; USDA CERTIFIED BIOBASED PRODUCT PACKAGE 100%	ECOCERT COSMOS Certification Korea Agency of Vegan Certification and Services VEGAN Certification USDA Certified Biobased Product
Bio-based Lubricants	KIXX BIO1[1], KIXX RD BIO[2], KIXX Chain BIO[2]	USDA CERTIFIED BIOBASED PRODUCT PRODUCT 86%; EU Ecolabel www.ecolabel.eu EU Ecolabel: BE/027/005	USDA Certified Biobased Product EU Ecolabel Certification
Biofuels	Bio-marine fuel	Certified Sustainability ISCC Certified GHG Savings	ISCC EU Certification
Bio-based Asphalt	Low-viscosity asphalt	nen Standard for progress 5% biobased	NEN[3] Certification

Environmental Impact Reduction

Minimizing Environmental Impact of Business Sites

Integrated Environmental Management System

GS Caltex has implemented the SHE(Safety, Health, Environment) Information System to systematically manage these areas, ensuring compliance with domestic and international safety, health, and environmental regulations and encouraging voluntary compliance among employees. The SHE Information System digitizes environmental tasks such as air pollution, water pollution, hazardous chemicals, waste, soil contamination, marine issues, and ISO environmental management, enhancing data transparency and operational efficiency across related departments.

Air Quality Management

Air Pollutant Management

Following the implementation of the Total Air Pollution Load Management System[1], **GS** Caltex has been reducing air pollutants using various reduction facilities, such as malodor incinerators and organic compound retrieval devices. To reduce sulfur oxides(SOx), we have converted heaters and boilers to gaseous fuels, and for facilities that emit large amounts of nitrogen oxide(NOx), we have installed Low NOx Burners(LNB), Ultra Low NOx Burners(ULNB), and Selective Catalytic Reduction(SCR) systems to manage emissions.

Not only production plants but some distribution centers also go through monthly leakage inspections for external floating roof storage facilities, use low NOx burners for boilers, and recover vapors through Vapor Recovery Units(VRU) to manage the air quality.

Air Pollutant Emission Monitoring

To reduce nitrogen oxides and sulfur oxides, **GS** Caltex has installed Tele-Monitoring Systems(TMS) on major chimneys to measure the concentration of nitrogen oxides, sulfur oxides, and total suspended particulates in real-time. Currently, TMS is installed and operated at a total of 67 outlets in the Yeosu Complex. In addition, TMS Data is linked to the Operation Monitoring System(OMS) within the plant to immediately alarm when the concentration of pollutant emissions exceeds the set standard, prompting analysis and improvement of the causes. Distribution centers also constantly monitor exhaust emissions through VRU equipment. Starting in the second half of 2024, the grease plant in Incheon will monitor air pollutants in real-time using IoT devices for small-scale air emission sources.

1) The Total Air Pollutant Management System : The government mandates that facilities manage emissions of sulfur oxides(SOx), nitrogen oxides(NOx), and particulate matter(PM) within allocated limits through the installation of preventive measures



Water Resource Management

To optimize water usage, **GS** Caltex adjusts the allocation of water among processes based on demand fluctuations and monitors industrial water usage at our Yeosu Complex in real-time to manage water resources efficiently. We are driving a water resource recycling project that recycles discharged water within the company for use as raw or cooling water and implementing the reuse of treated wastewater in collaboration with Yeosu city to diversify our water supply sources.

Water Risk Management

GS Caltex has confirmed that the regions where **GS** Caltex facilities are located are not classified as water-stressed areas[1]. However, to ensure stable water supply in anticipation of potential operational issues that could affect usage, we maintain proactive communication with K-Water. We also preemptively respond to ongoing drought conditions by analyzing and identifying opportunities to reduce industrial water usage.

Management of Water Pollutants

To reduce the discharge of water pollutants and minimize environmental impacts on aquatic ecosystems, **GS** Caltex uses physical, chemical, and biological wastewater treatment processes. We have upgraded our physical-chemical treatment facilities by implementing the ozone Advanced Oxidation Process(AOP) and are upgrading older Induced Air Floatation(IAF) facilities to Dissolved Air Floatation(DAF) systems. Additionally, to enhance the efficiency of our existing biological treatment facilities that use the Conventional Activated Sludge Process, we are installing Membrane Bio Reactors(MBR) to handle high-concentration wastewater effectively.

Water Pollutant Emission Monitoring

GS Caltex is committed to minimizing water pollutant emissions and preserving aquatic ecosystems through expanded real-time monitoring systems, which allow early detection and response to abnormalities. Our Tele-Monitoring Systems(TMS) enable real-time monitoring of treated wastewater before it is directly discharged into the ocean. Monitoring focuses on key pollution indicators such as Suspended Solids(SS), Total Organic Carbon(TOC), and pH levels, with data transmitted to the Ministry of Environment all day. In 2022, **GS** Caltex installed analyzers for Total Nitrogen(T-N) and Total Phosphate(T-P). Starting from the first half of 2024, these will be included in the TMS data sent to the environmental authorities.

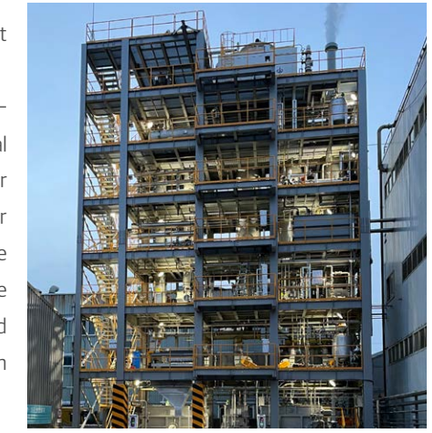
In 2023, **GS** Caltex installed smart sensors at the wastewater treatment facilities that allow simultaneous measurement of TOC, SS, T-N, and T-P in both inflow and discharged water. By 2024, we plan to develop a system that can predict the quality of marine discharge water using these sensors and AI technology.

Wastewater Reuse Facility Construction Completion GS EcoMetal

In February 2023, **GS** EcoMetal completed the construction of a wastewater reuse facility to reduce wastewater sludge. This facility is designed to reduce the sludge produced in wet processes of recovering rare metals such as molybdenum and vanadium from catalysts used in desulfurization processes.

The facility recovers ammonia components to recycle them into ammonium chloride. With the operation of this facility, it has almost completely reduced the annual 6,000 tons of wastewater sludge that was previously landfilled. In addition, about 95% of the 3,300 tons/year of ammonium chloride required for the metal extraction process is now recycled. This has also stabilized the supply and demand issues that occurred because ammonium chloride was previously reliant on imports from China.

With the planned expansion of the catalyst processing facilities, **GS** EcoMetal expect the generation of wastewater sludge to increase from 6,000 tons per year to about 9,600 tons per year. The wastewater reuse facility will handle this increase, expecting to recycle and use up to 5,300 tons of ammonium chloride annually.



Wastewater reuse facility of **GS** EcoMetal

1) Water Stressed Areas : Areas that fall under High Risk(3-4) on the World Resources Institute's AQUEDUCT Water Risk Atlas

Oil Spill Prevention and Management

Soil Management

In order to prevent soil contamination at each gas station from leaks and spills, **GS** Caltex adheres to operational regulations and procedures by installing double-walled tanks, double piping, and overflow prevention devices. Regular soil inspections are conducted at each gas stations. Yeosu Complex continues to relocate underground oil pipelines above ground to eliminate soil contamination sources and actively proceeds soil contamination prevention activities, including installing groundwater monitoring wells throughout the area. Furthermore, we monthly check on the robustness and leakage of all facilities listed as soil contamination sources and do contamination level tests biennially.

Marine Pollution Management

GS Caltex has developed marine pollution response scenarios to prevent incidents like oil spills at business sites that use ships, such as Yeosu Complex and distribution centers. We undergo regular marine spill response training according to operational regulations and procedures. Spill response equipment is installed for immediate action, with regular drills to ensure rapid response in emergencies.

Each dock is equipped with spill control materials in the warehouse, being prepared for any incidents during oil loading and unloading from ships. Specifically, **GS** Caltex extends marine oil fences during ship loading and unloading to prepare for potential oil spills. At distribution centers, rewinders[1)] are installed along docks and shorelines to deploy and retract the marine oil fences efficiently, ensuring quick response capabilities during emergencies.

Hazardous Chemicals Management

GS Caltex complies with the regulations on handling hazardous chemicals stipulated by the Chemical Substance Control Act. We have equipped facilities handling these substances(storage and manufacturing use) with detection and alarm devices, protective equipment cabinets, and spill control kits to prepare for potential leaks and spills. Through our chemical accident prevention and management plans, we assess the off-site impacts and incident scenarios related to the hazardous chemicals handled on-site, aiming to minimize damage in the event of an incident by establishing and maintaining an emergency response system. We also annually inform the local community about the hazards and emergency response plans of the handled materials to promote incident prevention and response readiness. Furthermore, since 2013, **GS** Caltex has organized an emergency response team with other companies at the Yeosu Industrial Complex, went through and conducted joint training on chemical leakage response, and coordinated response plans to ensure rapid initial response and prevent the spread of contamination within the community. Additionally, we conduct quarterly safety meetings and training with subcontractors handling hazardous chemicals to ensure safety.

GS Caltex utilizes the Chemical Management Portal to review chemicals imported and purchased and evaluate them before the development(manufacturing) of new products. We regularly monitor and update the Material Safety Data Sheets(MSDS) for the products handled at our sites to keep them up-to-date.

Go to MSDS Webpage

Hazardous Chemicals Management Training

Category	Training Program	2021(persons)	2022(persons)	2023(persons)
For **GS** Caltex Employees	Training for Hazardous Chemicals Subcontractor Ordering Team	78	52	63
	Training for hazardous chemicals managers	89	120	96
	Training for hazardous chemicals handlers	505	1,136	472
	Training for workers involved with hazardous chemicals	250	289	225
For Suppliers	Training for hazardous chemical subcontractors	155 from approx. 40 companies	125 from approx. 40 companies	127 from approx. 40 companies

1) Rewinder : A device used to deploy and retrieve marine oil fences using power

Waste Management

GS Caltex utilizes the SHE(Safety, Health, Environment) Information System to share all data related to waste generation, storage, and disposal processes at its production sites to monitor and reduce waste volumes. We ensure that waste is separated and stored according to type from the point of generation to enhance recycling efforts. Moreover, we are collaborating with recycling companies to develop technologies for recycling used oil, catalysts, composite resins, tank sludge, wood, etc., and continuously striving to find customers for these materials.

Starting in 2024, distribution centers plan to install oil barriers under the roll-off boxes[1] to prevent leachate from leaking during waste storage. **GS** Caltex has also installed automatic fire suppression systems within designated waste storage areas to ensure a safe waste management environment.

Odor Management

Since the Yeosu Industrial Complex was designated as a malodor control area in 2019, **GS** Caltex has been diligently complying with strict emission standards. We have installed malodor monitoring equipment at 15 boundary points, including the newly established MFC(Mixed Feed Cracker) process facilities. We also operate mobile monitoring units equipped with malodor-monitoring devices on vehicles. Additionally, we have installed portable malodor reduction equipment to minimize malodors emitted during Tank Out of Service(OOS)[2] operations. In June 2021, we expanded our malodor mitigation efforts by adding catalytic oxidizers at the wastewater treatment plant and other potential malodor-emitting locations.

Expansion of Spent Catalyst Metal Recovery Facility

GS EcoMetal

GS EcoMetal contributes to the circular economy by recovering and reusing rare metals, molybdenum, and vanadium, from spent catalysts used in oil refining and petrochemical plants. Notably, recovered molybdenum is supplied back to catalyst manufacturers, thereby creating a closed-loop resource recycling process.

In 2023, the expansion of **GS** EcoMetal's spent catalyst treatment facilities increased the processing capacity from 10,000 tons to 16,000 tons per year, a 60% increase. Through this expansion, resource recycling volume is expected to increase by 60%, and the revenue is projected to rise approximately KRW 26 billion based on average metal prices over the past decade.



Expansion of post-use catalyst metal recovery facility at **GS** EcoMetal

1) Roll-off boxes(Known as Armroll Boxes in Korea) : Waste transport containers used in distribution centers
2) Tank OOS(Tank Out of Service) : Process of emptying the tank and maintaining the entire inside and outside of the tank

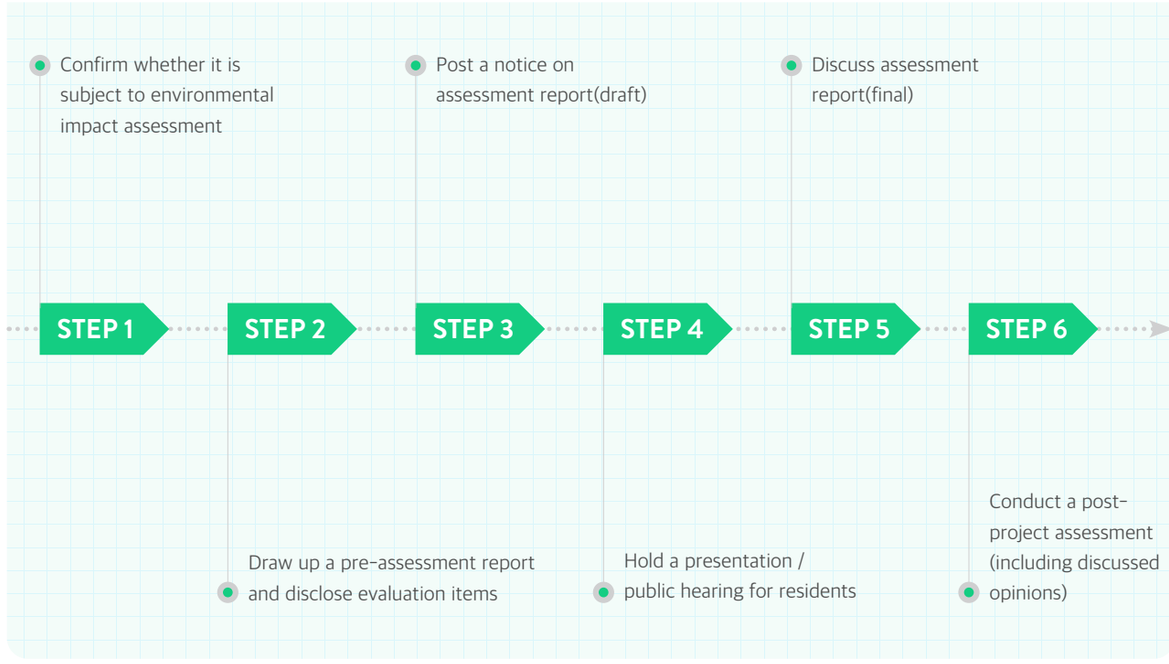
Environmental Risk Prevention

Environmental Impact Assessments at Business Sites

GS Caltex carries out environmental impact assessments to devise strategies to eliminate or reduce environmental impacts, thereby preemptively identifying and preventing potential environmental issues during the construction and operation phases of new projects. In 2023, we conducted post-environmental impact assessments for five projects, ensuring that the agreed measures to minimize environmental impacts were properly implemented.

Moreover, for individual projects subject to environmental impact assessments that are expected to emit significant amounts of greenhouse gases, **GS** Caltex plans to undergo climate change impact assessments to evaluate the potential impacts of and on climate change.

Environmental Impact Assessment Process



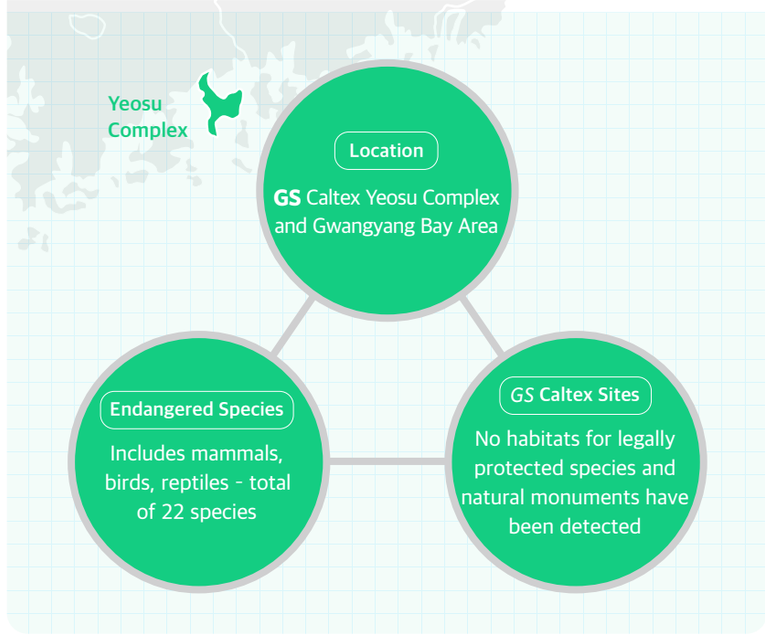
Agreements on Voluntary Environmental Management

Type	Chemical Accident Emergency Response and Joint Prevention Agreement (Chemical Safety Community)	Voluntary Agreement for reducing high-concentration particulates	A Voluntary Agreement for Soil Environmental Conservation
Period	2013 - on going	Dec 2019 - Mar 2024	2013 - 2023
Related Activities (2023)	Carried out two emergency response drills and four information exchange meetings for chemical incidents. Period: 2020 - Present **GS** Bio	Established and maintained internal emission concentration standards more stringent than Emission Limit Values.	Proactively prevented soil contamination from oil spills and voluntarily monitored and restored contaminated soil.

Biodiversity Conservation Management

When expanding operations or introducing new projects, **GS** Caltex collaborates with local communities and government agencies to minimize environmental impact through nearby environmental monitoring. Proactive measures are taken to address ecological issues and provide immediate responses to any arising problems to conserve biodiversity and ecosystems.

Currently, **GS** Caltex is conducting post-environmental impact assessments for five ongoing construction and operational projects. If legally protected species are found, we investigate their habitats and implement mitigation measures outlined in the environmental impact and post-environmental impact reports. We also submit damage prevention plans to regulatory bodies.



Endangered Wildlife and Natural Monuments Near Business Sites

In the Gwangyang Bay area of Yeosu City, where our main facilities are located, Investigation of Natural Environment and Winter Waterbird Census of Korea have identified a total of 22 endangered species[1] including mammals, birds, and reptiles. No ecosystem conservation areas nor habitats for endangered species have been detected within **GS** Caltex sites, and there have been no incidents of biodiversity impact or hazardous substance leaks.

Ecosystem Conservation Efforts

GS Caltex actively monitors to prevent the spread of invasive species. If distribution is detected, removal operations are proceeded based on onsite management guidelines for invasive species and management plans from the National Institute of Ecology to prevent their spread to the surrounding ecosystem. In 2023, invasive species such as Humulus japonicus and spiny lettuce were removed from grasslands and wastelands within our sites to protect the surrounding ecosystem.

Environmental Cleanup Activities

GS Caltex is actively engaging in various environmental cleanup activities to raise awareness about the importance of biodiversity. These activities involve employees, local stakeholders, residents, external organizations, and private groups.

Energy Plus Crew Plogging

In 2023, **GS** Caltex recruited the “Energy Plus Crew” for customers in order to enhance sustainable energy while enjoying exciting activities. This environmentally friendly campaign, in collaboration with “Surf Ocean,” involved water activities, plogging, and beachcombing at beaches in Ttukseom Hangang Park in Seoul, and in Yangyang and Goseong, Gangwon Province over three sessions(15 participants each), with a total of 45 customers.



Joint volunteer activities with Yeosu Coast Guard



Founding anniversary volunteer activity

Activities	Participating Groups	Details
Annual "Adopt a Mountain/River" Initiative	Employees, Yeosu City Hall, etc.	• Planting and maintaining trees on nearby Yeongchui Mountain to reduce carbon emissions and improve air quality. • Regular cleanup activities along Yeosu Daegok River to rejuvenate the river.
2023 Spring Cleaning	Employees, Yeosu City Hall, Myodo-dong Community Center, etc.	• Collecting waste around the Yeosu Complex Usoon-do Material Warehouse and nearby industrial roads.
Joint Volunteer Activities with Yeosu Coast Guard	Employees, Yeosu Coast Guard	• Collecting and disposing of marine waste near Yeosu Songdo Village, providing drinking water to island residents.
GS Caltex Founding Anniversary Volunteer Activity	Employees, Myodo-dong Community Center, etc.	• Collecting household and fishing waste from the coast of Yeosu Ondong Village.

1) 22 species : Leopard Cat, Otter, Mandarin Duck, Eurasian Sparrowhawk, Eastern Marsh Harrier, Northern Goshawk, Eurasian Scops Owl, Osprey, Falcon, Eagle, Grey-faced Buzzard, Merlin, Eagle Owl, Great Cormorant, Greater White-fronted Goose, Swan Goose, Black-faced Spoonbill, Spoonbill, Red-crowned Crane, Black-headed Gull, Little Tern, Ratsnake

Green Financing

Since issuing KRW 130 billion in Green Bonds in 2019, **GS** Caltex has utilized these funds to expand the environmental facilities at Yeosu Complex. Investments have been channeled into energy efficiency projects, pollution reduction and management facilities, and water management. By 2023, we have invested approximately KRW 129 billion in these facilities and plan to continue investing in major environmental improvements to expand our operations.

In October 2023, **GS** Caltex secured a KRW 5.5 billion loan from a project led by the Ministry of Industry, aimed at supporting companies investing in greenhouse gas emission reduction facilities. With this funding, we invested KRW 4 billion by the end of 2023 in emission reduction facilities at the Yeosu Complex, and we plan to invest an additional KRW 1.5 billion in 2024.

Major Project Status

No.1 RFCC Wet Gas Scrubber	Completed an investment of KRW 54.6 billion	**GS** Caltex has replaced the sulfur oxide reduction equipment with wet gas scrubber in the first upgrading facility(RFCC), reducing annual sulfur oxide emissions by about 3,000 tons and nitrogen oxides by about 160 tons.
Ozone Advanced Oxidation Process	Completed an investment of KRW 9.9 billion	**GS** Caltex has introduced advanced treatment facilities (Ozone AOP and MBR) to existing wastewater treatment infrastructure, minimizing the environmental impact on aquatic ecosystems. This is expected to reduce pollutant discharge into the ocean by more than 20% vs. the level before investment, contributing to water resource conservation through wastewater recycling in the long term.
Membrane Bio Reactor	Total investment of KRW 23.5 billion Investment Duration : 2023 - 2025	
VRHCR Dual Membrane Installation Project	Total investment of KRW 11 billion Investment Duration : 2023 - 2024	**GS** Caltex has implemented a project that extracts and recovers hydrogen from off-gas produced in the vacuum residue hydrocracking(VRHCR) process used in existing hydrogen production facilities.

