EXPANDING THE POSSIBILITIES OF ENERGY

GS Caltex
Sustainability
Report

2021

GS Caltex

CONTENTS

01

OVERVIEW

CEO Message 04

Company at a Glance 05

02

2021 ESG HIGHLIGHTS

Directions for ESG Management 08

ESG Management System 10

03

ENVIRONMENTAL

Climate Change Response 14

Environmental Impact Reduction 22

04

SOCIAL

Safety and Health 26

Supply Chain 32

Human Rights 33

Social Contribution 37

05

GOVERNANCE

Compliance 42

The Board of Directors 45

Digital Security 47

Risk Management 49

06

ESG PERFORMANCE

Financial Data 51

ESG Data & Performance 52

UN SDGs Related Activities 61

07

APPENDIX

Materiality Assessment 63

Stakeholder Communications 64

Global Standards & Initiatives 65

Key ESG Policies 68

Third Party Assurance Statement 69

GHG Assurance Statement 71

External Sustainability Activities 72

INTERACTIVE USER GUIDE

GS Caltex Sustainability Report 2021 has been created as an interactive PDF that incorporates links to relevant pages in the report. A click on the icons in the main body or on the titles in the contents on the left side of each page will take you to the relevant page.

- Go to the Contents page
- Go back
- Go to the next page
- Go to the previous page
- Go to the relevant web page
- Go to the relevant data

OVERVIEW

Looking towards tomorrow, expanding the possibilities of energy

GS Caltex believes in the infinite potential of energy.
Energy is the driving force that moves the world and enriches our lives.
With the highest level of competitiveness in the industry,
GS Caltex is constantly changing and evolving to expand the possibilities and make today's energy more sustainable into the future.

01

CEO Message

Using ESG management as a foundation, GS Caltex intends to become a highly-respected century-old company that is the most competitive in the energy and chemical industries.

President & CEO
Saehong Hur

Dear esteemed stakeholders,

This year marks the 55th anniversary of **GS** Caltex. I would like to express my heartfelt appreciation to our people who have worked tirelessly in their respective roles since the foundation of the company, and to our shareholders, customers, partners and local communities who have provided unwavering trust and support over the years.

Today we find ourselves in a hyper-competitive environment driven by a combination of the COVID-19 pandemic and the fourth industrial revolution. In the face of extreme uncertainty and insecurity about the future, the boundaries between industries, markets and technologies have become blurred and reset. In this world of no boundaries, no company can guarantee sustainable growth. Against this background, we recognize the growing importance of ESG (Environmental, Social and Governance) as an essential prerequisite to sustainable growth and as an important pillar of corporate management.

Climate change has meant that global environmental problems such as drought and heavy rainfall have become common issues of concern, and countries and businesses around the world are joining forces to respond to this development. In this vein, **GS** Caltex set up a dedicated organization in 2021 to actively respond to climate issues. As concerned participants, we are working on a number of projects to develop a roadmap to achieve carbon neutrality, including finding ways to reduce greenhouse gases with a long-term perspective as well as uncovering business opportunities to secure a new profit pool.

In addition to the ongoing efforts to reduce GHG and minimize the environmental impact of our major businesses, **GS** Caltex seeks to expand the possibilities of sustainable development by pursuing new eco-friendly businesses. Thus, in response to the global mega-trend towards energy conversion, we are focusing on a more efficient use of energy and on creating a circular economy for carbon reduction. This has led to tangible progress in the areas of hydrogen, waste plastic recycling and white bio. As an expression of our commitment to the environment, we launched our integrated eco-friendly brand, 'Energy Plus Eco', in April 2022.

Today, businesses are required to deliver ethical standards and social responsibility at levels much higher than in the past. Since ethical management for corporate transparency is the most fundamental principle governing all our business activities, we have further bolstered our compliance management. In 2021, we published the 'Business Conduct and Ethics Code' consolidating various internal policies and regulations and reflecting global trends such as ESG. **GS** Caltex was also the first Korean energy company to obtain a global certification for compliance management systems (ISO 37301).