ESG Education and Communication

ESG Education

GS Caltex has introduced the "ESG Management Introduction Course" into its training programs in 2023 to respond to the demands of internal and external stakeholders in line with the global ESG issues and enhance awareness of ESG management among all employees, including subsidiaries. Additionally, we provide annual mandatory training on compliance, corporate Code of Conduct, fair trade, information security, and safety, health, and the environment.

Management-level training on upcoming global ESG regulations and issues like mandatory ESG reporting has been undertaken through major bodies like the **GS** Group ESG Council, **GS** Energy Power & Energy Companies ESG Council, and the **GS** Caltex ESG Committee.

Education and Activities for Climate Change Response

GS Caltex has provided education on key company strategies and activities for climate change response, inviting external experts to provide insights into various domestic and international carbon offset systems and methodologies. This education includes methodology registration, project development, and verification of reduction performance data. It was offered as both general training for all employees and advanced training for departments related to lower carbon businesses.

To make greenhouse gas knowledge more accessible to beginners, **GS** Caltex continues to publish the "Green Transformation Bulletin" and organize quarterly events like "Golden Bell" quizzes, greenhouse gas reduction campaigns, and competitions to increase all employees' understanding and interest in greenhouse gases. Also, seminars for relevant departments have been held based on the results of Scope 3 emissions calculations to explore reduction measures across the entire business value chain.

External ESG Communication

To facilitate understanding of ESG among all stakeholders, including employees, **GS** Caltex produces and shares expert content through its official blog, 'Media Hub.' This initiative enhances transparency in sustainable management and social responsibility while strengthening communication with stakeholders.

Media Hub

Action Donation of GS Caltex Employee

GS Caltex has promoted employee 'Donation through Action' not only to reduce greenhouse gas emissions through its production processes but also to raise employee awareness of the importance of carbon reduction and to encourage daily practice.

Employee Walking Donation

Under the slogan "Steps for change starting from me", **GS** Caltex proceeded an employee walking donation campaign from April to May 2023, lasting 50 days. This campaign promoted walking instead of driving to reduce carbon emissions, by linking these efforts to donations. **GS** Caltex converted every 10,000 steps into a donation of 1,000 KRW. A total of 1,044 employees participated, and **GS** Caltex matched the accumulated amount, donating 1,098 foldable, adjustable desks made from mechanically recycled materials to local elementary and secondary schools.

Vegetarian Meal Donation

To reduce carbon emissions from meat consumption, **GS** Caltex employees participated in the "One Vegetarian Meal Campaign" from May to November 2023. During this six-month period, 182 employees shared various vegetarian recipes and supported each other's plant-based diet efforts through social media. **GS** Caltex converted these activities into monetary donations, contributing to forest restoration initiatives through World Vision.



Employee Walking Donation


Foldable, adjustable desks installed at elementary and secondary schools

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Safety and Health Enhancement

As the Serious Accidents Punishment Act expands and the global industrial safety market grows, safety and health responsibilities of corporate management are being strengthened. With rising social awareness of safety management, industrial accidents are not just internal corporate issues but can also cause broader social harm. This underscores the need to identify risks proactively and establish safety systems and training for incident prevention. In the energy and chemical industries, where high-risk tasks involving machinery and chemicals are prevalent, stringent management is crucial. **GS** Caltex prioritizes "safety and health management" as a core business value to enhance the work environment for both internal and external stakeholders, striving to embed a safety culture deeply within our organization.

Safety and Health Management System

Safety and Health Management System

GS Caltex has established a safety and health management system based on its SHE(Safety, Health, Environment) management policy to foster a robust safety culture. We are internalizing the Process Safety Management(PSM)[1] system and running safety culture transformation programs to enhance safety culture levels. In efforts to conduct field checks of the working environment and ensure the integrity of facilities, we support so that workers can proceed with work after fully understanding areas including people, facilities, systems, technology, and emergency response. This safety and health management system applies not only to all employees but also to suppliers working at our sites. We constantly maintain an emergency response system to enhance our safety response capabilities, enabling quick reactions to incidents. In addition, we analyze and share potential incident scenarios at our sites to create a safer workplace.

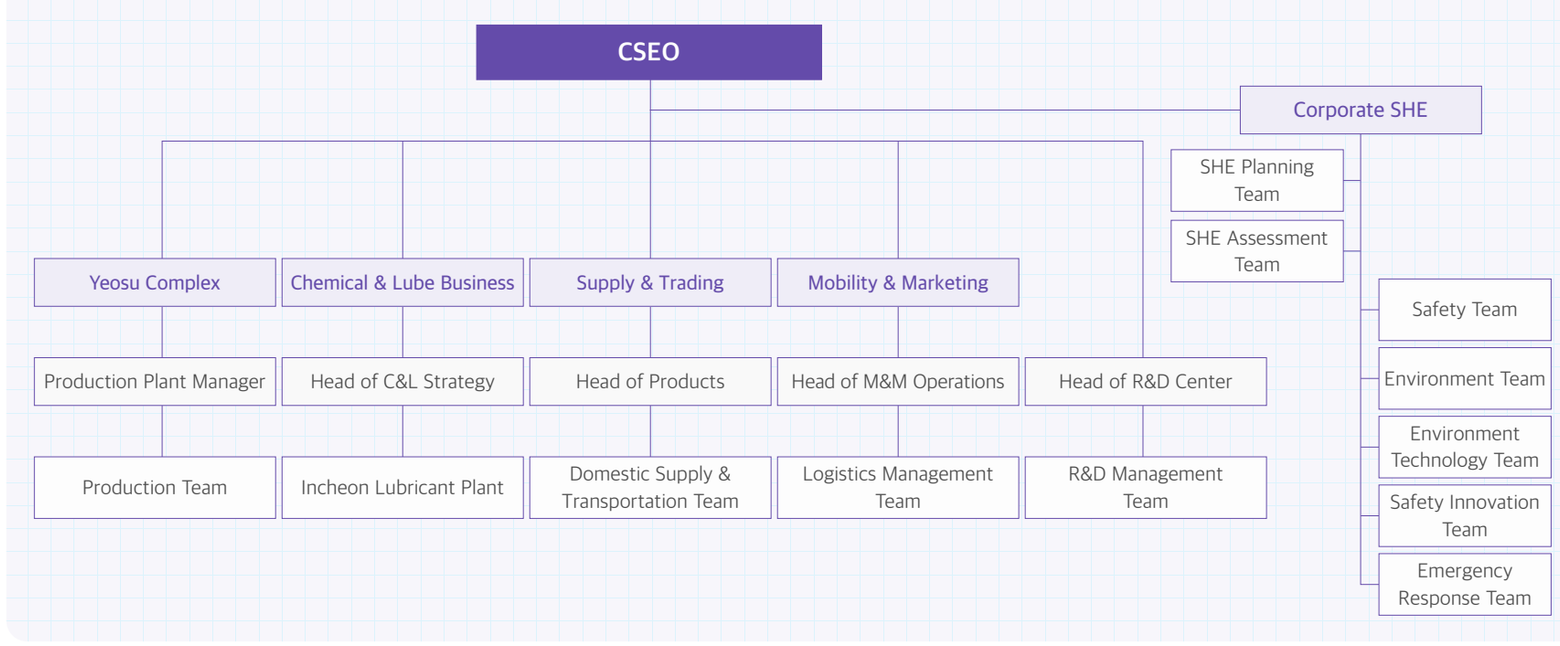
Safety and Health Organization

GS Caltex has appointed a Chief Safety & Environment Officer(CSEO) to lead its dedicated safety and health organization. We assign safety and health specialists to each major business division, who operate independently.

Process Safety Management Website

Safety and Health Organization

(as of May, 2024)



1) As per the Occupational Safety and Health Act Article 44, this applies to all employees and suppliers at the Yeosu Complex and nationwide distribution centers

Process Safety Risk Analysis System

GS Caltex strives to ensure process safety through periodic risk assessments and improvements across all processes. Process risk assessments are carried out every four years using Hazard and Operability Study(HAZOP) and KOSHA Process Safety Review(K-PSR) techniques. Regular process risk assessments include Layer of Protection Analysis(LOPA) and Safety Integrity Level(SIL) evaluations to reassess risk levels and identify additional improvements. Starting in 2024, we will expand the coverage of Quantitative Risk Assessment(QRA) to all processes.

Job risk assessments, using Job Safety Analysis(JSA), identify the types of incidents, hazardous factors, and current safety measures, and analyze risk levels, then develop improvement plans. Safety engineers and supervisors are deployed on-site to support and manage safe operations. If job task changes, we re-conduct the JSA to prevent injuries and process incidents, incorporating findings into the safe work plan.

Safety Management for New Projects

For every new project, **GS** Caltex systematically manages the entire process from design to purchasing and construction safety through the Project Safety Management Plan(PSMP). To prevent major industrial accidents(falls, tumbles, getting trapped, collapses, etc.), we provide special safety training, work safety analysis, safety observation, and short-term worker management to all employees and suppliers working at our site. The MFC(Mixed Feed Cracker) project was completed without any serious incidents and is operating normally as of 2024, thanks to thorough safety management plans.

Emergency Response System

GS Caltex develops emergency response scenarios for each process unit and undergoes internal training at least once a month, alongside joint fire drills with local fire departments. To enhance emergency response capabilities, we conduct virtual fire drills for emergency personnel at our large-scale on-site fire training center. We also plan and proceed actual drills based on storage tank fire scenarios to improve our large-scale fire response capabilities and complete our emergency response system.

A 24-hour emergency response team has been organized to respond swiftly from notification to closure of emergencies, including industrial incidents, safety and environmental incidents, and natural disasters. This team includes dedicated emergency personnel and a dispatch system with over 250 first- and second-line responders and marine spill responders, ensuring plant protection plans are in place. Additionally, to strengthen our emergency response capabilities, we conduct semi-annual integrated training with local governments, military units, police, and the marine police.

Life-Saving Golden Rules

For the safety of its employees, **GS** Caltex established the “Life-Saving Golden Rules(LSGR[1)]),” mandatory safety rules for its business sites. To effectively internalize LSGR, we have created safety cartoons distributed across all sites and enforced penalties in case of violations of the regulations to enhance incident prevention activities. We analyze incidents types and focus on safety management for major incidents(burns, falls, suffocation, fires) and high-risk tasks.

1) LSGR : ‘Safe working at height’, ‘Safe confined space entry’, ‘Safe heavy material handling’, ‘Avoid hazardous leak occurrence zone’, ‘Energy isolation’, ‘Proper personal protection equipment’

Advancing Workplace Safety

Establishment AI Model for Process Anomaly Detection and Property Prediction

Application to Polyethylene(PE) and Polypropylene(PP) Processes

In 2022, **GS** Caltex applied an in-house AI model to predict anomalies and their causes in the PE process in real-time. In 2023, we expanded the application of this AI model to the PP process, which has similar characteristics to the PE process.

With aging facilities and the coexistence of solids and gases, the PP process presented challenges in early anomaly detection. If anomalies cause process shutdowns, **GS** Caltex disposes hazardous chemicals through complete combustion for safety, which can create noise and light, affecting nearby areas. To prevent such issues, our AI model monitors the PP process in real-time for anomalies.

Application to Vacuum Distillation Unit(VDU) Process

The VDU process requires large amounts of cooling water to condense gases and maintain vacuum conditions. During summer, increased ambient temperatures can raise cooling water temperatures, potentially breaking the vacuum. To prevent this and take appropriate measures, **GS** Caltex developed a deep learning-based AI model for real-time anomaly detection. It prioritizes actions to resolve abnormal situations and provides optimal operating values to maintain vacuum conditions. It applies to processes for which anomaly conditions are difficult to predict, such as the VDU process. We plan to extend this model to similar processes.

Enhancing Safety with AI Image Analysis Technology

GS Caltex has introduced CCTV with an AI-based intelligent video solution to detect objects within the Region of Interest(ROI) and establish a real-time safety monitoring system by triggering voice alerts and alarms.

In addition, since an incident of a reach stacker or forklift used in shipping polypropylene(PP) and polyethylene(PE) products can lead to serious damage, it is necessary to ensure both forklift drivers and workers use hand signals, take precautions, and pay close attention to their front and rear. **GS** Caltex has installed cameras with an AI model at the back of the reach stacker to indicate safe distance with LED lights on the floor. Besides, smart safety devices trigger vibrations or sounds to alert both forklift drivers and workers when they come within a certain range in the blind spot of the forklift.

AI CCTV Applications

Category	Detail
Pedestrian Regulations	• Detects pedestrians violating walking regulations within designated areas • Issues voice alerts via speakers upon event detection
Non-Compliance of Safety Hook	• Detects workers not fastening safety hooks during operations • Issues voice alerts via speakers upon event detection
Fire/Flame/ Smoke Detection	• Detects fire/flames/smoke in ROI areas such as process area, power equipment, etc. • Issues alarms to the relevant production team and security control room upon event detection
Boundary Intrusion	• Detects intrusions by people and vehicles within the plant fence boundary • Detects walkways and unauthorized crossings in boundary area • Detects vehicles stopped on the adjacent two-lane road near by walkways • Issues alarms to the security control room upon event detection

Drone Utilization for Hazardous Tasks

Facility Management with Drones

To reduce risks and guarantee the safety of inspectors, **GS** Caltex uses drones for hazardous tasks. Since 2015, we have employed drones equipped with thermal imaging and zoom cameras to safely inspect flare stacks over 100 meters high at the Yeosu Complex. For hazardous material storage tank inspections, drones allow us to conduct initial inspections without entering the tanks, significantly reducing safety risks.

Hazardous Material Transport with Drones

In 2023, **GS** Caltex participated in the Ministry of Land, Infrastructure and Transport's "K-Drone System Demonstration Support Project" to demonstrate long-distance maritime transport of hazardous materials. Traditionally, transporting hazardous material samples from the nearby Hangdong Distribution Center to the Incheon Distribution Center took over an hour for the round trip by vehicle. To address this, we formed a consortium with a drone technology company, developing a new drone aircraft, creating a hazardous material sample container, and discussing necessary drone operation aspects such as cross-drone recognition and evasion maneuvers, as well as a safety operation manual. This demonstration significantly reduced transport time to approximately 15 minutes, minimizing exposure to potential transport incidents. Furthermore, through rigorous risk assessments and mitigation measures, we verified the safety of long-distance flights, approximately 10 km each way. From 2024, **GS** Caltex plans to implement long-distance hazardous material drone deliveries in its operations.

Wireless Remote Gas Monitoring System in Enclosed Containers

Since developing and introducing the wireless gas detector in 2021, **GS** Caltex's Yeosu Complex has conducted 24-hour real-time monitoring. This system has been used in closed space operations and working space that requires monitoring during daily routine maintenance and turn around(March to May), improving worker safety and working conditions.

In 2023, through the Go-Together business, **GS** Caltex enhanced the double-structured air intake device by switching to acrylic material, improving impact resistance and heat resistance(up to 180°C). This also increased the lifespan and integrity of the detector and improved gas measurement precision. The device received a utility model registration and was applied during the 2024 turn around period. The double-structured air intake is a component of the wireless gas detector, controlling the gases and fine moisture detected. By continuously improving and managing the wireless gas detector, we provide better working environments and guarantee worker safety.


실용신안등록증
CERTIFICATE OF UTILITY MODEL REGISTRATION
등 록 제 20-0497222 호
위의 고안은 「실용신안법」에 따라 실용신안등록원부에 등록되었음을 증명합니다.
This is to certify that, in accordance with the Utility Model Act, a utility model for the device has been registered at the Korean Intellectual Property Office.
2023년 08월 29일
특허청장
COMMISSIONER, KOREAN INTELLECTUAL PROPERTY OFFICE
특허청
Korean Intellectual Property Office

Certification of Utility Model Registration

Enhancing Safety Awareness

Occupational Safety Training

Category	Training Name	2021	2022	2023
Company-wide	Company-wide Fire Prevention / Control Drills	Annually	Annually	Annually
Work site	Fire Drills	Annually per shift	Biannually per shift	Biannually per shift
	On & Offshore Oil Spill Response Drills	Annually per shift	Annually per shift	Biannually per shift
	Process Emergency Response Drills	16 times a year for the entire site	16 times a year per shift	16 times a year per shift
	Process Dry Training	Monthly per shift	Monthly per shift	Monthly per shift
	Early Response Training	Monthly per shift	Monthly per shift	Monthly per shift

Occupational Safety Training for Suppliers[1)]

Category	Training Name	2021	2022	2023
Yeosu Complex	Construction Supervisor Safety Training	24 companies, 130 participants	8 companies, 90 participants	70 companies, 250 participants
	Signalman Certification Course	32 companies, 257 participants	40 companies, 302 participants	36 companies, 345 participants
	Cargo Crane Operator Safety Training	63 companies, 330 participants	52 companies, 334 participants	50 companies, 165 participants
	TA Special Safety Training	Approx. 3,100 participants	Approx. 4,100 participants	Approx. 4,140 participants
Headquarters	Safety Training for Coaster Owners/Crews	4 sessions for 11 companies (200 participants per session)	3 sessions for 10 companies (175 participants per session)	4 sessions for 8 companies (135 participants per session)
	Safety Training for Tanker Owners/Crews	2 sessions for 8 companies (230 participants per session)	2 sessions for 2 companies (235 participants per session)	2 sessions for 2 companies (243 participants per session)
Distribution Centers	Training for Long-term Contract Suppliers	30 participants from 8 companies (online training)	Provided training materials instead of face-to-face training due to COVID-19	Conducted face-to-face training and shared written materials with key suppliers (10 companies)
	Safety Training for Distribution Center Construction Workers	Approx. 500 participants	Approx. 500 participants	Approx. 500 participants
	Safety Training for Tanker Drivers	Conducted non-face-to-face training due to COVID-19		Conducted face-to-face safety training twice a year (training held within distribution centers)
		Replaced with safety training videos	Distributed safety training materials and conducted evaluations	

1) Based on the cumulative number of participants attending courses(multiple participations per course and session)

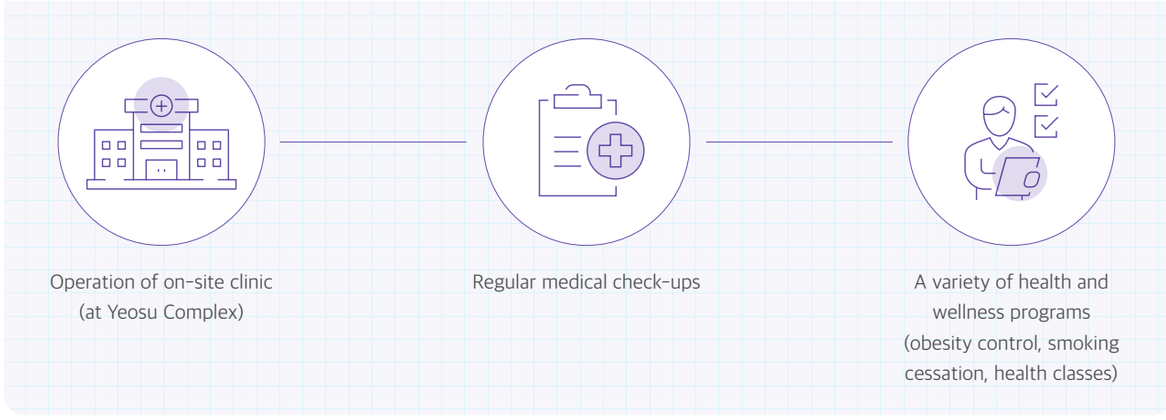
Safety and Health Programs

Chemical Management Portal System

GS Caltex utilizes the Chemical Management Portal(CMP) to strictly comply with and manage chemical regulations throughout the entire process, from manufacturing and purchasing to consumption and sales. All chemicals manufactured, purchased, or used in R&D stages must be reviewed by in-house experts before handling. If regulations are not complied, purchases are restricted, and the monitoring system checks the full composition, hazards, and registration status of chemicals.

GS Caltex complies with the Chemical Substances Control Act, the Act on Registration and Evaluation of Chemical Substances, the Occupational Safety and Health Act, and other relevant laws. By rigorously managing compliance, we ensure that employees, suppliers, and customers can handle chemicals safely. We regularly update the system to promptly incorporate any new or enhanced chemical regulations.

Employee Health and Wellness Programs



Activities to Internalize Safety Culture

Category	Activity
Safety, Health, and Environment Inspections	• Conduct periodic inspections of all business sites with external consultants to confirm compliance with safety, health, and environmental laws and to improve standards • Address inspection findings promptly and manage implementation status via the system • Every three years, an API[1] certified inspector visits and conducts safety audits based on API standards, addressing any non-conformities
Safety Culture Transformation Program	• Chaired by the Chief Safety & Environment Officer(CSEO), the company-wide Safety Leadership Committee (SLC) discusses major issues related to the safety culture change program and makes decisions to embed safety culture • Implement detailed programs such as safety observations, safety leadership, and incident investigations tailored to the characteristics of each site, like the Yeosu Complex, and monitor progress monthly through site-specific SLCs
Facilitation of Safety Communication	• Regularly publish CSEO messages and safety card news • Conduct periodic site visits to strengthen on-site communication • Promote the sharing of safety information and incident cases via the SHE information system • Conduct monthly training via video conferencing for distribution center managers to share SHE issues
Identifying Best Practices in Safety and Environment	• Select exemplary safety and environmental activities from all sites and suppliers that can be applied company-wide, present them at the Safety and Environment Council, and award them at the company-wide SLC
Off-the-job Safety Campaign	• Carry out Off-the-job Safety Campaign since 2019 to embed safety, a core value for the company's sustainable growth, into all work activities and daily life, including the headquarter, field operations, etc.

1) API(American Petroleum Institute) : Industrial standards for oil and gas

Systemization of Product Quality Management

Customer Safety Management

GS Caltex systematically manages chemicals to preemptively identify hazards and protect customer health and the environment. **GS** Caltex began pre-registrations in 2008 and have been registering for EU-REACH(European Union Regulation on Registration, Evaluation, Authorization, and Restriction of Chemicals) which is for chemicals over 1 ton aimed at exports to Europe, being aware of the potential impacts of petroleum products on customer health and the environment in terms of safety, environmental, and performance factors. We also comply with the domestic Act on Registration and Evaluation of Chemical Substances, having registered existing chemicals over 1,000 tons by 2021, with plans to progressively register chemicals over 1 ton by 2030.

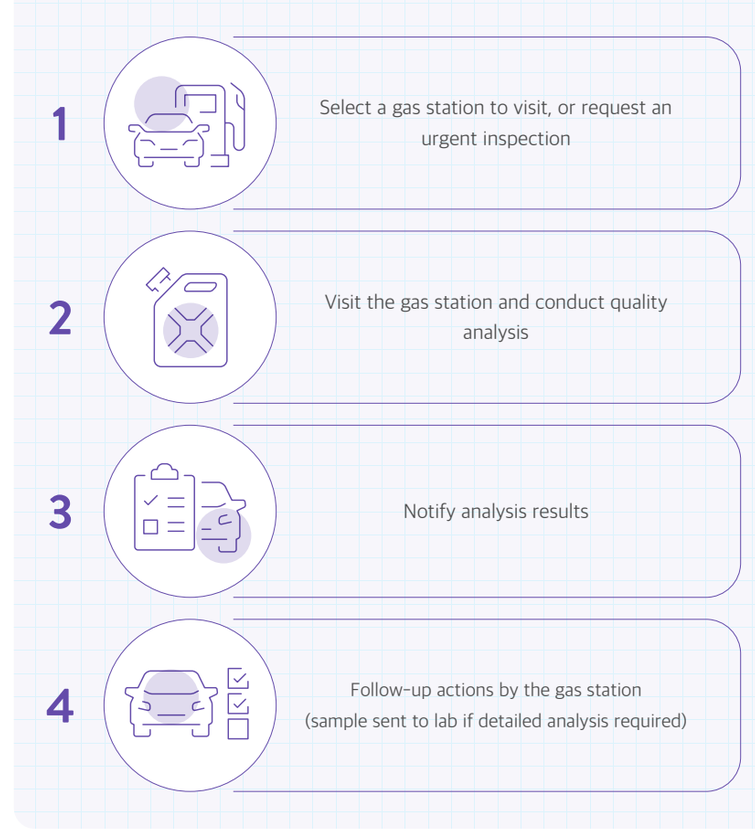
Quality Management System over the Entire Process

GS Caltex is committed to delivering high-quality petroleum products produced in ISO 9001 certified facilities, encompassing everything from production to storage and distribution, adhering to internal quality standards stricter than legal requirements. We perform quality inspections not only at the point of factory dispatch but also upon storage or long-term stocking and dispatch at national distribution centers, based on relevant laws and internal protocols, while also adhering to safety and environmental procedures.

Product Quality Management and Service

GS Caltex operates a mobile app for its gas and LPG filling station quality management that allows real-time access to quality inspection results of parameters such as pour point and vapor pressure. We also provide a Kixx quality service vehicle, a mobile laboratory that performs quality inspections nationwide and offers immediate response services for customer complaints and emergencies. Additionally, during periods of legal quality standard changes, we implement rigorous quality controls to prevent regulatory violations due to operational errors at gas and LPG filling stations.

Kixx Quality Service Process



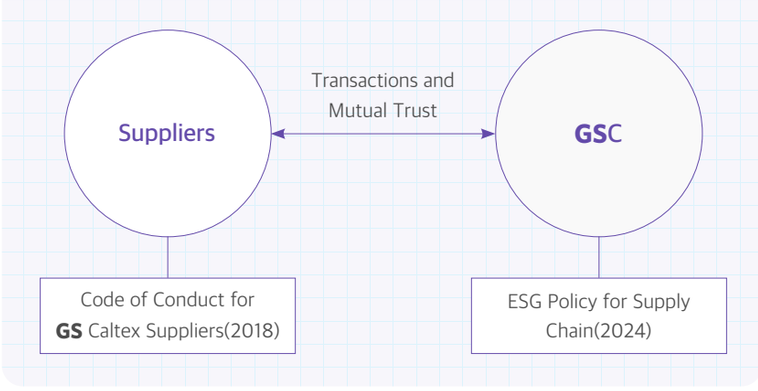
Expansion of Supply Chain ESG Management

Advancement of Supply Chain ESG System

Establishment of ESG Policy for Supply Chain

GS Caltex has established the "ESG Policy for Supply Chain" incorporating global standard in 2024 to secure sustainability in its supply chain. This policy, along with the "Code of Conduct for **GS** Caltex Suppliers" set in 2018, forms the foundation for enhancing sustainability in our supply chain. We plan to systematically manage our supply chain ESG based on this framework.

GSC Supply Chain Standards



Compliance Due Diligence System

Amid heightened international tensions due to simultaneous conflicts, there is an increase in the frequency of economic sanctions and embargoes in international trade, along with stronger international penalties for corruption and money laundering. To proactively mitigate these risks, **GS** Caltex has implemented and operated a compliance due diligence system. This system applies to all business counterparts including suppliers, clients, and joint venture partners, assessing compliance risks and potential negative impacts prior to contract signing and business commencement. **GS** Caltex has revised the "Compliance Due Diligence Guidelines" and "Compliance Due Diligence Information Verification Manual", clarifying related principles and processes, and applied them company-wide.

Expansion of Scope for Supply Chain ESG Assessment/Management

In 2022, **GS** Caltex expanded the scope of its supply chain ESG assessment from the procurement of materials and services to overseas subsidiaries with production facilities. In 2023, for the first time as a domestic oil refinery, we initiated ESG assessments of crude oil suppliers, covering human rights/labor, environmental, and safety/health issues, as well as supply chain-related ESG factors. Additionally, for suppliers with significant transaction volumes, we conducted an "Information Verification Survey for Business Partners" to check shareholder/management details and economic sanction status, in parallel with the compliance due diligence system to preemptively address compliance issues.

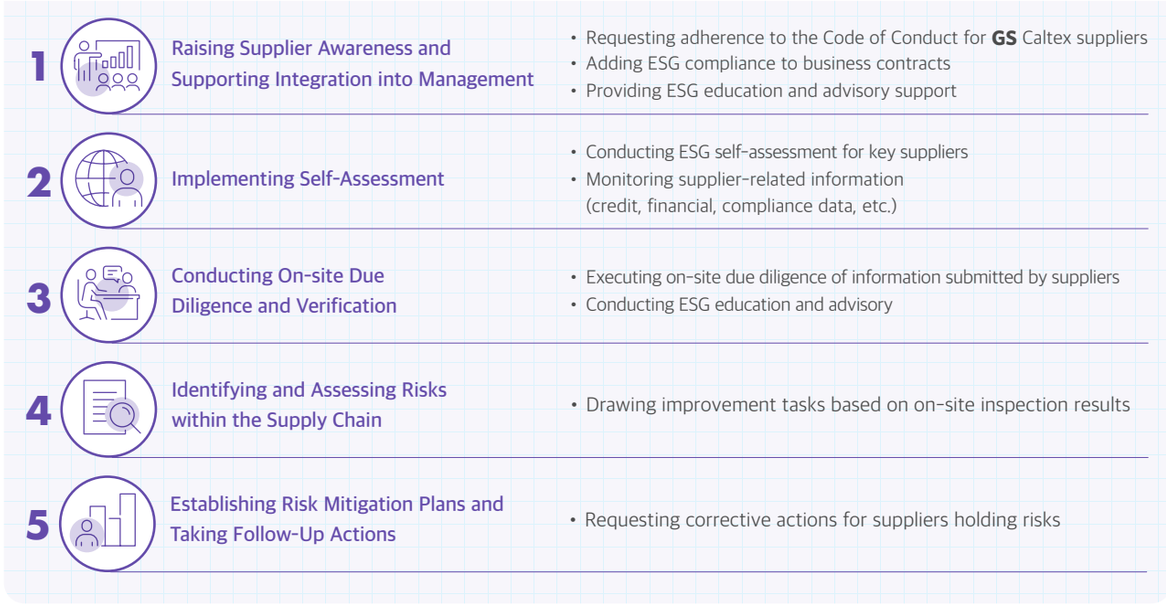


Supply Chain ESG Management

Supply Chain ESG Assessment

Since 2020, **GS** Caltex has been conducting annual ESG assessments of key suppliers. The ESG assessment in 2023 consists of 70 items in the four areas of human rights/labor, safety/health, environment, and ethics from the "Code of Conduct for **GS** Caltex Suppliers" established in 2018. We request evaluations through an online platform for ease of use by suppliers, and following the analysis of results, we select suppliers for further verification and carry out on-site due diligence. These site visits aim to share recent ESG trends and supply chain risk cases, verify the authenticity of suppliers' responses and evidence, and identify improvement areas. This process enhances the suppliers' understanding of risk improvement and allows **GS** Caltex to identify potential risks, serving as an opportunity to enhance sustainability for both parties.

Supply Chain ESG Assessment Process



ESG Assessment/Management for Supply Chain

Category	Detail
Selection of New Suppliers	• Fair selection based on quality, capability, delivery, finance, price, compliance via open bidding, sole-source, and fixed-price contracts • Assessing compliance risks of the counterparty, including suppliers before contract initiation using surveys, risk assessments, and third-party audits per "Compliance Due Diligence Guidelines" • For international deals, compliance team consults to understand supplier risks, manage sanctions risk with methods like automated screening tools
Risk Assessment and Actions for All Supply Chain Workers Including Suppliers	• Monitor issues such as credit, financial status, and compliance, which could be potential risks of management, and record those in the procurement portal system for reference of ESG status of suppliers • Annual written self-assessments and on-site due diligence since 2020 for major suppliers to identify and address human rights, labor, environment, safety, and ethics risks • Suppliers with excellent previous-year ESG scores exempt from evaluations as incentives to increase the ESG capabilities of suppliers
Support to Improve Risks of Suppliers	• Educational sessions for suppliers to share global ESG trends and supply chain issues before ESG assessments • ESG risk identification and improvement strategy consultations during on-site due diligence • Participation in government or related organization programs offering ESG advisory opportunities to suppliers
Communication Channel and Improvement Processes for Supply Chain Workers	• Regular feedback through meetings and educational sessions with suppliers • Complaints, grievances, and misconduct could be reported via website, phone, and email, and those channels are listed on the ethics management site and business cards of purchasing managers • Guarantees the anonymity of the whistleblower and does not tolerate any form of retaliation for reports made in good faith per the Code of Conduct Phone: +82 02-2005-6011 Email: ethics@gscaltex.com Website: ethics.gscaltex.com

Results of Supply Chain ESG Assessment

In 2023, **GS** Caltex conducted ESG assessment for 132 material suppliers, including crude oil suppliers, and 31 service providers, totaling 163 companies, with 135 domestic and 28 foreign firms participating. Considering the characteristics of suppliers, material suppliers were primarily assessed on environmental criteria, while service providers were primarily evaluated on human rights and labor standards.

Analyzing the results of written assessment and the following on-site due diligence, there was a decline in scores for human rights, labor, safety, and health, but slight improvements in environmental and corporate ethics areas. The overall average score was 77.5, with scores varying significantly from 28 to 100 by companies. 45 companies were identified as potential high-risk for ESG issues scoring below 60; 13 were selected for detailed on-site due diligence conducted by **GS** Caltex's consulting experts and labor attorneys, identifying risks based on the suppliers' written responses.

Major Areas Reviewed During On-site Due Diligence

Area	Detail
Human Rights & Labor	• Processes to prevent workplace harassment • Compliance with legal working hours • Non-discrimination policies and processes
Safety & Health	• Industrial incident management regulations and response processes • Policies and processes to ensure safety of production facilities • Survey and management of work-related health hazards, including musculoskeletal disorders
Environment	• Status of environmental policies and processes • Management of documents related to GHG emissions, energy use, and waste disposal
Ethics	• Codes of conduct or policies regarding anti-corruption and conflict of interest • Operation of a whistle blower channel and informant protection policies • Efforts to ensure fair trade, including the use of standard contracts

Average Score by Area

Average	77.5
Human Rights & Labor	83.3
Safety & Health	82.4
Environment	65.8
Ethics	78.3

Participation in Government-Led Supply Chain ESG Due Diligence Program

In the second half of 2023, **GS** Caltex participated in the Ministry of Trade, Industry, and Energy's "ESG Supply Chain Due Diligence Consulting Support Project" for SMEs. This initiative, co-funded by the government and large corporations, included encouraging our suppliers and subsidiaries to apply, providing them with quality ESG due diligence and consulting while covering related costs. This support helps both suppliers and subsidiaries improve their ESG standards and enhances our understanding of their ESG status beyond our internal evaluations.

Shared Growth with Suppliers

Basic Principle

GS Caltex's core principles of shared growth—fairness, stability, and practicality guide our operations. We adhere to practices that guarantee fair business conduct, maintain healthy trade relations, and support supplier capability and productivity improvements. Furthermore, we aim to enhance corporate competitiveness through support programs such as funding, education, and training of suppliers and create social values by establishing stable partnerships with suppliers.

Support Programs

To assist SMEs with smooth financial management, **GS** Caltex has partnered with financial institutions to establish and manage a mutual support fund for our major suppliers. In 2023, we facilitated preferential interest rate loans totaling 20.5 billion KRW to 33 suppliers for shared growth.

Furthermore, since 2016, **GS** Caltex has supported KITECH's "Go-Together for Productivity Innovation" project, aiding suppliers in acquiring necessary technologies to boost their competitiveness. This is not merely financial support but involves providing resources crucial for developing technologies or services that **GS** Caltex plans to purchase. Over the past eight years, this program has supported 72 projects for 66 companies, generating 61.6 billion KRW in increased sales and 24.7 billion KRW in cost savings for these companies. In 2023, we supported five companies through five projects resulting in 1.3 billion KRW in increased sales and 1.9 billion KRW in cost savings, details of which were shared at the "Go-Together for Productivity Innovation Project Achievement Conference".

Respect for Human Rights

Human Rights Management

Principles

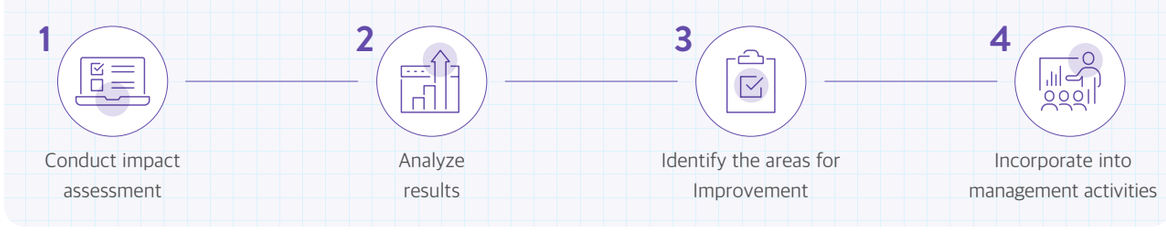
GS Caltex upholds the human rights of all stakeholders, including employees, subsidiaries, and suppliers, by establishing and adhering to a human rights policy, Code of Conduct for **GS** Caltex suppliers, and stakeholder policy that embeds our philosophy of respecting human rights. We also support global standards of international organizations such as the Universal Declaration of Human Rights and the UN Framework and Guiding Principles on Business and Human Rights. We explicitly prohibit sexual harassment and workplace bullying in our corporate code of conduct and manage compliance through specific workplace harassment prevention guidelines.

Human Rights Impact Assessment

Annually, **GS** Caltex conducts a human rights impact assessment for all employees, based on the 'OECD Due Diligence Guidance for Responsible Business Conduct' and the 'National Human Rights Commission of Korea's guidelines on human rights management'. The assessment covers ten areas including non-discrimination, prohibition of forced and child labor, creation of a safe work environment, protection of the right of assembly, and privacy protection.

After the assessment, **GS** Caltex proactively identifies potential human rights risks across business operations, analyzes results by organization and age group, and integrates improvement measures into our management practices.

Human Rights Impact Assessment Process



Human Rights Training and Reporting Channels

GS Caltex annually carries out mandatory human rights training as part of compliance education, enhancing the awareness and sensitivity of employees, subsidiaries, and suppliers to human rights issues. Our training covers data protection, human rights respect, anti-discrimination, harassment prevention, disability awareness, and workplace bullying prohibition. We also promote voluntary compliance by defining and publicizing guidelines on workplace bullying prevention to all stakeholders.

GS Caltex maintains confidential channels for reporting human rights issues such as workplace bullying and harassment, accessible to everyone, including subsidiaries, suppliers, and clients. Upon receiving reports, the responsible department promptly investigates in accordance with procedures. Our reporter protection policy assures anonymity and protects the rights of the reporter by preventing any retaliatory actions.

1 Case

Reports and Handling of Workplace Bullying in 2023
- Report workplace bullying
- Email : healing@gscaltex.com
- Phone : +82 02-2005-6013

0 Case

Reports and Handling of Sexual Harassment in 2023
- Report sexual harassment
- Email : metoo@gscaltex.com
- Phone : +82 02-2005-6012

Respect for Diversity

Hanul Love, established in 2020 as the first subsidiary-type standard business place in Jeollanam-do, operates a cafe within the Yeosu Complex, promoting a working environment inclusive of both disabled and non-disabled staff. As of 2023, Hanul Love employs 22 disabled and 5 non-disabled employees. Hanul Love additionally contracted the operation of convenience stores in the Yeosu Complex and expanded the job and recruitment of the disabled by developing convenience store manager/step roles and transitioning managerial roles in the cafe from non-disabled to disabled. Beyond legal requirements, Hanul Love offers ongoing training in safety, hygiene, customer service, and communication to enhance the skills of disabled employees. Those who need support at work are assisted by job support staff. In partnership with the Korea Employment Agency for the Disabled, Jeollanam-do Branch, Hanul Love has signed an agreement to operate a subsidiary-type standard business place, contributing to stable employment for the disabled and fulfilling our social responsibilities. Hanul Love continues to explore various projects to enhance employment opportunities for the disabled within the community, spreading positive impacts in the region.

Rational Employment

Fair Recruitment Procedures

GS Caltex undergoes open recruitment focused on capability without restrictions based on gender, major, region, age, or educational background to secure talent suitable for job roles. We evaluate candidates comprehensively, considering not only basic job competencies but also digital literacy—the ability to understand and utilize digital tools and technologies. We leverage AI and deep learning to enhance the fairness and accuracy of our recruitment evaluations.

In addition to regular recruitment drives, **GS** Caltex engages in ongoing hiring, general and global internships, and an engineer leadership program to attract top talent. Furthermore, we collaborate with four universities to provide regular educational programs that offer practical industry knowledge and hands-on experience, fostering talent through our Engineer Leadership Program to communicate with incumbents.



Fair Performance Evaluation and Compensation

Principles

GS Caltex fairly assesses employee performance, providing appropriate rewards and constructive feedback to employees to enhance capabilities and improve outcomes. Our annual performance management includes setting objectives at the beginning of the year, interim reviews, year-end evaluations, and feedback sessions. We also have regular meetings to review goals and work processes and discuss personal development and nurturing plans. To prevent elements outside performance evaluations from distorting outcomes, results are used solely for compensation purposes and are kept separate from promotions, appointments, or selections for training programs.

Methods

At **GS** Caltex, employee performance evaluations consider both quantitative and qualitative aspects of individual task goals. At the start of the year, employees set their annual task goals and weights based on organizational goals, using a checklist that specifies criteria and weights. Task goals are divided into 'Operation' and 'Improvement' areas to promote continuous development in job roles. Based on task goals and fostering contents, employees get interviewed with evaluators and receive ongoing feedback and support through regular task checks throughout the year. We also promote boundaryless collaboration by granting project managers evaluation authority.

Evaluators enhance objectivity by using checklists and employ a four-tier rating system[1)] that reflects the degree of achievement expected for each task goal. Moreover, regular training for evaluators and self-checks ensure fair assessment by enabling evaluators to reflect on their feedback.

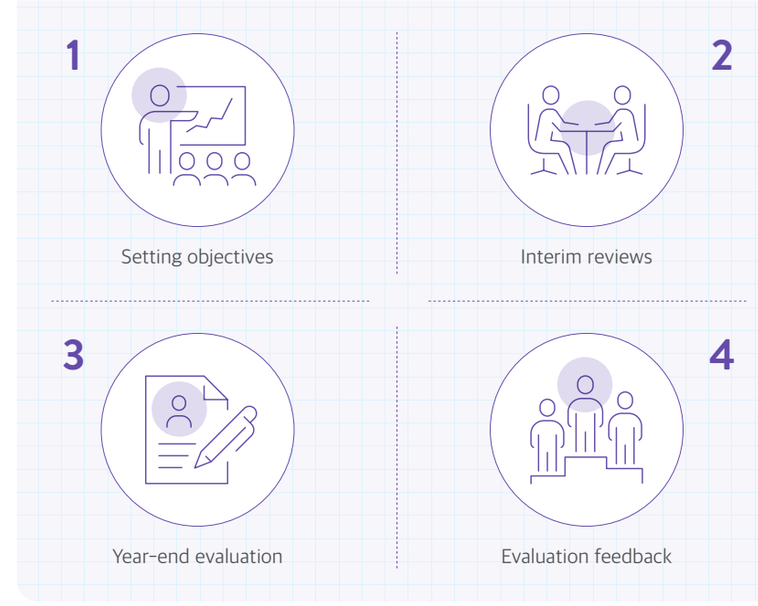
GS Caltex ties performance evaluations to a reward system that enhances job satisfaction, offering additional payment for high performance and differential rewards based on evaluation results and individual contributions during salary adjustments.

Peer Review System

Since 2021, **GS** Caltex has implemented a peer review system to support employee growth through constructive feedback. Initially, anonymous peer reviews were targeted at general and research staff at senior managerial levels and above; they were expanded in 2023 to include associate managers.

The evaluation combines multiple-choice items based on organizational values(Trust, Flexibility, Challenge, Excellence) and subjective items assessing colleagues' competencies, behaviors, and attitudes. The results are fed back to the employees through their managers and used as a reference in appointment decisions.

Performance Evaluation Process



1) Outstanding / Exceed / Meet Expectation / Need Improvement

Innovation in the Workplace

Field-Centric Open Innovation

GS Caltex actively explores and learns future issues through the Self-designed Business Trip(SBT) program, sharing applicable insights internally. By 2023, thirteen topics were selected and shared within the company. Utilizing various methodologies, including design thinking, we continuously build experience in solving practical problems and enhancing field-required skills. So far, about 40% of all employees have voluntarily participated, experiencing open innovation methods.

Based on these capabilities, employees have participated in the **GS** Group's hackathon, proposing numerous prototypes that are now being applied in real business contexts.