GS Caltex has published our 17th Sustainability Report, which outlines the company's directions in each area of ESG and transparently communicates the outcome of our efforts towards sustainable development in 2021. We intend to do our utmost to fulfil our social, economic and environmental responsibilities, and live up to the expectations and support of our stakeholders.
I would like to ask for your continued interest and support for our ongoing journey of challenge and innovation to become a century-old company that is the most competitive and most respected in the energy and chemical industries.

Thank you.

VALUE NO.1 ENERGY & CHEMICAL PARTNER

Creating new value based on the best competitiveness in the industry

Since its establishment as the first private oil refinery in Korea, **GS** Caltex has laid the foundations for the Korean petroleum industry. By making bold investments to achieve technology and quality innovations and diversifying its business portfolio, **GS** Caltex has grown as a global energy company, leading domestic and overseas markets. With the highest level of competitiveness in the industry, the company is creating new value in the world of energy.

ENERGY FOR SUSTAINABLE FUTURE

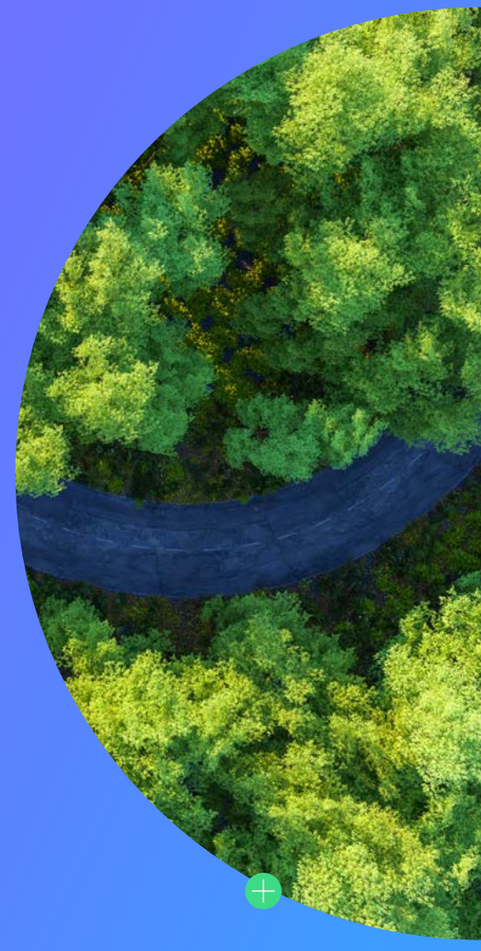
Preparing for the future of the energy industry by constantly seeking challenge

GS Caltex never remains complacent and constantly seeks innovations in the energy industry. Global environmental issues, the fourth industrial revolution, and constant challenges in the business environment only serve as new opportunities for **GS** Caltex. By expanding its eco-friendly businesses and taking on the challenge of developing future enterprises based on digital technology, the company intends to be at the forefront of change in the energy industry.

2021 ESG HIGHLIGHTS 02

Promising a sustainable future through responsible practice

GS Caltex puts sustainability first across its entire business and has strengthened ESG activities that impact diverse stakeholders. **GS** Caltex pledges to build a sustainable future by acting responsibly for people and the environment and growing as a highly respected company.



Directions for ESG Management

E
Eco-friendly management to respond to climate change

GS Caltex is actively engaged in addressing the climate issues facing humanity. By improving energy efficiency and converting to low-carbon energy, the company endeavors to minimize its environmental impact, develop eco-friendly businesses and products, and increase investment to achieve carbon neutrality.

S
Sustainable growth for people and society

GS Caltex strives for sustainable growth with people and society. Based on a corporate culture of respecting human rights and diversity, the company intends to grow by sharing economic and social values with diverse stakeholders in a safe business environment.