Creation of a Work Environment Based on Autonomy and Responsibility

GS Caltex believes that autonomy in task execution ensures active engagement and high performance under personal responsibility. To foster an autonomous office environment and work atmosphere, we encourage employees to choose their optimal working conditions. Considering organizational characteristics and employee needs, we implement a flexible seating policy and actively manage flexible working arrangements through Smart Working Time(SWT) and self-regulated attendance. Also, we actively operate autonomous dress code policies suitable for time, place, and occasion(TPO), promoting flexibility and autonomy in the workplace.

GS Caltex's Innovation Program 'Scorpions'

GS Caltex aims to enhance profitability and competitiveness through the 'Scorpions' performance improvement program. This initiative identifies and implements improvement projects across the entire value chain, driven by principles such as 'Stretched Goal Setting,' 'Systematic Business Operation,' 'Cross-Functional Collaboration,' and 'Good Risk Taking.' Efforts focus on transforming work processes and fostering an innovative organizational culture.

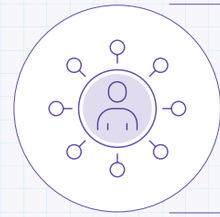
Since 2023, **GS** Caltex has been actively exploring improvement opportunities using digital levers, establishing a digital transformation strategy with five key areas and a medium to long-term roadmap centered around the Yeosu Complex. In addition, we operate an in-house digital academy to bolster digital competencies among our members. Scorpions align with our strategic direction, increasing competitiveness in core areas and accelerating changes in work practices.

Major Directives of 'Scorpions'



Stretched Goal Setting

- Set ambitious goals without prejudging feasibility, aiming to maximize potential opportunities



Systematic Business Operation

- Enhance transparency and effectiveness in innovation activities through management and execution of improvement tasks based on a single system



Cross-Functional Collaboration

- Create new opportunities and multi-dimensional solutions through increased collaboration within and outside the organization, functions, and company
- Establish an execution framework for rapid decision-making and momentum in cross-functional areas requiring departmental collaboration



Good Risk Taking

- Seek high profitability and swift execution by analyzing and reviewing manageable risks
- Foster an environment where failure is tolerated and new challenges are embraced without fear

Welfare and Benefits

GS Caltex operates a comprehensive employee benefits system to support work-life balance and job commitment, encompassing healthcare, housing support, living cost subsidy, childcare support, personal development, and leisure subsidies. In response to reducing the burden of childbirth and parenting in an era of low birth rates, we actively offer maternity congratulations allowance, postnatal care subsidy, educational support for children, breastfeeding rooms(Mother's Room), reduced working hours during child-rearing, on-site childcare at headquarters and factories, family care leave, parental leave, support for infertility treatment costs, and infertility treatment leave. Since 2007, we also provide an Employee Assistance Program(EAP) to help employees resolve work and personal issues through professional counseling.

Welfare and Benefits of **GS** Caltex



Best Family-Friendly Management

GS Caltex promotes a respectful work culture and a fulfilling life for employees to live more prosperous life in harmony with work and family by offering comprehensive welfare benefits like childbirth, rearing, education, and life support.

In 2023, **GS** Caltex was certified under the government's Best Family-Friendly Management[1], established by the "Act on The Promotion of Creation of Family-Friendly Social Environment", Article 15, Paragraph 1.



Best Family-Friendly Management

Fostering a Healthy Organizational Culture

Active Use of Diverse Communication Channels

GS Caltex promotes transparent communication of management policies and status through various channels. We use digital platforms and technologies for ceremonies and business status briefings. We operate the Jium Academy and Leader Insight Forum, allowing employees to engage in lectures on diverse topics and share insights. Internal communication is facilitated through our corporate social network, Workplace, where we share company news and industry updates.

GS Caltex also encourages participation through an anonymous message board without topic restrictions, where 134 posts were made in 2023, and 64 of these influenced our management practices.

Cooperative Labor-Management Relations

Since the Labor Harmony Declaration and Charter in 2005, **GS** Caltex has been actively involved in joint safety culture activities and organizational culture initiatives to foster labor relations. We participate collectively in community service projects and operate various joint task forces and labor councils to achieve our vision of 'productive labor relations and mutual prosperity'. These collaborations help build consensus and facilitate communication on various issues. We negotiate wages and collective agreements to maintain and improve working conditions. Besides, we prioritize the safety and health of our employees by operating the Operational Safety and Health Committee and establishing a cooperative labor relationship.

Promoting Women Leaders

GS Caltex is committed to creating an environment where each employee can leverage their individuality and capabilities. We regularly review and improve our systems to guarantee fair opportunities and healthy competition for management positions, removing obstacles to workplace advancement caused by gender discrimination and stereotypical gender roles. Further, we appoint leaders based on fair and objective criteria such as professional skills and leadership, rather than gender. We continuously identify and recruit women for executive and team leader positions, reinforcing our commitment to diverse leadership.

1) Best Family-Friendly Management : A certification awarded to companies that establish outstanding family-friendly management systems, support the work-life balance of employees, and contribute to enhancing national competitiveness

Career Development Programs

GS Caltex systematically manages employee education programs to foster exceptional talent, including training by years of service, external degree courses, job competency enhancement programs, and coaching and mentoring initiatives.

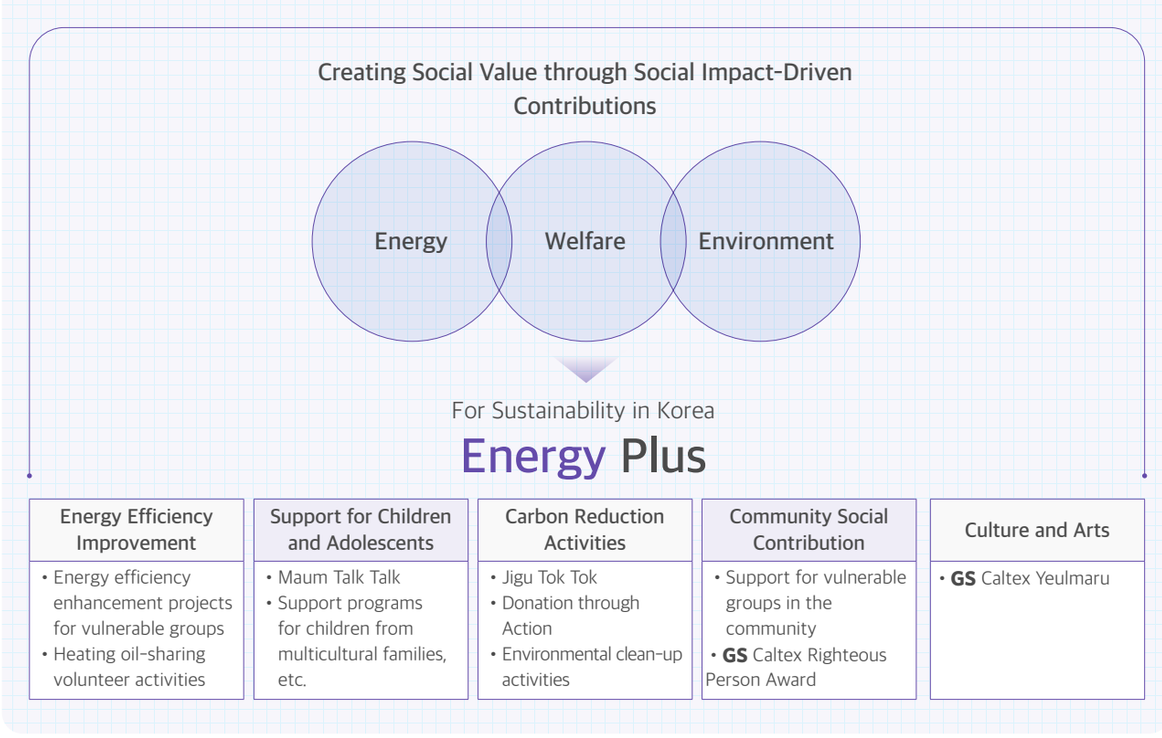
Program	Detail
Talent Development	• Degree Courses : EMBA/MBA, specialized graduate schools for job expertise, etc. • Self-Designed Learning(SDL) : Employees select and engage in certified courses in Korea or abroad to enhance their capabilities • Leadership Development : Focused on nurturing externally-oriented and innovative leaders
Coaching and Mentoring	• External Coaching Programs : Enhance leadership and skills for executives and team leaders • Internal Coaching Programs : Support junior employees in adapting to the organization and unlocking potentials • Mentoring Programs : Support new employees(graduates/experienced) to adapt to the company
Leadership Training	• For Managers(Executives/Team Leaders) : Executive Development Programs, new team leader courses, group learning sessions, etc. • For Team Members : Pre-leadership courses, including leadership modules in training by years of service
Job Competency Development	• General Job Skills : Business communication, negotiation, basic accounting, financial statement analysis, etc. • Specialized Job Skills : Basic and advanced courses tailored to specific job functions • Digital Skills : Courses like Digital Translator(DT) and Citizen Data Scientist(CDS) from Digital Academy
Re-employment Support for Prospective Retirees	• Career Planning : Change management, life planning, self-assessment, career planning documentation, relationship management, etc. • Financial planning for life, understanding pensions



Social Contribution

Social Contribution Strategy

GS Caltex focuses on energy, welfare, and environment as core areas, creating diverse social values under the slogan “Energy plus”. We are committed to conducting social contribution activities that not only relate to our business, such as improving energy efficiency and reducing carbon emissions, but also support children and teenagers and continue community engagement around our main production hub in Yeosu.



Social Value Creation Performance of Major Social Contribution

GS Caltex is applying the monetary-based methodology to calculate the social benefits generated relative to the input costs, Social Return on Investment(SROI)[1], to measure the social contributions of our corporate social responsibility activities. In 2023, our major social contribution activities generated a social value of 144% compared to the input costs.

Initiatives	Measured Activities	SROI(%)
Energy Efficiency Improvement for vulnerable groups	Energy cost savings through home energy efficiency improvements	129.2
	Enhancing welfare resources by reducing energy costs for vulnerable groups	
	Greenhouse gas emission reductions due to improved energy efficiency	
Maum Talk Talk	Enhanced psychological and emotional stability in children participating in programs	217.0
	Capacity building in psychological therapy techniques for teachers managing programs	
	Increase in personal income due to the employment of art therapists	
	Reduction in societal costs of juvenile crime	
Jigu Tok Tok	Enhanced environmental awareness through citizen campaign participation	96.1
	Provision of citizen donation mileage	
	Reduction in plastic straw waste management costs	
	Decrease in pollution due to reduced plastic straw usage	
GS Caltex Yeulmaru	Expansion of cultural and artistic experiences for local residents	147.6
	Increase in personal income for artists residing in creative studios	
	Savings on cultural welfare costs for vulnerable groups, thus augmenting municipal welfare resources	
Total		144.1

1) This methodology translates social value into monetary value, representing it in a Return on Investment(ROI) format
SROI = Social Returns* / Investment
*Social Returns = Social Benefits - Social Costs

Social Contribution Activities

Support for Energy Efficiency Improvement

GS Caltex is committed to alleviating heating costs for low-income households through energy efficiency improvements. We also support necessary supplies and facilities and donate heating oil as part of our energy-sharing initiatives.

Energy Efficiency Improvement Project for Low-Income Households

Since 2023, **GS** Caltex has been sponsoring a public-private partnership project to improve energy efficiency for low-income households, newly introduced by the Korea Energy Foundation, contributing a total of 10 billion KRW. This initiative not only reduces heating costs for low-income households but also cuts down energy consumption, reduces carbon emissions, and enhances living conditions. Our donations fund the provision of energy efficiency improvement supplies and facilities, such as windows, doors, insulation, boilers, and lighting. Additionally, our employee volunteer group, Energy Plus Volunteer Corps, actively participates in nationwide volunteer activities during facility construction.

Heating Oil Sharing Activities

GS Caltex carries out heating oil sharing volunteer activities for low-income elderly people struggling with high prices and severe cold at the beginning and the end of each year. In February 2023, we provided 16,000 liters of heating oil to Jaegun Village and Guryong Village, and in December, we distributed 10,000 liters to Guryong Village. Furthermore, in collaboration with the Community Chest of Korea and the Korea Association of Senior Welfare Centers, we supplied heating oil to 455 low-income elderly households nationwide.



Donation Ceremony for Energy Efficiency Improvement Project for Low-Income Households



Heating Oil Support for Elderly Winter Care

Child and Youth Support - Maum Talk Talk

Maum Talk Talk is designed to aid self-growth and enhance the sociality of children and adolescents facing psychological and emotional challenges. This program supports various artistic activities such as painting, dance/movement, music, and drama. It operates in two formats : 'Teacher-led Maum Talk Talk,' where school teachers directly conduct the art therapy program, and sessions led by dispatched art therapists. The program is funded through voluntary donations from employees and matching grants from the company.

2,814
No. of children supported in 2023

28,530
No. of children supported from 2013 to 2023

Teacher-led Maum Talk Talk

Recognizing the importance of healthy teacher-student relationships in fostering a positive school culture, **GS** Caltex developed 'Teacher-led Maum Talk Talk'. This initiative provides teachers with art activity packages, training, and online consulting to help them learn methods to heal and nurture students through art activities. This approach overcomes the previous limitations of reaching only predetermined beneficiaries and the geographic focus on Seoul and Gyeonggi, enabling support for a larger number of students. Also, since the program is designed to enhance self-esteem and social skills, it promotes peer relationship improvement and school violence prevention. Starting with a pilot training for 19 selected teachers nationwide in August 2022, the program expanded in 2023 to include 37 teachers from 36 schools, benefiting 2,144 students.

Art Therapist-led Maum Talk Talk

To address issues faced by children and adolescents during their growth fundamentally, **GS** Caltex has been dispatching art therapists since 2013 to provide high-quality art therapy programs. Collaborating with Good Neighbours, we conduct various programs, including the 'Psychological and Emotional Healing Program for Children and Adolescents from Low-Income Families' and 'Classroom Healing' aimed at first-year middle school students to prevent school violence. In 2023, these programs healed the hearts of 596 children and adolescents.

Environmental Protection - Jigu Tok Tok

GS Caltex's Jigu Tok Tok is a social contribution initiative aimed at reducing environmental pollution beyond our production processes and encouraging individuals to adopt environmental protective behaviors in their daily lives.

GS Caltex provides tools to facilitate simple and convenient environmentally conscious actions and verify behavior changes through tool usage certification. In 2023, our first tool was the 'openable silicone straw.' This straw addresses the difficulty of thoroughly cleaning traditional silicone straws by incorporating a groove that allows it to open flat for cleaning. The product is free from environmental hormones and reduces approximately 3 grams of carbon emissions with each use. In order to make it easy to carry in everyday life, we separately manufactured and provided a custom case that can be hung in the form of a key ring. The campaign saw active participation from 10,000 individuals who received the openable silicone straw package.



Openable Silicone Straw of Jigu Tok Tok

Citizen Environmental Awareness Campaign 'The Sea Starts Here'

Since 2022, **GS** Caltex has partnered with the 'Ecobuddy Institute' to raise awareness about the harm caused by microplastics entering the ocean through roadside drains and to tackle marine environmental pollution from microplastics. The 'The Sea Starts Here' campaign involves producing and installing roadside drain filters and anti-littering pavement stickers.

In 2023, the campaign expanded to include 50 stores in Incheon, where local activists were recruited and designated as 'drain managers' under the 'Manage My Storefront Storm Drain' model. This initiative empowered citizens to take charge of monitoring and participating in plogging activities, actively engaging them in the campaign to protect and manage their local drains.

Local Community Contribution

Culture and Arts - GS Caltex Yeulmaru

Reflecting on both environmental impact and the social needs of the community, **GS** Caltex opened '**GS** Caltex Yeulmaru', a premier cultural arts space on the south coast, in May 2012. Set in a pristine natural environment, this architectural space offers high-quality cultural and artistic programs, including classical music, opera, musicals, and ballet. The venue enhances the quality of life for citizens and provides cultural and artistic experiences to a region previously lacking such opportunities.

In 2023, **GS** Caltex Yeulmaru was uniquely selected from Jeollanam-do as one of the 'Korea Unique Venues 52' by the Ministry of Culture, Sports and Tourism and the Korea Tourism Organization. This recognition positions Yeulmaru as a beloved landmark both domestically and internationally. In addition, major musicals like Broadway's '42nd Street' and 'Mamma Mia!' achieved record success in Yeulmaru during their Korean tours, and the hosting of the National Geographic Jangdo Exhibition further elevated Yeulmaru's status as a leading cultural institution in the glocal(Global + Local) era.

As of December 2023, **GS** Caltex Yeulmaru has attracted approximately 1.29 million visitors for performances and exhibitions, while the Island of Arts, Jangdo, has welcomed approximately 1.56 million visitors. From the inception of **GS** Caltex Yeulmaru in 2006 through 2023, the **GS** Caltex Foundation has invested a cumulative total of 146.3 billion KRW.



GS Caltex Yeulmaru

Communication with the Local Community

GS Caltex holds regular meetings with residents near the Yeosu Complex, transparently sharing any special issues arising from its operations. This practice fosters trust and cooperation with the community and aids in addressing and solving local problems.

Especially, **GS** Caltex continuously communicates with local welfare agencies and civic organizations to incorporate community feedback into our key projects. Moving forward, we will actively engage with various stakeholders to support the community.

Local Community Contribution Activities

GS Caltex proceeds community contribution activities that provide tangible assistance to local residents, particularly focusing on long-term projects for vulnerable groups such as children and the elderly.

In 2023, **GS** Caltex expanded the "Happiness of 1,000 Won" program, which is funded by monthly employee donations, to support vulnerable community members. Participation increased by approximately 32% compared to the previous year, and we provided tailored supplies such as daily necessities and furniture to 19 households, including single-parent and grandparent-headed families. For families needing housing improvements, we combined financial support with employee volunteer activities, enhancing the spirit of sharing.

Additionally, leveraging the human and material resources of Yeulmaru, **GS** Caltex offered African music and arts education, led by professional instructors, to local children's centers in Yeosu. This initiative provided 115 children with unique artistic experiences, such as learning the djembe and body percussion, that they might not otherwise encounter.

Category	Community Contribution Program	Program Details
Care for Vulnerable Groups	**GS** Caltex Soup Kitchen for Elderly	• Operate a free meal service for elderly residents at risk of hunger in Yeosu, providing lunch to approximately 350 individuals daily(2008-2020) • Due to COVID-19, shift to bi-weekly meal deliveries for around 480 elderly residents with severe hunger concerns(2020-2023) • Provide nutritious meals during holidays and seasonal events
	GS Caltex Chuseok Sharing	• Support vulnerable groups in Yeosu with rice and daily necessities(2005-2023)
	GS Caltex Warm Meals	• Support a lunch program for low-income job-seekers in Yeosu(2018-2023)
Talent Development	**GS** Caltex Maum Talk Talk for Troubled Adolescents	• Conduct art therapy programs for local youth with conditional non-prosecution dispositions(2016-2023)
	GS Caltex Maum Talk Talk for Multicultural Children	• Conduct art therapy programs for multicultural children in Yeosu(2022-2023)
	GS Caltex Hopeful Energy Class	• Offer experiential learning programs to foster dreams and visions for elementary and middle school students at local child centers in Yeosu(2010-2023) • Provide African music and arts education and hold presentations at Yeulmaru(2023)
	GS Caltex English Classes in Remote Islands	• Operate English education programs with native English teachers residing on remote islands for elementary, middle, and high school students in Yeosu(2007-2023)
	GS Caltex Saerom Class	• Support the youth guidance program operated by the Yeosu Police Department(2018-2023)
Environmental Conservation	Environmental Clean-up Activities (Marine and Land)	• Employees, along with their families and suppliers, collect litter that pollutes villages, rivers, coastlines, and tourist spots near the Yeosu Complex
Employee Sharing	Regular Employee Volunteer Activities	• Conduct tailored volunteer activities and sharing initiatives for vulnerable groups in nearby villages on the company's anniversary(May) and at year-end(December)(2005-2023)
		• Perform environmental clean-up activities and replace bidets in senior centers on the anniversary, and provide kimchi, heating oil, and rice at year-end(2023)
	GS Caltex Volunteer Groups	• Voluntarily organized employee volunteer groups conduct activities throughout the year, such as home repairs, disinfection, and cultural support for vulnerable children
	GS Caltex Matching Grant	• Company and labor union create a matching grant fund to support after-school programs operated by the Yeosu Office of Education and Yeosu YMCA(2006-2023)
	Employee Donations	• Host the "Happiness of 1,000 Won" event monthly in the Yeosu Complex, with collected donations supporting vulnerable groups through welfare institutions(2022-2023) • Match employee donations with company funds to support public interest organizations(2005-2023)
	Sharing Second-hand Goods	• Donate used office furniture and computers to welfare facilities in the Yeosu area(2023)
Community Unity	**GS** Caltex Righteous Person Award	• Recognize individuals in the Yeosu, Suncheon, and Gwangyang areas who take risks to save lives, ensure safety, or consistently perform exemplary acts of kindness(2020-2023)

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Corporate Ethics and Compliance Enhancement

Ethical Management Practices

Ethical Management Policies

GS Caltex clearly defines its basic principles through the "Business Conduct and Ethics Code" and its sub-regulation, the "Business Conduct and Ethics Code Standards," which incorporates global standards related to ESG. Also, various compliance programs and regular annual training for employees ensure ethical decision-making and practice in daily operations.

Revisions to Fair Trade and Anti-Bribery Regulations

GS Caltex establishes and operates detailed procedures and guidelines on fair trade, anti-bribery, and compliance with international sanctions. In 2023, the company revised regulations, including the "Business Conduct and Ethics Code", the "Conflict of Interest and Related Party Transaction Reporting and Management Procedures", and the "Guidelines for Prohibition of Unfair Solicitation and Provision of Economic Benefits to Public Servants", to reflect relevant laws, business environment, and stakeholder requirements. The company plans to continuously review and manage these regulations to secure their timeliness, relevance, and effective control.

Ethical Management Communication Channels

GS Caltex operates the "Ethical Management Hotline", a channel for all stakeholders inside and outside the company, including employees, subsidiaries, customers, and suppliers, to report and consult on suspected violations of domestic and international laws, regulations, as well as unethical behavior such as human rights abuses. In 2023, the hotline received 29 reports : 6 from customers, 11 from suppliers, 7 from employees, and 5 from others. All reports were promptly handled according to regulations, either by the audit department or by transferring to related departments*. In addition, **GS** Caltex actively communicates compliance activities and issues with stakeholders through various channels, such as the compliance portal and newsletters.

* Actions included 6 audits, 17 transfers to relevant departments, and no further action needed for 6 nonrelevant reports, leading to 1 disciplinary action out of 29 cases



Ethical Management Website
http://ethics.gscaltex.com



Ethical Management Hotline
Email : ethics@gscaltex.com | Phone : +82 02-2005-6011

Basic Principles of **GS** Caltex Business Conduct and Ethics Code

Human Rights	• As a global corporate citizen, we fully understand the importance of human rights as a universal value of humankind and acknowledge the value of diversity of our employees and stakeholders.
Conflicts of Interests	• We act in **GS** Caltex's best interest and avoid any behavior or activity that conflicts with the company's interest.
Anti-Bribery/ Internal Control and International Trade	• We comply with domestic/international anti-bribery laws. As we recognize the importance of internal control, **GS** Caltex operates a reliable internal control system throughout the entire company. • As a global corporate citizen, **GS** Caltex upholds domestic/international regulations applicable to international transactions and respects internationally accepted standards. • We comply with the laws and regulations where we operate and respect those laws and regulations which our business partners have to comply with.
Promotion of Stakeholder Value	• We understand the importance of our stakeholders including customers, employees, partner companies, shareholders/investors, local communities and government/related agencies and strive to promote their value.
Win-win Partnership and Fair Trade	• We strive for sustainable growth through a win-win partnership with partner companies. We aim to create value through fair trade practices.
Safety, Health & Environment	• We place the utmost priority on the safety and health of our employees and partner companies. With management practices based on respect for human life, we strive to create a safe, pleasant, and accident-free workplace. In addition, we do our best to protect the environment, recognizing that preserving it is a critical element of sustainable management. • We comply with applicable domestic/international SHE laws and regulations, in spirit and letter.
Data Privacy and Information Security	• We protect personal information in a systematic fashion to ensure an individual's freedom and rights. We work to fulfill our responsibility towards information security in recognition of intellectual property rights and information as an asset.

Operating Principles of Ethical Management Hotline

The Ethical Management Hotline rigorously protects the anonymity of both informants and consultants and strictly prohibits any retaliatory actions against good-faith reports. These principles are outlined in the "Business Conduct and Ethics Code" and the "Business Conduct and Ethics Code Standards" and are publicized through the Ethical Management Website as the "Assured anonymity of whistleblowers and the principle of non-retaliation". Reports can include any acts affecting healthy business operations, such as violations of the **GS** Caltex and its subsidiaries' "Business Conduct and Ethics Code", unfair business practices, negligence, breaches of fair trade, and various human rights violations. Upon receipt of such reports, the audit department reviews and carries out necessary audits, while other related departments handle further verification and processing of the matters. Upon informants' request, informants may be informed about the progress and outcomes of the report's handling.

Improvements of Reporting Audit Procedure

GS Caltex operates a reporting audit procedure to ensure that reports received through the Ethical Management Hotline are handled fairly and transparently. In 2023, we enhanced the neutrality and objectivity of its reporting audit procedures by benchmarking global best practices. The process from receipt to audit, reporting, and record management has been detailed, and inter-departmental collaboration has been facilitated by clarifying the roles of relevant departments. Furthermore, corrective actions based on audit results are implemented, ensuring continuous monitoring and execution of ethical management practices.

Internalizing Ethical Management

GS Caltex annually requests all employees to sign a voluntary compliance pledge and sends CEO messages to employees, suppliers, and clients to enhance ethical awareness. Besides, **GS** Caltex shares compliance trends and sanction status with all employees in a newsletter format on an online bulletin to emphasize the importance of ethical management.

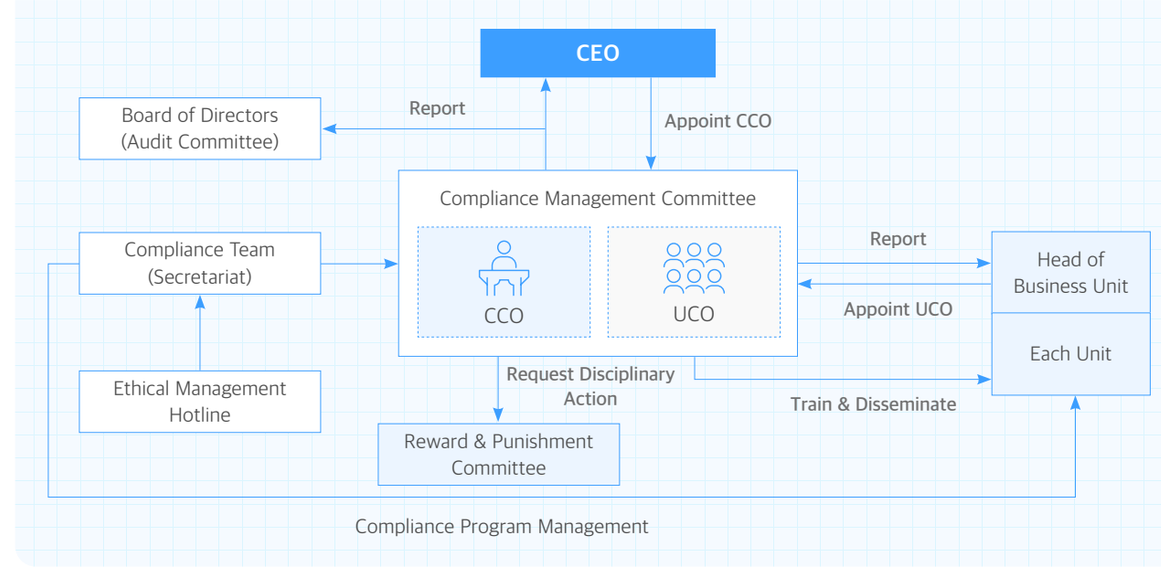
Compliance Management

Organizations and Report System

GS Caltex operates a "Compliance Management Committee," to share internal and external compliance issues and activities, and to review and discuss their status. The committee is composed of the Corporate Compliance Officer(CCO), who oversees the company-wide compliance program, and Unit Compliance Officers(UCOs), who assist the CCO and manage compliance activities within their respective units. In addition, a Compliance Team is established as an overarching department to support the CCO in managing the compliance program more efficiently. The Audit Committee, operating under the Board of Directors, manages and supervises overall company compliance activities and issues, receiving independent reports from the CCO.

Since obtaining ISO 37301(Compliance Management System) certification in 2021, **GS** Caltex has continuously improved and systematized a series of processes according to ISO standards, including compliance risk assessment, mitigation activities, monitoring, evaluation, and improvement actions for its headquarters' employees, maintaining a global standard compliance system and certification.

(As of May 2024)



Compliance Program

GS Caltex's compliance program incorporates the "Business Conduct and Ethics Code" and "Business Conduct and Ethics Code Standards", along with all related internal regulations. It encompasses compliance enhancement activities, compliance due diligence, a reporting system for compliance issues, reporting, investigations into various compliance violations, monitoring, and effectiveness evaluation.

Meanwhile, **GS** Caltex and its subsidiaries mandate annual online "Basic Compliance Training" for all employees, including contract and dispatched workers. This training comprises four modules : compliance and business conduct ethics codes, fair trade, information security, and safety/health/environment.

Major Contents of Compliance Training

Category	Compliance and Business Conduct and Ethics Code	Fair Trade	Information Security	Safety, Health, and Environment
Contents	Understanding compliance	Fair trade violation cases	Information security incident cases	Safety, health, and environment management policies
	Compliance organization and reporting system	Illegal cartel conduct	Seven key information security rules	Six life-saving golden rules
	Compliance program	Communication guidelines with competitors	Remote work security rules	Company safety, health, and environment incident cases
	Key aspects of Business Conduct and Ethics Code and responsibilities of **GS** Caltex employees	Offshore application and case of penalties of fair trade regulations	Personal information protection	First steps towards safe handling of chemicals
	Ethical Management Hotline			

Fair Trade Compliance Activities

GS Caltex actively shares updates on amendments to major laws and monitoring results of policy trends across all business sites, ensuring these changes are reflected in relevant regulations and maintaining compliance in business operations. We also continue to communicate with regulatory bodies such as the Fair Trade Commission.

GS Caltex has appointed an Anti-trust Compliance Officer(ACO) to enhance employee awareness and enforce fair trade practices. We also operate an Anti-trust Compliance Program(ACP), which includes schemes and regulations related to fair trade, training, and monitoring, providing fair trade consultancy and training on various types of unfair trade practices[1].

GS Caltex has institutionalized fair bidding through strictly enforced internal procedures designed to ensure fairness when participating in domestic or international bids organized by public or private entities or inviting clients or suppliers to bid. Moreover, when employees communicate with employees of competing companies, the 'prior review of competitor communication', system is utilized to assess appropriateness beforehand and guide employees to refrain from activities that could violate domestic and international fair trade laws.

For transactions with affiliated companies or those in a special relationship, the 'internal transaction review system' is implemented to confirm fairness and appropriateness. The review department assesses the selection of counterparts and the fairness of terms, ensuring compliance with the Fair Trade Act, Taxation and Commercial Laws, and other regulations related to internal transactions. Based on the results, business units proceed with, modify, or follow up on transactions accordingly.

In subcontracting transactions, the 'subcontracting transaction review system' considers factors like unit price calculation methods and the dependency of suppliers on **GS** Caltex, securing fairness when dealing with small and medium enterprises under the subcontracting law. To address actual and potential compliance risks related to corruption, bribery, conflicts of interest, international economic sanctions, export controls, money laundering, and financing of terrorism, **GS** Caltex conducts 'compliance due diligence' before initiating contracts or transactions with all transaction partners including suppliers, customers, and joint venture partners. This due diligence enables appropriate actions to mitigate and resolve identified risks.

1) Cartel, unfair internal transactions, unfair subcontracting practices, and unfair agency transactions, etc.

The Board of Directors

Composition of the Board

Principles

GS Caltex elects directors annually through a shareholder meeting, selecting candidates recommended by Korean shareholder **GS** and US shareholder Chevron, based on their management expertise and crisis management capabilities. As of May 2024, the board consists of two Representative Directors, one Executive Director, and seven Non-executive Directors, totaling ten members, with no outsider directors. The term of a director is defined as ending at the conclusion of the first regular shareholder meeting held after their appointment.

GS Caltex's Chairman and CEO, Saehong Hur, previously held significant CEO roles within key affiliates, providing him with a deep understanding of overall company management and making him suitable for the role of Board Chairman. He was appointed Chairman in February 2024 following a board resolution. The board operates under Articles 36(Meetings of Directors) and 37(Board Resolution) of the company's Articles of Incorporation, with director compensation determined by the shareholder meeting.

Current Board Composition

(As of May 2024)

Role	Name	Current Job Title and Position	Reasons for Appointment	Age	Gender
Representative Director	Saehong Hur	Board Chair & CEO, **GS** Caltex Corporation	Contributing to the success of the company and the Board, based on his experience as the CEO of **GS** Caltex and a major affiliate, and his in-depth understanding and business expertise	54	M
	Seongmin Kim	CSEO / Representative Director & Head of Yeosu Complex / Vice President, **GS** Caltex Corporation	Contributing to the success of the Board, based on his long career with the company and his business expertise	56	M
Executive Director	Seounghoon Lee	Head of Supply & Trading Business / Vice President, **GS** Caltex Corporation	Contributing to the success of the Board, based on his long career with the company and his business expertise	58	M
Non-Executive Director	Soon-Ky Hong	Board Chair & CEO, **GS** Holdings Corporation	Contributing to the success of the Board, based on his experience and expertise as the CEO of major affiliates	65	M
	Yongsoo Huh	Board Chair & CEO, **GS** Energy Corporation	Contributing to the success of the Board, based on his experience and expertise as the CEO of major affiliates	55	M
	B. T. Fish	President, International Products, Chevron Corporation	Contributing to the success of the Board, based on his experience and expertise as President of Chevron International Products	60	M
	M. Badenhorst	Vice President, Health, Safety and Environment, Chevron Corporation	Contributing to the success of the Board as Vice President of Health, Safety & Environment at Chevron Corporation	48	F
	A. F.B. Behdjet	Vice President & General Counsel, Chevron Corporation	Contributing to the success of the Board as General Counsel for Oil, Products & Gas at Chevron Corporation	51	M
	M. T. Reilly	Assistant Treasurer - Enterprise Finance, Chevron Corporation	Contributing to the success of the Board as Assistant Treasurer of Enterprise Finance at Chevron Corporation	54	F
	B. C. Payne	Korea Country Chairman, Chevron Korea, Chevron Corporation	Contributing to the success of the Board and effective communication as the Country Chairman of Chevron Korea	49	M

Board Activities

In 2023, a total of 12 board meetings were held, during which the 2024 business plan and major investment proposals were reviewed and approved. Issues related to safety, compliance, and governance, including ESG matters, were also discussed. The Board Support Office, which is the relevant organization, facilitates communication between directors and business units, prepares agenda items for the board, and supports directors' decision-making by providing ample preparatory materials. **GS** Caltex has stated that directors with a special interest in an agenda item are not allowed to vote on that matter to secure the independence of our board operations and prevent conflicts of interest. Furthermore, board resolutions are adopted based on the Articles of Incorporation, requiring the approval of at least two-thirds of the sitting directors.

Committees and Their Roles

GS Caltex established a SHE Committee in March 2023, to fulfill our responsibilities in these areas and are progressively expanding our ESG-related board activities. We also operate an Accountability Committee, a separate Audit Committee(not an audit committee under Commercial Law), and an LNG Procurement Management Committee. Each committee operates independently, executing its given authority and functions with transparency and responsibility.

Auditor Training

GS Caltex conducts training necessary for audit tasks, enhancing its capability to review financial statements and evaluate the operation of internal accounting control systems.

Date	Contents
February 2, 2023	Purpose of the internal accounting management system and internal process training

Organization and Activities of Board Committees

(As of 31st December, 2023)



Digital Security Enhancement

Digital Security and Protection Systems

Digital Security Organization

GS Caltex operates through the top decision-making body, the 'Digital Security Committee,' discussing current digital security issues and major topics. A Chief Information Security Officer(CISO) is appointed, and a Digital Security Team, consisting of specialists in ICT(Information and Communication Technology), IoT(Internet of Things), OT(Operational Technology), information security, personal data protection, and digital security, is in place.

Customer Information Security and Protection

GS Caltex complies with domestic personal information laws and the EU General Data Protection Regulation(GDPR). We manage abnormal sign monitoring and handlers' processing history through a personal information access control system and ensure the safety of customer information through encryption measures during the storage and transmission of critical information.

Additionally, operations are restricted to a minimum number of personnel through a separate system, and customers are notified at least once a year about the handling of their personal information, protecting their right to self-determination. We continuously oversee regular and irregular diagnostic activities targeting personal information handling departments and contractors to prevent privacy breaches and violations such as mishandling or misuse of unnecessary personal information. We also engage in various activities, including training and promotional activities, to enhance our personal information protection capabilities.

Regarding this, **GS** Caltex was the first in the industry to obtain the government-designated "Personal Information Management System(PIMS) certification" in 2013. Since 2020, we have acquired and maintained the "Personal Information & Information Security Management System(ISMS-P) certification," a more robust integrated certification system, through rigorous annual reviews.

Enhancing Digital Security Management Systems

GS Caltex is strengthening its digital security systems for internal crucial data, IT, and OT areas, including the personal information of customers and employees. We analyze the latest security trends, incidents, and issues to proactively implement security measures, thus securing our tangible and intangible assets and enhancing business reliability.

In response to the acceleration of cloud adoption and changes in digital infrastructure, **GS** Caltex has implemented the Zero Trust Security Model[1)], establishing a foundation to address new security threats. We operate detection and control procedures to promptly identify and respond to security threats and have digitalized the processes for ongoing monitoring and subsequent actions upon detection. Furthermore, in case of personal information breaches and anomalies in Operational Technology(OT) systems, **GS** Caltex responds and recovers swiftly through timely detection, minimizing damage. We also perform regular and ongoing security level verifications(Security Assurance) to self-assess the implementation of security measures. We continue to prioritize information protection and security, aiming to build a safe digital environment through continuous innovation and investment.

Revision of Information Security Regulations

GS Caltex operates an efficient security management system, considering domestic and international laws and business objectives. In 2023, with the expansion of the digital security domain, we revised regulations related to general security, "OT Security Policies and Organization," and "OT Risk Management." Further, in 2024, to ensure the safe use of generative AI services, we have established and are operating "Generative AI Security Guidelines." These efforts modernize our digital security processes and improve security controls in response to the changing security environment.

1) Zero Trust Security Model : A security strategy that, unlike traditional methods that trust networks based on internal or external boundaries, recognizes no inherently trusted zones and requires stricter authentication for access

Digital Security Activities

Digital Security Risk Management

GS Caltex manages various security risks in the digital environment through a dedicated organization of information security experts who review domestic and international security issues. Our internal risk assessment methodologies enable us to proactively identify and mitigate security risks through ongoing technical security enhancement activities such as vulnerability assessments and simulated hacking.

In 2023, **GS** Caltex established a centralized channel for sharing urgent security issues across the company to respond effectively to security threats. In addition, we utilize various security solutions to monitor network anomalies and analyzes logs for unauthorized access attempts and undergo unannounced security checks and penetration tests at business sites to continuously review and control the level of digital security risk. We are also working to improve the systematic management of account permissions and enhance security by upgrading user account application and management processes for business applications.

In 2022, the Yeosu Complex was designated as a major information and communication infrastructure. Thus, **GS** Caltex is enhancing activities to comply with legal requirements and establish management systems for the OT environment, applying various security measures during TA[1)] periods to mitigate actual OT security risks.

Access Control System

The **GS** Caltex Yeosu Complex, designated as a national security facility, uses an access control system to systematically and thoroughly manage all personnel and vehicles entering the site. The plant area is divided into controlled, restricted, and limited zones, and all personnel, including employees, can only enter approved areas. Visitors can access the facility only after obtaining employee approval through the visitor reservation system. Since 2023, we also have been utilizing mobile access passes based on smartphones.

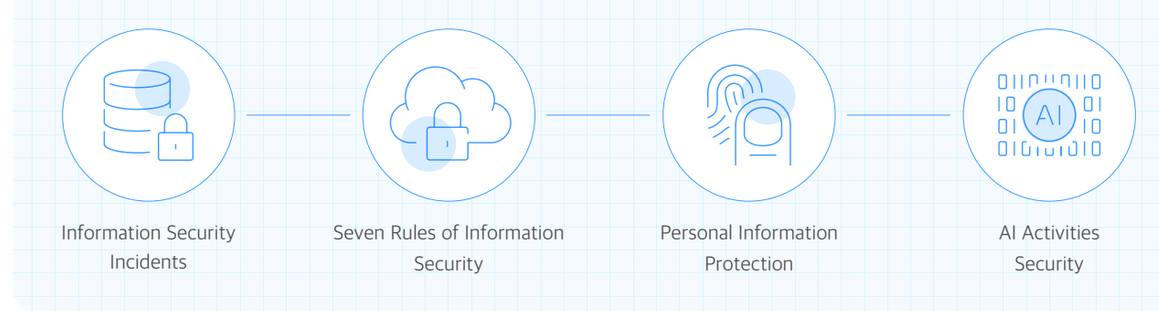
AI CCTV

At the Yeosu Complex, a national security facility, **GS** Caltex operates approximately 900 CCTV cameras for process management, safety, emergency response, and security purposes. In 2023, we introduced AI-enhanced CCTV to timely monitor and address potential safety threats at the site, such as fires, intrusions, and non-compliance with safety gear usage. We plan to expand the application of AI CCTV following confirmation of its effectiveness.

Information Security Trainings

GS Caltex conducts annual information protection and personal data protection training to enhance the overall security level of the company for all employees, including contract and dispatched workers, achieving a 100% completion rate. The training content is continuously updated to effectively communicate security issues and precautions. We provide specialized personal data protection training for employees and suppliers in charge of customer personal information and who handle personal information. We carry out information security audits for subsidiaries to elevate security levels across the company. **GS** Caltex employs scenario-based simulations, seminars, and campaigns reflecting the latest trends, such as phishing email drills, as part of our various security training and promotional activities.

GS Caltex Information Security Training Programs



1) TA(Turn Around) : Maintenance activities in the factory

Risk Management System

Business and Financial Risk Management

Risk Management System

GS Caltex has established a risk management system to flexibly address potential risks that could affect business operations, such as market price fluctuations of crude oil and petroleum products and industry volatility, both domestically and internationally. Our risk management organization includes the Crude Oil Operation, Market Intelligence(MI), and Financial Accounting teams, performing monitoring, analysis, and reporting on internal and external conditions. Furthermore, **GS** Caltex holds quarterly risk management committee meetings under the CEO to review major company-wide risks, develop response strategies, and assess the performance of our risk management activities.

Risk Management Committee Status

(As of April 2024)

Category	Attendance and Major Activities
Chairman	CEO
Members	Heads of Supply & Trading, Strategic Planning, Chemical & Lube, Finance, and **GS** Caltex Singapore Pte. Ltd.
Attending Executives	Heads of Basic Chemical, Crude Oil, Corporate Planning, Treasury, and AVCO Center
Secretary/Secretariat	Head of Accounting/Cost Accounting Team
Activities	Provide guidelines for risk management and review performance
Meeting Frequency	Quarterly

Financial Risk Management

GS Caltex complies with the laws of the countries in which it operates, maintaining a transparent relationship with tax authorities and fulfilling our tax reporting and payment obligations diligently. We also adhere to Korean tax laws and the OECD Transfer Price Guidelines(TPG) when conducting international transactions with our overseas subsidiaries, establishing and implementing transfer pricing policies that align with the arm's length principle. We fulfill all documentation and submission obligations related to transfer pricing. In addition, to minimize tax risks, we seek advice from external experts when necessary and clearly define the roles and responsibilities of corporate officers. To prepare for unpredictable business environments and volatility, **GS** Caltex maintain a stable financial structure. We manage an appropriate level of debt and financial structure to ensure robust financial capacity, diversifying borrowing methods to create a balanced borrowing portfolio. By maintaining ample credit lines, **GS** Caltex enhance its fundraising competitiveness and strengthen its crisis response capabilities. Despite rapid interest rate increases and the emergence of domestic and international financial risks in 2023, these efforts have allowed us to maintain an industry-leading credit rating and an upgraded rating outlook.

Non-Financial Risk Management

GS Caltex is strengthening its management system for non-financial risks. We operate an ESG committee, involving the CEO and senior executives, four times a year to review ESG-related issues and make decisions on major matters. Additionally, we run detailed committees for each ESG area to discuss related issues.