G
Governance for sound and responsible business management

GS Caltex seeks to make sound business decisions and integrate ESG in all management activities. To this end, the company has established sound corporate governance to ensure fair and responsible compliance across all its business activities.

ENVIRONMENTAL

GHG Intensity

30% less

(Emissions per unit, vs 2020)

Expanded new eco-friendly businesses

(Hydrogen, waste plastic recycling, bio, etc.)

Launched an eco-friendly product brand

energy+eco

ISO 14001 for environmental management
ISO 50001 for energy management

SOCIAL

Total Recordable Incident Rate (TRIR)

0.05 lower

(Employees and Partners combined, vs 2020)

Completed human rights impact assessment for all employees

100%

Conducted ESG assessment for the supply chain

310 Companies

ISO 9001 for quality management,
KOSHA-MS for occupational safety and health

GOVERNANCE

Operating an ESG Committee and Sustainability Sub-Committees by theme

Revised the Business Conduct and Ethics Code

Conducted compliance training for all employees

100%

ISO 37301 for compliance management
ISMS-P for information security

ESG Management System

GS Sustainability Strategy

Grow Sustainably

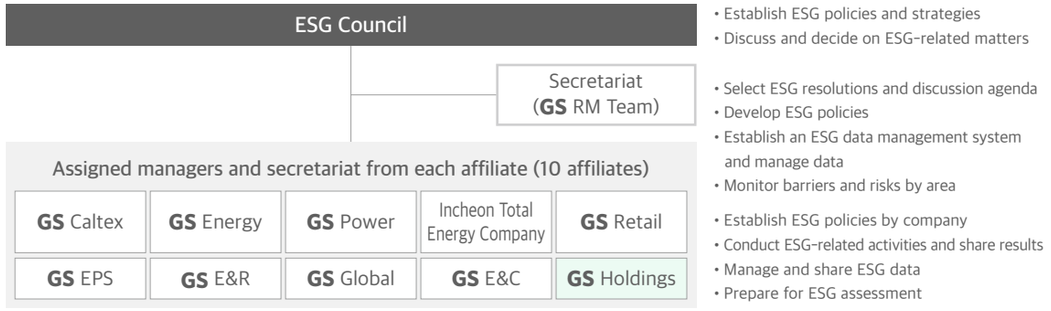
Recognizing the critical importance of conducting environmentally sustainable businesses, **GS** has defined the meaning and direction of sustainability for the group, so that the **GS** affiliates can move in the same direction, create synergy between affiliates, and convey a sustainable value to the external community.

Core Management Value	GROW SUSTAINABLY		
Directions	REDUCE	IMPROVE	INNOVATE
Action	**GS** will take the initiative to save resources and energy across the entire business process from product manufacturing to distribution and reduce emissions of hazardous materials.	**GS** will create environmental sustainability in everyday life by improving business processes and enhancing the consumer experience.	**GS** will secure an engine for environmentally sustainable growth by developing big data, AI and bio-technologies.

ESG Management System of GS

Launch of an ESG Council

In order to respond more effectively to the demands of internal and external stakeholders in line with the growing social demand for ESG management, **GS** newly established an ESG Council by integrating the ESG sub-group under the existing Environment Council and the SHE sub-group. The ESG Council is the top decision-making body of **GS** concerned with ESG management and oversees ESG strategy development and implementation.
In order to improve the effectiveness of aligned activities and facilitate communications with affiliates through the ESG Council, **GS** Caltex has assigned three executive directors and five managers as members of the ESG Council.



Establishment of ESG Policies

Along with the launch of the ESG Council, **GS** has established a number of common policies and principles, including an environmental management policy, a human rights charter, a Suppliers Code of Conduct, the Independence of Independent Directors and Diversity Policy - these in order to share ESG directions and manage risks across the group. Under these common directions, each **GS** affiliate will establish its own policies and conduct ESG activities in accordance with the respective business environment.