Non-financial Risk Management System

Go to Climate Change Risk Management

Category	Governance	Related Key Policies	Major Activities
Ethics and Compliance	• Corporate Compliance Committee	• Business Conduct and Ethics Code • Business Conduct and Ethics Code Standards • Compliance Due Diligence Guidelines	• Operation of company-wide compliance programs • Operation of compliance programs for specialized areas(fair trade, anti-corruption, sanctions)
Environment	• ESG Committee • Safety & Environment Committee	• Business Conduct and Ethics Code • SHE Management Policy • Environment Management Policy • Petroleum Product Quality Control Policy	• Analysis of climate change physical risk • GHG reduction initiatives based on MACC • Environmental impact mitigation and preventive measures for environmental risks
Safety and Health	• Corporate SLC • Safety & Environment Committee • Operational Safety & Health Committee	• Business Conduct and Ethics Code • SHE Management Policy • Safety & Environment Consulting Policy • SHE Training Policy • Emergency Response Policy • Safety & Health Incidents Management Policy	• Risk assessment of processes • Job safety analysis • Safety management plans for new projects • Safety training • Emergency response training
Supply Chain	• ESG Committee • Suppliers Sanctions Review Committee	• Business Conduct and Ethics Code • Code of Conduct for Suppliers • SHE Management Policy for Suppliers • Incident Control Policy for Suppliers	• Supply chain ESG training and assessment • Review of incident-related regulations and procedural violations by suppliers
Information Security	• Digital Security Committee	• Information Security Policy • Security Incident Response Policy • Information Security Monitoring Policy • Customer/Personal Information Security Policy • OT Security Policy, etc.	• Countermeasures for information security laws and policies in Korea and abroad • Operation of information security and risk management

ESG PERFORMANCE

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Financial Data

Consolidated Statements of Financial Position

Category	Unit	2021	2022	2023
Total Assets	KRW 1M	23,582,457	26,038,743	24,321,822
Current Assets		10,506,301	13,212,761	12,243,509
Non-current Assets		13,076,156	12,825,982	12,078,313
Total Liabilities		12,449,474	12,518,595	10,822,887
Current Liabilities		7,820,737	8,089,472	7,043,379
Non-current Liabilities		4,628,737	4,429,123	3,779,508
Total Equity		11,132,983	13,520,148	13,498,935

Consolidated Statement of Income

Category	Unit	2021	2022	2023
Revenue	KRW 1M	34,538,430	58,532,071	48,607,546
Operating Profit		2,018,852	3,979,518	1,683,792
Net Income		1,051,740	2,789,395	1,152,731

Credit Ratings

Category	2021	2022	2023
S&P	BBB(S)	BBB(S)	BBB(P)
Moody's	Baa1(S)	Baa1(S)	Baa1(S)
Korea Ratings	AA+(S)	AA+(S)	AA+(S)
Korea Investor Service	AA+(S)	AA+(S)	AA+(S)
NICE Investor Service	AA+(S)	AA+(S)	AA+(S)

Domestic and Foreign Tax Payments

Category	Unit	2021	2022	2023
Total	KRW 1M	349,424	990,811	370,834
Korea		340,974	1,003,081	362,882
Asia		6,605	8,462	7,591
Europe		(35)	1,317	679
Others[1]		1,880	(22,049)	(258)

Domestic Tax Payments[2]

Category	Unit	2021	2022	2023
Nominal Tax	KRW 1M	335,704	994,926	355,309
Nominal Tax Rate	%	25.04	27.15	25.21
Effective Tax	KRW 1M	109,425	1,021,254	303,914
Effective Tax Rate	%	8.16	27.87	21.56

Investments

Category		Unit	2021	2022	2023
R&D/ Environment Investment	R&D Investment[3]	KRW 100M	66.8	109.19	116.55
	Environment Business Investment[4]		309.13	377.86	346.77

1) Internal transactions between consolidated entities are adjusted and reflected in Others
2) Separate financial statement
3) Corrected to R&D investment amounts from R&D costs in business reports
4) Corporate-wide environmental investment(air quality/volatile organic compounds/wastewater/soil pollution, etc.)

ESG Data and Performance

Strengthening ESG Data Management

Aligning with Global ESG Disclosure Standards

As the importance of ESG continues to grow globally, there is a move towards adopting third-party verification within global ESG disclosure standards. In response, **GS** Caltex has reviewed and verified data collection and supporting documents from the company and its subsidiaries, identifying errors in previously disclosed data. These errors were primarily due to measurements and compilations conducted independently by different organizational units without centralized standards and guidelines. To ensure data reliability and consistency, we have standardized definitions and criteria across all indicators to align with global ESG disclosure standards, establishing ESG disclosure guidelines for the company and its subsidiaries.

GS Caltex has corrected human errors in data entries and resolved distortions caused by inconsistent standards across different business sites by aligning data calculation standards. Detailed reasons for the adjustments in the data items have been specified through footnotes. Additionally, we have ensured the completeness of data by expanding the scope of environmental data reporting from primarily the Yeosu Complex, which represented over 95% of the company's environmental information, to including distribution centers, research institutes, etc., covering the entire corporation. We will continue our efforts to transparently disclose ESG data and enhance its reliability.

Environment - Response to Climate Change

GHG Emissions

Category			Unit	2021	2022		2023	
				GS Caltex	GS Caltex[1]	GS Caltex (consol.)[2]	GS Caltex[3]	GS Caltex (consol.)[2][3]
Scope 1	Direct emissions		tCO_2eq	6,545,310	7,151,506	7,203,043	7,277,877	7,326,603
	Emission intensity[4]		tCO_2eq/KRW 100M	20.11	12.85	12.31	15.83	15.07
	Emissions by type	Carbon Dioxide(CO_2)	tCO_2eq	6,505,123.36	7,108,851.74	7,159,863.96	7,235,934.25	7,284,150.41
		Methane(CH_4)		37,742.20	39,956.74	40,021.97	39,185.46	39,250.15
		Nitrous Oxide(N_2O)		2,444.05	2,697.51	3,156.98	2,757.61	3,202.39
		Hydrofluorocarbons(HFCs)		0	0	0	0	0
		Perfluorocarbons(PFCs)		0	0	0	0	0
		Sulfur Hexaflouride(SF_6)		0	0	0	0	0
	Percentage covered under emissions-limiting regulations		%	100	100	99.75	100	99.77
Scope 2	Indirect emissions		tCO_2eq	1,910,848	1,910,139	1,950,759	1,558,185	1,603,051
	Emission intensity[4]		tCO_2eq/KRW 100M	5.87	3.43	3.33	3.39	3.30
	Emissions by type	Carbon Dioxide(CO_2)	tCO_2eq	1,900,202.59	1,899,374.05	1,939,774.37	1,550,052.70	1,594,678.95
		Methane(CH_4)		344.98	337.20	356.20	251.19	272.34
		Nitrous Oxide(N_2O)		10,300.74	10,427.40	10,628.24	7,881.57	8,099.46
Total GHG Emissions (Scope 1+2)[5]	Total		tCO_2eq	8,456,147	9,061,632	9,513,789	8,836,050	8,929,641
	GHG emissions intensity		tCO_2eq/KRW 100M	25.98	16.28	15.64	19.22	18.37
Scope 3	Other indirect emissions[6]		tCO_2eq	N/A	110,195,554	N/A	109,843,236	N/A

1) Due to the result of the objection, 2022 emissions Data changed compared to the previous report
2) **GS** Caltex consolidated: Includes 15 subsidiaries(**GS** Mbiz, **GS** Bio, **GS** EcoMetal, InnoPolytech, Sangji Shipping, Pancotec, Hanul Love, **GS** Caltex Singapore Pte. Ltd., **GS** Caltex Czech, s.r.o., **GS** Caltex(SUZHOU) PLASTICS Co., Ltd., **GS** Caltex(LANGFANG) PLASTICS Co., Ltd., **GS** Caltex Mexico S.de R.L.de C.V., **GS** Caltex India Private Limited, **GS** Caltex China Co., Ltd., Suzhou **GS** Caltex Trading Co., Ltd.
3) Due to the result of the objection, 2023 emissions Data changed in August 2024
4) Numeric correction for standalone emissions intensity for **GS** Caltex as the revenue was adjusted from consolidated revenue to standalone revenue of **GS** Caltex
5) Business site-specific GHG emissions rounded to the nearest whole number before summing, which may differ from the total of Scope 1 and 2
6) The sum of categories 1-7, 9, 11-12, and 15, which account for over 99% of emissions

Environmental Impact Reduction

Energy Consumption

Category	Unit	2021	2022	2023	
		GS Caltex	GS Caltex	GS Caltex (consol.)[1]	GS Caltex[2]	GS Caltex (consol.)[1][2]
Fuel	TJ	77,537	86,896	87,525	88,415	89,030
Electricity	TJ	27,750	30,459	30,926	25,098	25,592
Steam	TJ	10,757	8,937	9,002	8,308	8,376
Total Energy Consumption	TJ	116,029	126,281	127,442	121,812	122,988
Total Energy Intensity[3]	TJ/KRW 100M	0.36	0.23	0.22	0.26	0.25

Air Pollutant Emissions

Category	Unit	2021	2022	2023
Particulate Matter(PM)	tons	82.39	55.60	119.48[4]
Nitrogen Oxides(NOx)	tons	3,596.19	3,510.39	3,119.18
Sulfur Oxides(SOx)	tons	169.26	257.42	350.16
Carbon Monoxide(CO)	tons	59.91	71.70	60.61
Hydrogen Chloride(HCl)[5]	tons	0.09	0.14	0.00023
Volatile Organic Compounds(VOCs)[6]	tons	77.33	70.31	63.44
Hazardous Air Pollutants(HAPs)[7]	tons	56.27	48.34	87.41[8]
Hydrogen Sulfide(H_2S)	tons	1.78	1.28	3.03[8]

Water Pollutant Emissions[9]

Category	Unit	2021	2022	2023
Total Organic Carbon(TOC)	tons	126.92	215.68	277.76
Biochemical Oxygen Demand(BOD)	tons	115.11	200.13	232.00
Chemical Oxygen Demand(COD)[10]	tons	161.73	208.99	Replaced with TOC
Suspended Solids(SS)	tons	194.53	179.70	101.41

1) **GS** Caltex consolidated: Includes 15 subsidiaries(**GS** Mbiz, **GS** Bio, **GS** EcoMetal, InnoPolytech, Sangji Shipping, Pancotec, Hanul Love, **GS** Caltex Singapore Pte. Ltd., **GS** Caltex Czech, s.r.o., **GS** Caltex(SUZHOU) PLASTICS Co., Ltd., **GS** Caltex(LANGFANG) PLASTICS Co., Ltd., **GS** Caltex Mexico S.de R.L.de C.V., **GS** Caltex India Private Limited, **GS** Caltex China Co., Ltd., Suzhou **GS** Caltex Trading Co., Ltd.
2) Due to the result of the objection, 2023 energy consumption Data changed in August 2024
3) Numeric correction for standalone energy intensity for **GS** Caltex as the revenue was adjusted from consolidated revenue to standalone revenue of **GS** Caltex
4) Due to the implementation of the Act of the Integrated Control of Pollutant-discharging Facilities in 2023, the number of outlets object to self-measurement increased, increasing emissions year-on-year
5) Calculation errors corrected for 2021 and 2022
6) Standards established using the Pollutant Release and Transfer Registers table; regulated substances defined according to Article 2, Clause 10 of the Clean Air Conservation Act
7) When the integrated permit changed in 2023, emissions of HCl, hydrogen sulfide, etc., increased due to increased sample measurement points and Cogen operation rate
8) Standards established using the Pollutant Release and Transfer Registers table; regulated substances defined according to Article 2, Clause 10 of the Clean Air Conservation Act, including some previously omitted substances leading to numeric changes
9) Numeric changes made based on outsourced self-measurement data, considering the consistency with external agency submissions(wastewater discharge facility survey, specific water pollutant survey, environmental liability insurance)
10) An analytical item for organic substances under the Water Environment Conservation Act changed from COD to TOC, resulting in adjustments

Water Resource Management

Category			Unit	2021	2022	2023
Intake	Total water intake		m³	24,052,054	28,006,135[1]	28,318,011
		Surface water intake		0	0	0
		Groundwater intake		0	0	0
		Seawater intake		0	0	0
		Produced water intake		0	0	0
		K-water intake (= freshwater intake)		24,052,054	28,006,135	28,318,011
Discharge	Wastewater discharge			13,029,410	13,830,875	14,756,304
Usage[2]	Water usage			11,022,644	14,175,260	13,561,707
	Water consumption in water-stressed regions[3]			0	0	0
	Water usage intensity		m³/KRW 100M	33.87	25.47	29.50
Storage	Water storage volume		m³	271,476	279,382	277,095
	Changes in water storage			34,205	2,506	2,902
Recycling	Water recycling volume			1,847,890	2,079,753	2,339,415
	Water recycling rate[4]		%	7.68	7.43	8.26

Usage[5] and Emissions[6] of Hazardous Chemicals

Category	Unit	2021	2022	2023
Hazardous Chemical Usage	tons	1,151,518	1,018,051	926,225[7]
Hazardous Chemical Emissions		52	50	121[8]

Waste[9] Generation

Category	Unit	2021	2022	2023
Total Waste Generated	tons	40,169	37,882	37,627
Designated Waste		13,304	14,324	15,251
General Waste		26,865	23,557	22,377

Waste[9] Disposal

Category		Unit	2021	2022	2023
Total Designated Waste Disposed		tons	1,822	2,482	3,680
Designated Waste Disposed	Incineration		1,569	2,369	3,461
	Landfill		248	99	219
	Total		5	14	0
Total General Waste Disposed			6,139	5,217	5,787
General Waste Disposed	Incineration		352	355	400
	Landfill		5,208	4,627	5,372
	Total		580	235	15
Proportion of Total Waste Disposed		%	19.82	20.32	25.16

1) Increase in operational days of MFC process(from 6 months in 2021 to 12 months in 2022) led to increased water usage
2) Water usage = Water intake – Wastewater discharge
3) No water consumption recorded in water-stressed regions for 2023
4) Water recycling rate = Water recycling volume / Water intake
5) Usage among hazardous chemicals included in the Pollutant Release and Transfer Registers table
6) Data changed due to establishment of standards based on the "environmental emission volume" of hazardous chemicals included in the Pollutant Release and Transfer Registers table
7) Impact of declining production of aromatic products year-on-year
8) When the integrated permit changed in 2023, emissions of HCl, hydrogen sulfide, etc., increased due to increased sample measurement points and Cogen operation rate
9) Data changed due to expansion of data collection business sites and discrepancies found in waste performance reporting materials

Waste[1] Recycling

Category		Unit	2021	2022	2023
Total Recycled and Reused Designated Waste		tons	11,482	11,842	11,566
Designated Waste Recycling/Reuse Volume	Pre-treatment for reuse		950	1,061	898
	Recycling		10,532	10,781	10,668
	Other recovery processes		0	0	0
Total Recycled and Reused General Waste			20,726	18,341	16,820
General Waste Recycling/Reuse Volume	Pre-treatment for reuse		99	103	176
	Recycling		20,627	18,238	16,414
	Other recovery processes		0	0	230
Total Waste Recycling Rate		%	80.18	79.68	75.44

Renewable Fuel Standard(RFS) Compliance Rate[2]

Category	Unit	2021	2022	2023
Compliance Rate for RFS through Renewable Fuel Production	%	100.80	102.50	101.36

Number of Refineries[3]

Category	Unit	2021	2022	2023
Number of Refineries in or Near Densely Populated Areas	No. of companies	1	1	1

Underground Fuel Storage Tanks

Category	Unit	2021	2022	2023
Underground Fuel Storage Facilities	Tanks	1,226	1,211	1,176
Leak Incidents from the Facilities[4]	cases	1	0	0

Environmental Law Violations

Category		Unit	2021	2022	2023
Fines or above	Number of incidents	cases	1	0	0
	Amount fined	KRW 1M	29.00	0	0
Financial penalties	Number of incidents	cases	7	2	2
	Amount fined	KRW 1M	11.68	0.96	1.60

1) Data changed due to expansion of data collection business sites and discrepancies found in waste performance reporting materials
2) RFS compliance rate = Actual renewable fuel blending / Annual mandatory renewable fuel blending quota
: Annual mandatory renewable fuel blending quota = Annual mandatory blending percentage(3.5% in 2023) * Domestic sales volume of transportation fuel(diesel for vehicles)
3) Number of refineries in the Yeosu area
4) Leak incidents as recorded in the business reports

Employee

Employees

Category		Unit	2021	2022	2023
Employees	Total	persons	3,259	3,291	3,242
Permanent Employees (by Gender/Region)	Total	persons	3,101	3,113	3,051
	No. of male employees	persons	2,819	2,818	2,757
	No. of female employees	persons	282	295	294
	No. by region(Seoul/Other)	persons	1,261	1,257	1,243
	No. by region(Yeosu)	persons	1,840	1,856	1,808
Temporary Employees[1] (by Gender/Region)	Total	persons	114	133	153
	No. of male employees	persons	93	99	115
	No. of female employees	persons	21	34	38
	No. by region(Seoul/Other)	persons	44	86	103
	No. by region(Yeosu)	persons	70	47	50
Executives		persons	44	45	38
Employees by Age	Over 50	persons	886	921	935
	30 to 50	persons	1,818	1,812	1,803
	Under 30	persons	555	558	504
	Over 50	%	27.19	27.99	28.84
	30 to 50	%	55.78	55.06	55.61
	Under 30	%	17.03	16.96	15.55
Employment Rates	Female employment rate	%	9.42	10.14	10.36
	Disability employment rate[2]	%	1.86	1.84	2.07
	Veteran employment	persons	140	141	139

Employee Tenure

Category		Unit	2021	2022	2023
Years of Continuous Service		years	15.8	15.2	15.6
Retirees	Number of retirees	persons	189	184[4]	192
Retirement Rate[3]	Total retirement rate	%	5.80	5.59	5.92
	Voluntary retirement rate	%	2.00[5]	2.80	3.31
Employees Eligible for Pension Scheme		persons	3,259	3,291	3,242

Recruitment[6]

Category		Unit	2021	2022	2023
Number of New Hires		persons	168	211	132
By Gender	Male	persons	140	170	111
	Female	persons	28	41	21
By Region	Headquarter · Other	persons	56	105	48
	Yeosu Complex	persons	112	106	84

Human Rights Risk Management

Category		Unit	2021	2022	2023
Proportion of Business Sites Conducting Human Rights Impact Assessment(HRIA)		%	100	100	100
Human Rights Training	Number trained	persons	3,259	3,291	3,242
	Percentage of employees trained	%	100	100	100
Organizational Competency Survey Results(satisfaction/immersion)		points	67	64	69

1) Number of temporary employees directly employed by **GS** Caltex
2) Disability employment rate according to Article 33 of the "Act on the Employment Promotion and Vocational Rehabilitation of Persons with Disabilities" = Number of disabled permanent workers at **GS**C + subsidiary standard disability workplace(Hanul Love) / Total number of permanent workers at **GS**C + subsidiary standard disability workplace for the year(severely disabled counted as double)
3) Turnover rate = Number of employees left / Total number of employees
4) Corrected double-counting errors in 2022 retiree numbers
5) Corrected double-counting errors in 2021 voluntary retirement rate
6) Corrected double-counting and re-hiring errors for intern employees

HR Development - Training[1)]

Category	Unit	2021	2022	2023
Training Investment Cost	KRW 100M	27.76	42.95	37.89
Average Training Hours per Employee	hours / persons	26.73	51.58	48.99

Family-Related Leave

Category		Unit	2021	2022	2023
Employees Returning from Parental Leave[2)]	Male	persons	12	11	8
	Female		11	20	12
Employees Returning from Parental Leave[2)]	Male		12	10	11
	Female		11	20	20
Employees Remaining 12 Months after Returning from Parental Leave[2)]	Male		11	10	14
	Female		11	20	8
Employees on Maternity Leave	Female		13	15	10
Employees on Paternity Leave for Spouses	Male		94	88	69
Employees on Family Care Leave	Male		10	5	2
	Female		3	1	8

Female Managers

Category		Unit	2021	2022	2023
Female Managers	Executives	persons	1	1	0
		%	2.27	2.22	0
	Team leaders	persons	14	18	19
		%	6.01	8.14	8.96
	Senior Managers	persons	101	106	106
		%	11.03	11.67	11.84

Labor Union

Category		Unit	2021	2022	2023
Members registered with labor union	Members enrolled	persons	1,502	1,536	1,516
	Eligible members[3)]		1,929	1,945	1,926
Proportion of Employees Covered by Collective Agreements		%	100	100	100
Discussions or negotiations with labor union on changes in business management		cases	0	0	0
Labor Disputes		times	0	0	0

1) With the establishment of an industrial safety education aggregation system in 2022, the 2021 education was calculated only with data other than industrial safety education
2) Standardized based on the business report preparation criteria, data figures adjusted and recalculated after discovering duplication errors
3) Corrected errors in the count of union-eligible members

Wages

Category		Unit	2021	2022	2023
Gender Pay Gap	Ratio of average female employee salary to average male employee salary	%	68.7	73.4	72.5
Ratio of Entry-level Salary to Minimum Salary			141.56	151.67	159.25
Total Annual Employee Compensation		KRW 100M	3,437	5,045	5,416
Annual Total Compensation Ratio[1]		times	15.56	14.74	14.87
Annual Total Compensation Growth Rate[2]		%	-3.44	2.41	0.94

Performance Evaluation[3]

Category	Unit	2021	2022	2023
Percentage of Employees Receiving Regular Performance Evaluations	%	95.6	96.1	97.9

Customers

Customer Satisfaction Activities

Category	Unit	2021	2022	2023
Days Required for Customer Complaint Resolution	days	0.7	0.5	0.5

Quality Inspections[4]

Category	Unit	2021	2022	2023
Gas Station Quality Inspections	times	19,457	14,024	13,281
LPG Filling Station Quality Inspections		445	264	296

Information Protection

Category		Unit	2021	2022	2023
No. of Complaints Related to Personal Information Breaches	No. of complaints filed by external parties regarding personal information breaches	cases	0	0	0
	No. of complaints from regulatory authorities regarding personal information breaches		0	0	0
Incidents of Customer Information Leakage/ Theft/Loss	No. of leakage incidents		0	0	0
	No. of theft incidents		0	0	0
	No. of loss incidents		0	0	0

1) Annual total compensation of the highest-paid individual / Median of the annual total compensation of all other employees excluding the highest earner
2) Annual compensation growth rate(percentage) of the highest-paid individual / Median of the annual compensation growth rate(percentage) of all other employees excluding the highest earner
3) Standardized according to business report preparation guidelines
4) Data changed due to adjusting the criteria from the number of gas stations and LPG filling stations inspected to the number of samples inspected

Safety and Health

Occupational Safety and Health Indicators

Category		Unit	2021	2022	2023
Employees and Suppliers	Total Recordable Injury Rate(TRIR)	%	0.14	0.16	0.18
	Days Away From Work Rate(DAFWR)		0.09	0.09	0.15
	Lost Time Injury Frequency Rate(LTIFR)		0.46	0.47	0.74
	Lost Time Injury Severity Rate(LTISR)		0.02	0.04	0.06
Employees	Total Recordable Injury Rate(TRIR)	%	0.09	0.12	0.14
	Days Away From Work Rate(DAFWR)		0.06	0.06	0.12
	Lost Time Injury Frequency Rate(LTIFR)		0.30	0.30	0.58
	Lost Time Injury Severity Rate(LTISR)		0.014	0.017	0.057
	Lost workdays	days	104	115	391
	Number of recordable injuries	cases	3	4	5
	Number of fatalities	persons	0	0	0
	Fatality rate	%	0	0	0
Suppliers	Total Recordable Injury Rate(TRIR)	%	0.17	0.20	0.21
	Days Away From Work Rate(DAFWR)		0.11	0.13	0.18
	Lost Time Injury Frequency Rate(LTIFR)		0.55	0.66	0.91
	Lost Time Injury Severity Rate(LTISR)		0.025	0.059[1)]	0.065
	Lost workdays	days	388	354	428
	Number of recordable injuries	cases	11	6	7
	Number of fatalities	persons	0	0	0
	Fatality rate	%	0	0	0

Occupational Illness Frequency Rate[2)3)]

Category	Unit	2021	2022	2023
Employee Occupational Illness Frequency Rate(OIFR)	%	0.45	0.44[4)]	0.14

Process Safety Incident Counts

Category		Unit	2021	2022	2023
Tier 1[5)]	Tier 1 Process Safety Incident Count(PSIC)	cases[6)]	0	1	1
	Tier 1 Process Safety Total Incident Rate(PSTIR)	%	0	0.02	0.02
Tier 2[5)]	Tier 2 Process Safety Incident Count(PSIC)	cases[6)]	2	0	0
	Tier 2 Process Safety Total Incident Rate(PSTIR)	%	0.02	0	0

1) Corrected data errors for 2022
2) Occupational Illness Frequency Rate(OIFR): Number of occupational diseases * 1,000,000 / total working hours
3) All incidents are musculoskeletal disorders, counted based on the year of industrial accident approval by the Korea Worker's Compensation & Welfare Service
4) Corrected errors due to miscalculations in 2022 standards
5) Tier 1 and Tier 2 : Incidents with damages exceeding USD 100,000 / USD 2,500, respectively, according to API standards
6) Incidents per million working hours

Supply Chain

Supplier Status

Category	Unit	2021	2022	2023
Suppliers with Transaction Records[1)]	No. of companies	1,236	1,369	1,378
Procurement Volume	KRW 100M	11,984	16,600	13,218

Supplier Prime Rate

Category	Unit	2021	2022	2023
Suppliers[1)]	No. of companies	69	51	33
Amount	KRW 100M	313	226	205

Supplier ESG Management

Category		Unit	2021	2022	2023
Signatories to the Code of Conduct for **GS** Caltex Suppliers	Targeted	No. of companies	1,061	1,223	1,319
	Completed		1,061	1,223	1,319
	Ratio	%	100	100	100
Suppliers(new and existing) with Contracts Containing Environmental, Labor, and Human Rights Clauses	Targeted	No. of companies	1,061	1,223	1,319
	Completed		1,061	1,223	1,319
	Ratio	%	100	100	100
ESG Training for Key Suppliers	Targeted[2)]	No. of companies	316	319	191
	Completed		309	204	84
	Ratio	%	97.78	63.95	43.98
Key Suppliers Conducted ESG Evaluation	Targeted[3)]	No. of companies	316	319	201
	Completed		309	286	163
	Ratio	%	97.78	89.66	81.09
Key Suppliers Conducted ESG On-site Due Diligence	Targeted[2)]	No. of companies	309	311	191
	Completed[4)]		13	11	24
	Ratio	%	4.21	3.54	12.57

1) Duplicates excluded
2) Excluding 10 crude oil suppliers
3) Including 10 crude oil suppliers
4) Including 11 suppliers participating in the Ministry of Trade, Industry, and Energy's "ESG Supply Chain Due Diligence and Consulting Support Project for Exporting SMEs"

Social Contribution

Social Contribution Performance

Category	Unit	2021	2022	2023
Total Spending on Social Contribution	KRW 100M	123.39	151.20	184.87
Annual Number of Employees Participated in Volunteering	persons	1,154	1,023	537

Beneficiaries of Social Contribution Programs

Category		Unit	2021	2022	2023
Maum Talk Talk	Prevention programs (Teacher-led Maum Talk Talk/Classroom Healing)	schools(sites)	7	17	38
		children(persons)	1,136	1,918	2,364
	Healing programs (for children from low-income families, etc.)	schools(sites)	17	18	7
		children(persons)	1,095	1,104	450
	Total	children(persons)	2,231	3,022	2,814
Jigu Tok Tok[1]	Participants in carbon reduction campaigns	persons	-	-	10,000

GS Caltex Yeulmaru Spending & Performance

Category	Unit	2021	2022	2023
Amount Invested in GS Caltex Foundation	KRW 100M	34	33	35
Annual Number of Visitors to Performances	persons	38,543	74,322	81,048
Annual Number of Visitors to Exhibitions		46,679	59,582	32,455
Annual Count of Performances, Exhibitions, and Academy Sessions	times	423	472	472

1) New program initiated in 2023
2) Training participants include executives and permanent and temporary employees
3) From 2022, sent out once at the beginning of the year(previously twice a year)

Governance

Board Meeting Attendance Status

Category	Unit	2021	2022	2023
Average Board Meeting Attendance Rate	%	100	100	99.2

Directors and Auditors Composition Status

Category		Unit	2021	2022	2023
By Type	Executive director	persons	3	3	3
	Non-executive director		7	7	7
	Auditor		2	2	2
By Gender	Male		11	11	10
	Female		1	1	2
By Age Group	Over 60		3	4	4
	50 to 60		5	5	5
	Under 50		4	3	3

Fair Trade Issue

Category	2021	2022	2023
No. of Legal Actions(ongoing or settled) due to Violations of Anti-competition or Fair Trade Regulations	Corrective orders(future prohibition and training orders) issued by the Korean Fair Trade Commission for charges of illegal cartel conduct during the bid for oil supply to the US Forces Korea	None	None

Compliance Training

Category		Unit	2021	2022	2023
Participants[2]	Online	persons	2,262	2,285	2,383
	Offline		988	1,000	1,000
Official Letter of Cooperation on Ethical Management Sent Out[3]		cases	4,890	2,522	2,394

Major Certifications

Area	Category	Validity Period
Company-wide		
Information Security	ISMS-P	Jun 2023-Jun 2026
Best Family Friendly Management	Certification by Ministry of Gender Equality and Family	Dec 2023-Nov 2026
Seoul Headquarter		
Compliance Management	ISO 37301	Oct 2021-Oct 2024
Yeosu Complex		
Environmental Management	ISO 14001	Dec 2023-Dec 2026
Energy Management	ISO 50001	Dec 2023-Dec 2026
Quality Management	ISO 9001	Dec 2023-Dec 2026
Incheon Lubricant Plant		
Environmental Management	ISO 14001	Oct 2021-Nov 2024
Quality Management	ISO 9001	Oct 2021-Nov 2024
Occupational Safety & Health	KOSHA-MS	Nov 2023-Nov 2026

Category	2021	2022	2023
Customer Satisfaction			
KSQI (Korea Service Quality Index)	Excellent Call Center	Excellent Call Center (13 consecutive years)	-
NCSI(National Customer Satisfaction Index) - Gas Station Category	No. 1 (13 consecutive years)	No. 1 (14 consecutive years)	No. 1 (15 consecutive years)
Information Security			
ISMS-P (Personal Information & Information Security Management System)[1]	Certified	Certified[2]	Certified

1) Management system consisting of a series of actions or activities to promote information security and privacy
2) Certification scope : **GS**&POINT service and **GS** Caltex Bonus Card(membership) service

External Sustainability Activities

Membership in Major Associations and Organizations

Korea Petroleum Association	Seoul Chamber of Commerce and Industry	Yeosu Industrial Complex Plant Manger Council	Yeosu Industrial Complex Environment Council
Yeosu Industrial Complex Council	Yeosu Chamber of Commerce and Industry	Korea Business Council for Sustainable Development(KBCSD)	Korea LPG Industry Association
Korea Enterprises Federation	Korea Economic Research Institute	Federation of Korean Industries	Korea Fair Competition Federation
National Academy of Engineering of Korea	Korea Management Association (KMA)	Korea Petroleum Trade Association	Korea Petrochemical Industry Association
Korea Institute of Hazardous Materials	Korea Lubricant Oil Industry Association	Korea Oil Station Association	Korea-Japan Economic Association
Korea H2 Business Summit	UN Global Compact	World Economic Forum	

Major Donation Beneficiaries

Good Neighbors	Climate Change Center	Korea Foundation for Cooperation of Large & Small Business, Rural Affairs	Korea Education Volunteer Group
Bright Youth	Community Chest of Korea	Institute for Global Economics	Yeodo Educational Institute
World Vision	UN Global Compact Network Korea	Ewha Womans University	Impact Business Association
7th Maneuver Corps	Creativity Engineering Institute	Catholic Archdiocese of Seoul	The Korean Society for Biotechnology and Bioengineering
Korea Forum for Progress	Korea Energy Foundation	Korea Foundation for Support of Senior Citizens in Need	Pearl S. Buck Foundation Korea
The Korean Institute of Chemical Engineers	Korea Green Foundation	**GS** Caltex Foundation	The Korea Society

Activities Aligned to UN SDGs

GS Caltex supports the 17 Sustainable Development Goals(SDGs) announced by the UN in 2015 and has selected 9 of these goals to align with our sustainability management objectives. We are actively engaged in activities that contribute to sustainable development based on these selected goals. Additionally, since joining the UN Global Compact(UNGC) in 2010, we annually report our compliance and implementation of the ten principles covering human rights, labor, environment, and anti-corruption through the Communication on Progress(COP).

SDGs	**GS** Caltex's Goals	Key Initiatives	2023 Activities
 Goal 1 No Poverty	Provide support for enhancing the living standards of the underprivileged through social contribution programs	Social contribution	• Conducted **GS** Caltex heating oil sharing volunteer activities • 537 employees participated in volunteer activities in 2023 • Supported vulnerable groups with rice and essential goods
 Goal 2 Zero Hunger	Provide support for improving dietary standards of the underprivileged through local community contributions	Social contribution	• Operated free meal services for the elderly at risk of undernutrition, providing nutritious meals • Provided lunch support for low-income job seekers
 Goal 4 Quality Education	Provide support for the healthy growth and development of selected people in educational need	Social contribution	• Supported art therapy for children and adolescents(cumulatively 28,530 children and adolescents) • Operated native-speaker English teaching programs for schools on remote islands • Supported youth guidance programs • Operated experiential learning programs for students in local child centers
 Goal 5 Gender Equality	Pursue gender equality across all management activities and create an environment where female employees can realize their potential	Respect for human rights	• Banned discrimination in recruitment, assessment, compensation, and promotion
 Goal 7 Clean Energy	Contribute to the conservation of the global environment by developing and implementing lower carbon energy technologies	Development of technologies and products to reduce carbon	• Expanded lower carbon business(hydrogen, EV, bioproducts, plastic recycling, etc.) • Increased the production capacity of the subsidiary **GS** Bio's biodiesel production plant • Expanded the biofuel business through pilot projects for sustainable aviation fuel and bio-marine fuel
 Goal 8 Decent Work and Economic Growth	Contribute to economic development by creating quality jobs and establishing a sustainable supply chain through sound management and investment activities	Supply chain ESG management	• Strengthened supply chain sustainability by establishing a supply chain ESG policy and expanding the ESG evaluation scope for suppliers, assessing 163 partners(135 domestic, 28 international) • Operated a financial support scheme for suppliers(prime rate loans in the amount of KRW 20.5 billion for 33 companies in 2023)
 Goal 11 Sustainable Cities and Communities	Contribute to the development of local communities by promoting communication between local stakeholders and encouraging collaborative activities	Social contribution	• Supported operation of **GS** Caltex Yeulmaru Art Center in Yeosu • Supported the "Go-Together" program for small business productivity innovation(supported 5 projects for 5 companies, suppliers sales growth KRW 1.3 billion)
 Goal 12 Responsible Consumption and Production	Produce lower carbon/high-quality products by saving resources, and expand recycling	Establishment of a resource circulation system	• Established a circular economy through a plastic recycling business • Invested approximately KRW 34.6 billion in environmental projects • Achieved a 75% waste recycling rate • Launched globally certified lower-carbon products(bio-based lubricants, low-viscosity asphalt, etc.)
 Goal 13 Climate Action	Actively undertake GHG reduction activities to help address climate change issues throughout the value chain	GHG reduction	• Issued green bonds and invested in environmental impact reduction facilities(cumulative approximately KRW 129 billion) • Conducted life cycle assessments(LCA) for major products • Calculated Scope 3 greenhouse gas emissions

APPENDIX

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Communications with Stakeholders

GS Caltex identifies government and local authorities, the community, customers, suppliers, employees, and shareholders/investors as key stakeholders and actively listens to their opinions in proceeding sustainable management activities. We continuously gather stakeholder feedback through various communication channels and actively incorporate it into our sustainable management practices.

Stakeholder	Main Communication Channels * Frequency per year, other than 24/7 operation	Key Topics	Responsible Organization
National and Regional Governments	• Public hearings • Meetings • Seminars • Newsletters • Regional government website	• Changes in government policy • Legal/tax compliance • Trends by industry • Trends by regional government	Government Affairs Division, Public Relations Team(Complex)
Local Communities	• Social contribution programs • Meetings • Briefings	• Environmental protection • Contribution to the local economy • Job creation • Social contribution	Corporate Social Responsibility Team(Complex), CSR Team
Customers	• Customer service centers • Social media • Company Website	• Customer service • Customer safety • Personal information protection • Pricing • Marketing • Product quality • Networks • Response to future environment	Data Marketing Team, Finished Lubricants Business Operation Team
Suppliers	• Meetings • Procurement portals • Survey(once a year)	• Occupational safety and health • Shared growth • Changes in government policies • Fair trade	Strategic Procurement Division
Employees	• Company newsletters (12 times a year) • Internal bulletin board • Survey(once a year) • Collective bargaining • Labor-management meetings • Labor-management task forces	• Collective agreements and negotiations • Compensation • Talent development • Human rights protection • Occupational safety and health	HR Office, Public Relations Division
Shareholders and Investors	• Business reports(once a year) • Corporate disclosures	• Disclosure of management information • Investments • Protection of shareholder interests	Corporate Planning Division

Global Standards & Initiatives

GS Caltex is reporting in accordance with the GRI Standards and the GRI Sector Standards 'Oil & Gas' for the reporting period from January 1, 2023 to December 31, 2023.

GRI Standards

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
General Disclosure								
GRI 2: General Disclosure	2-1 Organizational details	6, Business report p.3-4				02		
	2-2 Entities included in the organization's sustainability reporting	2				02		
	2-3 Reporting period, frequency and contact point	2						
	2-4 Restatements of information	2, 68-73, 75						
	2-5 External assurance	89-92						
	2-6 Activities, value chain and other business relationships	6, 7, Company Profile						
	2-7 Employees	72						
	2-8 Workers who are not employees	Business report p.253						
	2-9 Governance structure and composition	61-62, 77				02		GOV-1
	2-10 Nomination and selection of the highest governance body	61-62						
	2-11 Chair of the highest governance body	61				19-20		
	2-12 Role of the highest governance body in sustainability reporting	12, 62						
	2-13 Delegation of responsibility for managing impacts	12						
	2-14 Role of the highest governance body in sustainability reporting	12						
	2-15 Conflicts of interest	61						
	2-16 Communication of critical concerns	12						
	2-17 Collective knowledge of the highest governance body	37, 62						
	2-18 Evaluation of the performance of the highest governance body	Business report p. 255						
	2-19 Remuneration policies	Business report p. 254						SOC-5
	2-20 Process to determine remuneration	Business report p. 254						SOC-5
	2-21 Annual total compensation ratio	74						
	2-22 Statement on sustainable development strategy	5						
	2-23 Policy commitments	88						
	2-24 Embedding policy commitments	16, 30, 39, 45, 48, 58, 60, 63						
	2-25 Processes to remediate negative impacts	48, 58						GOV-3/SOC-8
	2-26 Mechanisms for seeking advice and raising concerns	58						
	2-27 Compliance with laws and regulations	71, 74, 77, Business report p.265-268				12-14		GOV-2
	2-28 Membership associations	78				15-18		GOV-4/CCE-6
	2-29 Approach to stakeholder engagement	81						
	2-30 Collective bargaining agreements	73				03-05		

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
Material Topic & Topic Standards								
GRI 3: Material Topics 2021	3-1 Process to determine material topics	13						
	3-2 List of material topics	14						
Material Topics 1	GHG reduction activities to respond to climate change							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.1.1/11.2.1/11.3.1					
GRI 305: Emissions	305-1 Direct(Scope 1) GHG emissions	68	11.1.5				EM-RM-110a.1/EM-RM-110a.2	CCE-2/CCE-4
	305-2 Energy indirect(Scope 2) GHG emissions	68	11.1.6					CCE-2/CCE-4
	305-3 Other indirect(Scope 3) GHG emissions	22, 68	11.1.7				EM-RM-110a.2	
	305-4 GHG emissions intensity	68	11.1.8					
	305-5 Reduction of GHG emissions	21-23	11.2.3					CCE-2/CCE-6
	305-7 Nitrogen oxides(NOx), sulfur oxides(SOx), and other significant air emissions	69	11.3.2				EM-RM-120a.1	CCE-5/CCE-7/ENV-5
Material Topics 2	Expansion of business and investment to facilitate the transition to a lower carbon society							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.1.1/11.2.1/11.3.1					
GRI 302: Energy	302-1 Energy consumption within the organization	69	11.1.2					CCE-3/CCE-6
	302-2 Energy consumption outside of the organization	23, 69	11.1.3					
	302-3 Energy intensity	69	11.1.4					
	302-4 Reduction of energy consumption	21	Not included GRI 11					CCE-3
GRI 305: Emissions	305-1 Direct(Scope 1) GHG emissions	68	11.1.5				EM-RM-110a.1/EM-RM-110a.2	CCE-2/CCE-4
	305-2 Energy indirect(Scope 2) GHG emissions	68	11.1.6					CCE-2/CCE-4
	305-3 Other indirect(Scope 3) GHG emissions	22, 68	11.1.7				EM-RM-110a.2	
	305-4 GHG emissions intensity	68	11.1.8					
	305-5 Reduction of GHG emissions	21-23	11.2.3					CCE-2/CCE-6
	305-7 Nitrogen oxides(NOx), sulfur oxides(SOx), and other significant air emissions	69	11.3.2				EM-RM-120a.1	CCE-5/CCE-7/ENV-5
Material Topics 3	Industrial safety and health management at work sites							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.9.1					
GRI 403: Occupational Health and Safety	403-1 Occupational health and safety management system	39	11.9.2			06-08	EM-RM-320a.2	SHS-1
	403-2 Hazard identification, risk assessment, and incident investigation	40	11.9.3					SHS-1/SHS-6
	403-3 Occupational health services	43	11.9.4					SHS-2
	403-4 Worker participation, consultation, and communication on occupational health and safety	43	11.9.5					
	403-5 Worker training on occupational health and safety	42	11.9.6					
	403-6 Promotion of worker health	43, 51	11.9.7					SHS-2
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	39-43	11.9.8					SHS-6
	403-8 Workers covered by an occupational health and safety management system	39	11.9.9					SHS-1
	403-9 Work-related injuries	75	11.9.10				EM-RM-320a.1/EM-RM-540a.1	SHS-3/SHS-4/SHS-6
	403-10 Work-related ill health	75	11.9.11					

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
Material Topics 4	Business diversification and global competitiveness enhancement							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.14.1/11.21.1					
GRI 201: Economic Performance	201-1 Direct economic value generated and distributed	67, Financial Data, Business report p.31-38	11.14.2/11.21.2					SOC-14
	201-2 Financial implications and other risks and opportunities due to climate change	19, Business report p.123(GHG Emissions Trading Scheme, Emissions liabilities)	11.2.2					
	201-3 Defined benefit plan obligations and other retirement plans	72	Not included GRI 11					
	201-4 Financial assistance received from government	Business report p.24, 38, 96	11.21.3					
Material Topics 5	Expansion of local community contributions							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.14.1/11.15.1					
GRI 203: Indirect Economic Impacts	203-1 Infrastructure investments and services supported	55	11.14.4					SOC-13
	203-2 Significant indirect economic impacts	53	11.14.5					
GRI 413: Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	53-56	11.15.2					SOC-9/SOC-12
	413-2 Operations with significant actual and potential negative impacts on local communities	53-56	11.15.3/11.15.4	Minimized negative impacts through regular roundtable discussions with the community near the business site				
Material Topics 6	Suppliers' ESG assessment and management							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.10.1/11.12.1					
GRI 308: Supplier Environmental Assessment	308-1 New suppliers that were screened using environmental criteria	76	Not included GRI 11					
	308-2 Negative environmental impacts in the supply chain and actions taken	46-47	Not included GRI 11					GOV-3/SOC-2/SOC-2
GRI 414: Supplier Social Assessment	414-1 New suppliers that were screened using social criteria	76	11.10.8/11.12.3					
	414-2 Negative social impacts in the supply chain and actions taken	46-47	11.10.9					
Material Topics 7	Ethical management / fair trade							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.19.1/11.20.1					
GRI 205: Anti-corruption	205-1 Operations assessed for risks related to corruption	58-60	11.20.2					
	205-2 Communication and training about anti-corruption policies and procedures	58-60, 77	11.20.3			12-14		GOV-3/SOC-8
	205-3 Confirmed incidents of corruption and actions taken	58	11.20.4/11.20.5/11.20.6					GOV-3/SOC-8
GRI 206: Anti-competitive Behavior	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	58	11.19.2	No such case			EM-RM-520a.1	
Material Topics 8	Advancing integrated risk management systems							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	Not included GRI 11					
Non-GRI	-	65	Not included GRI 11					
Material Topics 9	Ensuring financial soundness							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.14.1/11.21.1					
GRI 201: Economic Performance	201-1 Direct economic value generated and distributed	67, Financial Data, Business report p.31-38	11.14.2/11.21.2					SOC-14
	201-2 Financial implications and other risks and opportunities due to climate change	19, Business report p.123(GHG Emissions Trading Scheme, Emissions liabilities)	11.2.2					
	201-3 Defined benefit plan obligations and other retirement plans	72	Not included GRI 11					
	201-4 Financial assistance received from government	Business report p.24, 38, 96	11.21.3					