The ESG Management System of GS Caltex

ESG-related Committees

In February 2021, **GS** Caltex expanded and reorganized the existing CSR Committee under the CEO, which had been operating since 2010, to the ESG Committee. This Committee is convened every quarter to agree on major decisions concerning ESG strategy, including carbon neutrality. Major agenda items include a carbon neutrality strategy and implementation plans in response to climate change, performance management and information disclosure on ESG management, the assessment of new eco-friendly business activities, and CSR initiatives such as community engagement and social contribution activities. Decisions are made by the top management team led by the CEO. To enhance the SHE management system, the Safety & Environment Committee has now been divided into a company-wide Safety Leadership Committee (SLC) under the Chief Safety & Environment Officer (CSEO) and a Safety & Environment Committee under the head of the Corporate SHE.

ESG Committee	Discusses and make decisions at the corporate level on ongoing management activities, such as ESG assessment and KPI disclosure, as well as major issues that have an impact on the overall business, such as climate change response
Safety Leadership Committee (SLC)	Communicates and makes decisions on SHE-related issues, reviews the implementation of the Serious Accidents Punishment Act, and the status of the safety culture change program
Safety & Environment Committee	Discusses and makes decisions on SHE policies, strengthens safety leadership capability, and shares SHE best practices
Digital Security Committee	Discusses and makes decisions on company-wide information security and IT / OT security policy directions
Human Resources Committee	Discusses and shares HR policies and issues
Corporate Compliance Committee	Shares company-wide compliance status, performance, issues and plans
Operational Safety & Health Committee	Discusses and makes decisions on key issues concerning safety and health of workers (joint labor-management)
Risk Management Committee	Reviews risk management policies and strategies
Strategic Investment Adjustment Committee	Selects and prioritizes optimal investment plans (proposals) at a corporate level
Employee Reward and Discipline Committee	Discusses and makes decisions on employee reward and punishment

Engagement in ESG Initiatives and Policies

Since the joining of the UN Global Compact (UNGC) in 2010, **GS** Caltex has rigorously pursued activities in accordance with the Ten Principles of UNGC concerning human rights, labor, the environment and anti-corruption, and has submitted a COP (Communication on Progress) every year. The company has also committed to the UN Sustainable Development Goals (SDGs) published in 2015 and has undertaken 9 out of the 17 SDGs aligned with its ESG management activities. Moreover, since 2021 **GS** Caltex has participated in the National Assembly ESG Forum to expand ESG management in Korea and has implemented the ESG systems and policies introduced by the Ministry of Trade, Industry and Energy. The company has also actively participated in activities in collaboration with various institutions and enterprises such as the ESG agenda group of the Korean Chamber of Commerce and Industry in 2022.

Gold Medal Award from Ecovadis, a Global Supply Chain ESG Assessment Agency

At the request of petrochemical and airline customers in Korea and abroad, **GS** Caltex undergoes an annual assessment by Ecovadis, a global ESG rating provider. This is to help consolidate business relations with its customers and confirm the company's ESG standards in the areas of the environment, labor, human rights and the supply chain. In recognition of its consistent improvement in ESG activities, **GS** Caltex received the Gold Medal in 2021, notably awarded to only the top 5% of companies Ecovadis assesses.

ecovadis

GS CALTEX CORPORATION (GROUP)

has been awarded a

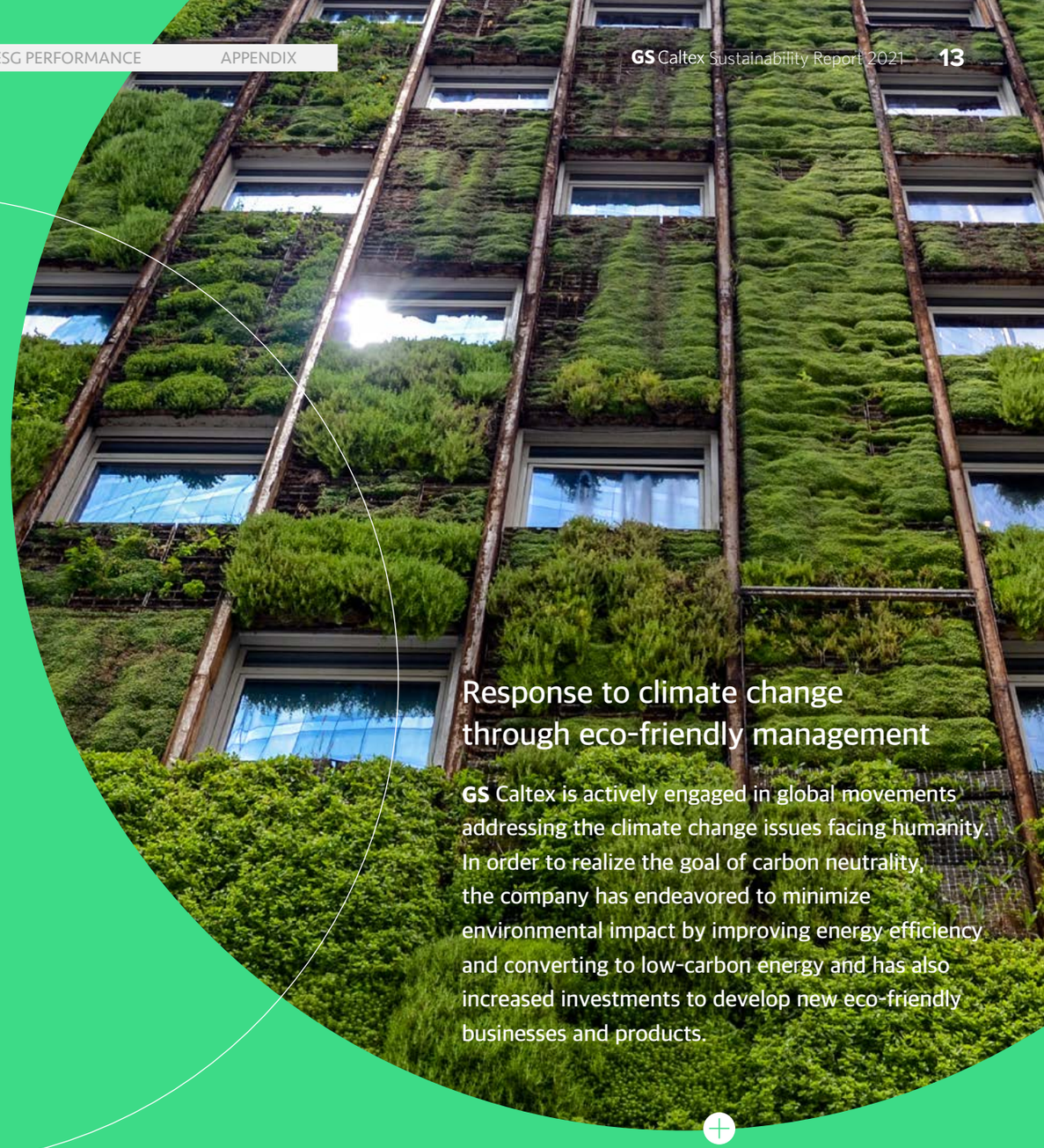
Gold medal

as a recognition of their EcoVadis Rating

- DECEMBER 2021 -

GOLD 2021 ecovadis Sustainability Rating

ENVIRONMENTAL 03



Response to climate change through eco-friendly management

GS Caltex is actively engaged in global movements addressing the climate change issues facing humanity. In order to realize the goal of carbon neutrality, the company has endeavored to minimize environmental impact by improving energy efficiency and converting to low-carbon energy and has also increased investments to develop new eco-friendly businesses and products.