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
GRI 207: Tax	207-1 Approach to tax	88	11.21.4					
	207-2 Tax governance, control and risk management	65	11.21.5					
	207-3 Stakeholder engagement and management of concerns related to tax	65	11.21.6					
	207-4 Country-by-country reporting	67	11.21.7					
Material Topics 10	Reducing waste and establishing a resource recycling structure							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.5.1/11.8.1					
GRI 306: Waste	306-1 Waste generation and significant waste-related impacts	32-33	11.5.2			09-11		ENV-2 /ENV-7/ENV-8
	306-2 Management of significant waste-related impacts	32-33	11.5.3			09-11		
	306-3 Waste generated	70	11.5.4/11.8.2			09-11	EM-RM-150a.1	ENV-7
	306-4 Waste diverted from disposal	70	11.5.5			09-11		
	306-5 Waste directed from disposal	71	11.5.6			09-11		
Material Topics 11	Managing industrial safety and health of suppliers							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.9.1					
GRI 403: Occupational Health and Safety	403-1 Occupational health and safety management system	39	11.9.2			06-08	EM-RM-320a.2	SHS-1
	403-2 Hazard identification, risk assessment, and incident investigation	40	11.9.3					SHS-1/SHS-6
	403-3 Occupational health services	43	11.9.4					SHS-2
	403-4 Worker participation, consultation, and communication on occupational health and safety	43	11.9.5					
	403-5 Worker training on occupational health and safety	42	11.9.6					
	403-6 Promotion of worker health	43, 51	11.9.7					SHS-2
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	39-43	11.9.8					SHS-6
	403-8 Workers covered by an occupational health and safety management system	39	11.9.9					SHS-1
	403-9 Work-related injuries	75	11.9.10				EM-RM-320a.1/EM-RM-540a.1	SHS-3/SHS-4/SHS-6
	403-10 Work-related ill health	75	11.9.11					
Material Topics 12	Respecting employee rights							
GRI 3: Material Topics 2021	3-3 Management of material topics	14	11.11.1					
GRI 401: Employment	401-3 Parental leave	73	11.10.4/11.11.3					
GRI 404: Training and Education	404-1 Average hours of training per year per employee	73	11.10.6/11.11.4					
GRI 405: Diversity and Equal Opportunity	405-1 Diversity of governance bodies and employees	61, 72	11.11.5					SOC-5
	405-2 Ratio of basic salary and remuneration of women to men	74	11.11.6					SOC-5
GRI 406: Non-discrimination	406-1 Incidents of discrimination and corrective actions taken	48, Business Conduct and Ethics Code p.11	11.11.7	No such case				SOC-1

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
Topics in the applicable GRI Sector Standards determined as not material								
GRI 11 : Oil and Gas Sector 2021								
Topic	Explanation	Omission						
Topic 11.4 Biodiversity	Although not selected as a key issue at **GS** Caltex, we recognize the necessity of biodiversity conservation; reported some details in the Other GRI Index.	N/A						
Topic 11.6 Water and effluents	Although not selected as a key issue at **GS** Caltex, we recognize and manage the importance of water resource management; reported some details in the Other GRI Index.	N/A						
Topic 11.7 Closure and rehabilitation	Although not selected as a key issue at **GS** Caltex, we proactively respond to minimize damage and pre-notify stakeholders about significant operational changes; reported some details in the Other GRI Index.	N/A						
Topic 11.10 Employment practices	Although not selected as a key issue at **GS** Caltex, we acknowledge the importance of employee skill enhancement and welfare, striving to create a better working environment; reported some details in the Other GRI Index.	N/A						
Topic 11.12 Forced labor and modern slavery	Although not selected as a key issue at **GS** Caltex, we value workers' rights as a core principle; reported some details in the Other GRI Index.	N/A						
Topic 11.13 Freedom of association and collective bargaining	Although not selected as a key issue at **GS** Caltex, we support human rights and collective bargaining activities while complying with UNGC and ILO standards.	N/A						
Topic 11.16 Land and resource rights	Although not selected as a key issue at **GS** Caltex, we conduct environmental impact assessments to minimize negative effects such as asset loss and involuntary resettlement during business operations.	N/A		Production Process < Business | **GS** Caltex				
Topic 11.17 Rights of indigenous peoples	Although not selected as a key issue at **GS** Caltex, we have built trust and cooperative relationships with local residents near business sites through regular roundtable discussions and support activities, aiming to minimize negative impacts; reported some details in the Other GRI Index.	N/A						
Topic 11.18 Conflict and security	Although not selected as a key issue at **GS** Caltex, we work to prevent human rights infringements of local residents by building trust and minimizing negative impacts through regular communication with the community, focusing on the safety and security of facilities and workers in conducting business.	N/A		Production Process < Business | **GS** Caltex				
Topic 11.22 Public policy	Prohibited by Article 31 of the Domestic Political Funds Act; **GS** Caltex complies with this regulation.	N/A						GOV-5

GRI	Disclosure	Reporting Page	Sector REF#	Explanation	Omission	UNGC Advanced	SASB	IPIECA
Other GRI Index								
GRI 202: Market Presence	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	74	Not included GRI 11					
	202-2 Proportion of senior management hired from the local community	-	11.11.2/11.14.3	Not applicable as the main facilities are located in Korea				
GRI 204: Procurement Practice	204-1 Proportion of spending on local suppliers	Business report p.16	11.14.6					GOV-4
GRI 303: Water and Effluence	303-1 Interactions with water as a shared resource	31, 70	11.6.2					
	303-2 Management of water discharge-related impacts	31, 70	11.6.3					
	303-3 Water withdrawal	70	11.6.4					ENV-1
	303-4 Water discharge	70	11.6.5					
	303-5 Water consumption	70	11.6.6				EM-RM-140a.1	
GRI 304: Biodiversity	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	35	11.4.2					ENV-3/ENV-4
	304-2 Significant impacts of activities, products and services on biodiversity	35	11.4.3					ENV-3
	304-3 Habitats protected or restored	35	11.4.4					
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	35	11.4.5					
GRI 401: Employment	401-1 New employee hires and employee turnover	72	11.10.2					
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	51	11.10.3					
GRI 402: Management Relations	402-1 Minimum notice periods regarding operational changes	-	11.7.2/11.10.5	We notify all employees of any changes in matters specified in Article 17 of the Collective Agreement.				
GRI 404: Training and Education	404-2 Programs for upgrading employee skills and transition assistance programs	52	11.7.3/11.10.7					
	404-3 Percentage of employees receiving regular performance and career development reviews	74	Not included GRI 11					
GRI 407: Freedom of Association and Collective Bargaining	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	-	11.13.2	No such case				
GRI 408: Child Labor	408-1 Operations and suppliers at significant risk for incidents of child labor	Business Conduct and Ethics Code p.11	Not included GRI 11	No such case		03-05		SOC-1
GRI 409: Forced or Compulsory Labor	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Business Conduct and Ethics Code p.11	11.12.2	No such case		03-05		SOC-1
GRI 410: Security Practices	410-1 Security personnel trained in human rights policies or procedures	Code of Conduct for **GS** Caltex Supplier	11.18.2	Directly contracted personnel must adhere to Code of Conduct for **GS** Caltex Suppliers.				
GRI 411: Rights of Indigenous Peoples	411-1 Incidents of violations involving rights of indigenous peoples	56	11.17.2/11.17.3/11.17.4	No such case				SOC-10/SOC-11
GRI 415: Public Policy	415-1 Political contributions	-	11.22.2	Prohibited by Article 31 of the Domestic Political Funds Act.				
GRI 416: Customer Health and Safety	416-1 Assessment of the health and safety impacts of product and service categories	44	11.3.3					
GRI 418: Customer Privacy	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	74	Not included GRI 11					SHS-7

Key ESG Policies



SHE Management Policy

Business Conduct & Ethics Code

Human Rights Policy

Tax Policy

ESG Policy for Supply Chain

Code of Conduct for **GS** Caltex Suppliers

Stakeholder Policy

Click each icon for details

Third-Party Assurance Statement

To: The Stakeholders of GS Caltex Corporation

Overview

BSI(British Standards Institution) Group Korea(hereinafter referred to as the "Assurer") was requested to verify the **GS** Caltex Sustainability Report 2023(hereinafter referred to as the "Report"). The Assurer is independent of the **GS** Caltex and has no major operational financial interest other than the assurance. This assurance opinion statement is intended to provide information related to the assurance of the **GS** Caltex report relating to the environment, social and governance(ESG) to the relevant stakeholders and may not be used for any purpose other than the purpose of publication. This assurance opinion statement was prepared based on the information presented by the **GS** Caltex and the assurance was carried out under the assumption that presented the information and data were complete and accurate.

GS Caltex is responsible for managing the relevant information contained within the scope of assurance, operating the relevant internal control procedures, and for all information and claims contained in the report. Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to **GS** Caltex only.

The Assurer is responsible for providing **GS** Caltex management with an independent assurance opinion containing professional opinions derived by applying the assurance methodology to the scope specified, and to provide the information to all stakeholders of **GS** Caltex.

The Assurer shall not bear any other responsibility, including legal responsibility, to any third party other than **GS** Caltex in providing the assurance opinion and shall not be liable to any other purpose, purpose or stakeholders related thereto for which the assurance opinion may be used.

Scope

The scope of engagement agreed upon with **GS** Caltex includes the following:

- Reporting contents during the period from January 1st to December 31st 2023 included in the report, some data included the half of 2024.
- Major assertion included in the Report, such as sustainability management policies and strategies, goals, projects, and performance, and the Report contents related to material issues determined as a result of materiality assessment.
- Appropriateness and consistency of processes and systems for data collection, analysis and review.
- In Accordance with the four principles of AA1000 AccountAbility in the report, based on the type of Sustainability Assurance based on AA1000AS v3 and if applicable, the reliability of the sustainability performance information contained in the report.

The following contents were not included in the scope of assurance.

- Financial information in Appendix.
- Index items related to other international standards and initiatives other than the GRI.
- Other related additional information such as the website, business annual report.

Assurance Level and Type

The assurance levels and types are as follows;

- Moderate level based on AA1000 AS and Type 2(confirmation to the four principles as described in the AA1000 Accountability Principle 2018 and quality and reliability of specific performance information published in the report.)

Description and sources of disclosures covered

Based on the scope and methodology of assurance applied, the assurer reviewed the following Disclosures based on the sampling of information and data provided by **GS** Caltex.

[Universal Standards]

2-1 to 2-5(The organization and its reporting practices), 2-6 to 2-8(Activities and workers), 2-9 to 2-21(Governance), 2-22 to 2-28 (Strategy, policies, and practices), 2-29 to 2-30(Stakeholder engagement), 3-1 to 3-3(Material Topics Disclosures)

[Sector Standards, GRI 11 Oil & Gas]

11.1 GHG emissions, 11.2 Climate adaptation, resilience, and transition, 11.3 Air emissions, 11.5 Waste, 11.8 Asset integrity and critical incident management, 11.9 Occupational health and safety, 11.11 Non-discrimination and equal opportunity, 11.14 Economic impacts, 11.15 Local communities, 11.19 Anti-competitive behavior, 11.20 Anti-corruption, 11.21 Payments to governments

[Topic Standards]

201-1~4, 202-1~2, 203-1~2, 204-1, 205-1~3, 206-1, 207-1~4, 302-1~4, 303-1~5, 304-1~4, 305-1~5, 305-7, 306-1~5, 308-1~2, 401-1~3, 402-1, 403-1~10, 404-1~3, 405-1~2, 406-1, 407-1, 408-1, 409-1, 410-1, 411-1, 413-1~2, 414-1~2, 415-1, 416-1, 418-1

Methodology

As a part of its independent assurance, the Assurer has used the methodology developed for relevant evidence collection in order to comply with the verification criteria and to reduce errors in reporting. The Assurer has performed the following activities;

- A top-level review of issues raised by external parties that could be relevant to organizations policies to provide a check on the appropriateness of statements made in the report.
- Discussion with managers and staffs on organization's approach to stakeholder engagement.
- Review of the supporting evidence related to the material issues through interviews with senior managers in the responsible departments.
- Review of the system for sustainability management strategy process and implementation
- Review of materiality issue analysis process and prioritization by reviewing materiality issue analysis process and verifying the results
- Verification of data generation, collection and reporting for each performance index and document review of relevant systems, policies, and procedures where available
- An assessment of the company's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000 AccountAbility Principles Standard(2018).
- Visit of the HQ of **GS** Caltex to confirm the data collection processes, record management practices.

Limitations and approach used to mitigate limitations

The Assurer performed limited verification for a limited period based on the data provided by the reporting organization. It implies that no significant errors were found during the verification process, and that there are limitations related to the inevitable risks that may exist. The Assurer does not provide assurance for possible future impacts that cannot be predicted or verified during the verification process and any additional aspects related thereto.

Competency and Independence

BSI(British Standards Institution) is a leading global standards and assessment body founded in 1901. BSI is an independent professional institution that specializes in quality, health, safety, social and environmental management with almost 120 years history in providing independent assurance services globally. No member of the assurance team has a business relationship with **GS** Caltex. The Assurer has conducted this verification independently, and there has been no conflict of interest. All assurers who participated in the assurance have qualifications as an AA1000AS assurer, have a lot of assurance experience, and have in-depth understanding of the BSI Group's assurance standard methodology.

Opinion Statement

The assurer was carried out by a team of sustainability report assurors in accordance with the AA1000 Assurance Standard v3. Assurer planned and performed this part of our work to obtain the necessary information and explanations assurer considered to provide sufficient evidence that **GS** Caltex's description of their approach to AA1000 Assurance Standard and their self-declaration of compliance with the GRI standards were fairly stated.
On the basis of our methodology and the activities described above, it is our opinion that the information and data included in the Report are accurate and reliable and the Assurer cannot point out any substantial aspects of material with mistake or misstatement. We believe that the economic, social and environment performance indicators are accurate and are supported by robust internal control processes.

Conclusions

The Report is prepared in accordance with the GRI Standards.(Reporting in accordance with the GRI standards). The detailed reviews against the AA1000 AccountAbility Principles of Inclusivity, Materiality, Responsiveness and Impact and the GRI Standards are set out below.

Inclusivity : Stakeholder Engagement and Opinion

GS Caltex defined national/regional governments, local communities, customers, suppliers, employees and shareholders/investors as a Key Stakeholder Groups. In order to collect opinions by each stakeholder groups in the context of sustainability, operated the stakeholder engagement process. **GS** Caltex conducted a review of the stakeholder engagement process at the governance in order to reflect the major issues derived through the stakeholder engagement process in sustainability strategy and goals. **GS** Caltex disclosed the results related to the process in the Report.

Materiality : Identification and reporting of material sustainability topics

GS Caltex implemented its own materiality assessment process in consideration of the major business and operational characteristics to derive important reporting issues related to sustainability. In the materiality assessment, **GS** Caltex selected materiality issues considering industrial characteristics based on GRI Sector Standards(GRI 11 Oil & Gas), benchmarking of the same industry and analysis of major global reporting standards such as ISSB and SASB. **GS** Caltex derived 3 materiality issues and 9 reporting issues through the process. **GS** Caltex disclosed GRI topic standards disclosures related to materiality issues in the Report.

Responsiveness : Responding to material sustainability topics and related impacts

GS Caltex operated a management process for materiality issues in the context of sustainability derived from the materiality assessment. **GS** Caltex established mid- to long-term sustainability plans and goals in according to the management methodology established to effectively reflect the expectations of key stakeholders. **GS** Caltex disclosed the process including policy, indicator, activity and response performance on materiality issues in the Report.

Impact : Impact of an organization's activities and material sustainability topics on the organization and stakeholders

GS Caltex identified the scope and extent of the impacts to the organization and key stakeholders in the context of the sustainability of the materiality issues reported. **GS** Caltex established sustainability strategies and objectives based on the analysis results of major impacts, including risks and opportunities for materiality issues at the governance level, disclosed mid- to long-term plans and strategic system in the Report.

Findings and conclusions concerning the reliability and quality of specified performance information

Among the GRI Topic Standards, the disclosures related to energy, water and waste-water, emissions(GHG gases, major air emissions), employee training training, and occupational safety and health were carried out in a assurance Type 2 based on the information and data provided by the reporting organization. In order to verify the reliability and accuracy of the data and information, internal control procedures related to data processing, processing, and management were verified through interviews with the responsible department, and accuracy was verified through sampling. Errors and intentional distortions in sustainability performance information included in the report were not found through assurance processes. The reporting organization manages the sustainability performance information through reliable internal control procedures and can track the process of deriving the source of the performance. Errors and unclear expressions found during the assurance process were corrected during the assurance process and prior to the publication of the report, and the assurer confirmed the final published report with the errors and expressions corrected.

Recommendations and Opportunity for improvement

The assurer will provide the following comments to the extent that they do not affect the result of assurance;

- It may be heflpful to advance the ESG disclousure system of sustainability indicators by specifying ESG strategies, goals, and performance by subsidiaries, according to the business characteristics of **GS** Caltex's major subsidiaries.

GRI-reporting

GS Caltex provided us with their self declaration of compliance within GRI Standards. Based on our review, we confirm that social responsibility and sustainable development indicators with reference to the GRI Index. The Assurer confirmed that the Report was prepared in accordance with the GRI Standards and the disclosures related to the Universal Standards and Topic Standards Indicators based on the data provided by **GS** Caltex. The sector standard GRI 11 Oil and Gas was applied.

Issue Date : 16/05/2024



Jungwoo Lee, Lead Assurer, ACSAP



Seonghwan Lim, Managing Director of BSI Korea

bsi.

AA1000
Licensed Report
000-4/V3-ND64C

Verification Opinion Statement

GHG Emissions(Scope 1, 2)

Verification Target

Korean Foundation for Quality(hereinafter 'KFQ') has conducted a verification of Greenhouse Gas Emissions(hereinafter 'GHG Inventory') of **GS** Caltex Corporation(hereinafter 'Company') for 2023.

Verification Scope

KFQ's verification covered on all facilities and emission sources under the operational control and organizational boundary of **GS** Caltex Corporation during 2023.

Verification Criteria

The verification process was based on [Rule for emission reporting and certification of greenhouse gas emission trading Scheme[1)]], [Rules for verification of operating the greenhouse gas emission trading scheme[2)]] and 'ISO14064-3' for every applicable part.

Level of Assurance

The Verification has been planned and conducted as the 'Rules for verification of operating the greenhouse gas emission trading scheme', and the level of assurance for verification shall be satisfied as reasonable level of assurance. And it was confirmed through an internal review whether the process before the verification was conducted effectively.

Verification Limitation

The verification shall contain the potential inherent limitation in the process of application of the verification criteria and methodology.

Verification Opinions

Regarding to the data of the Greenhouse Gas Emission Consumption from the report through the verification, KFQ provides our verification opinions as below;

1) Notification No. 2023-221 of Ministry of Environment 2) Notification No. 2021-278 of Ministry of Environment

1. The Inventory Report has been stated in accordance with "Rule for emission reporting and certification of greenhouse gas emission trading Scheme" and "ISO 14064-1".
2. The materiality assessment result of GHG emissions has satisfied the criteria for an organization that emits more than 5,000,000 tCO_2-eq by meeting less than 2% of the total emissions, as per the "Rules for verification of operating the greenhouse gas emission trading scheme".
3. Thus, KFQ concludes that the Greenhouse Gas Emissions of Company in 2023 is correctly calculated and stated in accordance with "Rule for emission reporting and certification of greenhouse gas emission trading Scheme".

(Unit : tCO_2eq)

Scope 1	Scope 2	총계
7,277,877.323	1,558,185.462	8,836,050

* The totals in this verification statement do not match the totals in emission trading scheme because the total emissions of each facility are calculated by truncating to integer units

August 13th, 2024

Ji Young Song

CEO Ji-Young Song
Korean Foundation for Quality

kfq Korean Foundation for Quality

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

National Institute of Environmental Research

GHG Emissions(Scope 3)

Verification Target

Korean Foundation for Quality(hereinafter 'KFQ') has conducted a verification of Scope 3 Greenhouse Gas Emissions(hereinafter 'GHG emissions') of **GS** Caltex(hereinafter 'Company') for 2023.

Verification Scope

The verification Scope covered the emission categories selected by the company and the emissions between January 1st, 2023 to December 31st, 2023.

Verification Criteria

The following criteria and coefficients used by the company were applied.

- Criteria
  - Technical Guidance for Calculating Scope3 Emissions
  - ISO14064-1:2018, ISO14064-3:2019
  - Rule for emission reporting and certification of greenhouse gas emission trading Scheme (Notification No. 2023-221 of Ministry of Environment)
  - Corporate Value Chain(Scope 3) Accounting and Reporting Standard
- Coefficient
  - LCI database(GLAD ; The Global LCA Data Access network)
  - Environmental Product Declaration evaluation coefficient(2021), Ecoinvent database
  - 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Level of Assurance

The verification was performed in accordance with the procedures specified in ISO14064-3 and the assurance level of the verification was performed to satisfy the limited assurance level.

Verification Limitation

GHG emissions verification involves inherent limitations that may arise depending on the organization's data characteristics, calculations and estimates, sampling method, and limited assurance level. Additionally, this verification does not include responsibility for the accuracy of the original data provided by the company.

Verification Opinions

Through the verification process according to the 'ISO14064-3:2006' KFQ could obtain reasonable basis to express following conclusion on the Greenhouse Gas Emission Report.

1. GHG emissions for 2023 of Company were properly calculated according to the verification standards.
2. For GHG emissions, no material errors or omissions were found, except for emissions information not considered within the selected category range.
3. The criteria and process established or estimated/assumed by the company to calculate GHG emissions were transparently reflected in the internal calculation process.

May 8th, 2024

Ji Young Song

CEO Ji-Young Song
Korean Foundation for Quality

kfq Korean Foundation for Quality

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

National Institute of Environmental Research


GS Caltex