Climate Change Response

Why is this topic important?

According to the special report on global warming of 1.5 ˚C (SR 15) by the IPCC (Intergovernmental Panel on Climate Change), the speed of global warming is projected to be greater than 1.5˚C by the 2040s. Natural disasters caused by global climate change, such as floods, typhoons, heat waves and wildfires, are no longer just environmental issues but also have significant financial implications.

To maintain stakeholder trust, businesses are also making efforts to enhance their capabilities to identify, assess and manage climate risks, and transparently disclose their environmental performance such as GHG emissions. In particular, since the traditional energy consumption focused on fossil fuels is regarded as the main culprit for carbon emissions, there is a growing demand and expectation for energy and chemical companies to respond more effectively to climate change issues.

As a global energy company, **GS** Caltex intends to double its efforts to address climate risks by taking the lead in energy conversion through R&D innovations for sustainable energy and increasing investments in GHG reduction and eco-friendly businesses.

Climate Change Risk Management through GHG Reduction Efforts

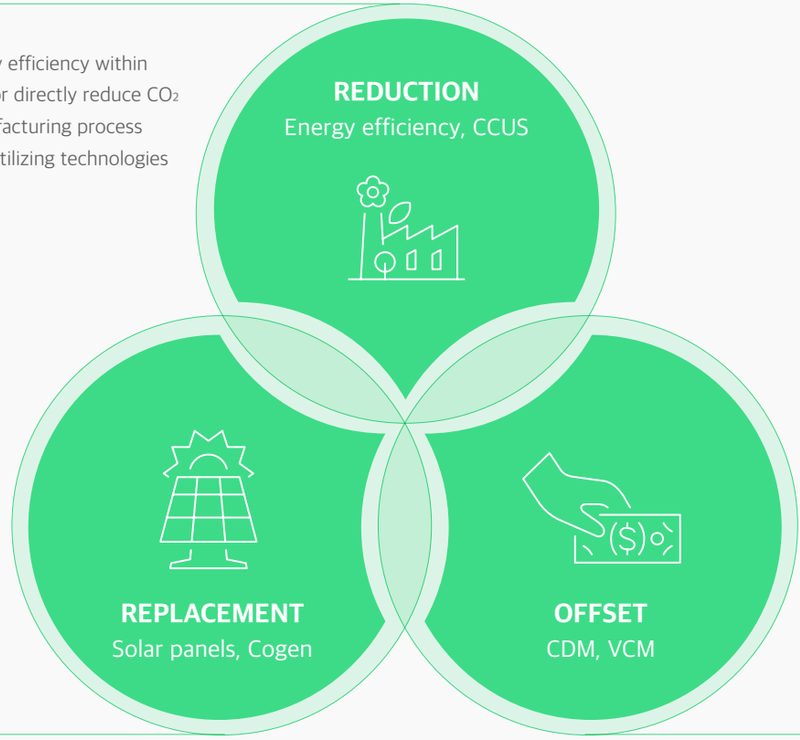
GS Caltex has consistently endeavored to be a sustainable energy company by responding to global climate change. To reduce carbon emissions that have a direct impact on climate change, the company has worked to reduce direct and indirect GHG emissions within its business sites (Scope 1 & 2) by increasing energy efficiency and converting to low-carbon energy. In addition, by expanding the scope to other indirect GHG emissions (Scope 3), the company intends to pursue its carbon reduction strategy.

GS Caltex set up a dedicated organization in 2021 to efforts to respond to the projects that develop a roadmap for carbon neutrality.

GS Caltex has classified the targets for achieving net carbon-zero into three areas : Reduction, Replacement, and Offset, and is working to develop relevant approaches and implementation strategies for each area. Also under review are conducting impact analyses of carbon emissions by production process, unearthing GHG reduction opportunities, setting and managing reduction targets, and quantifying the effects of carbon reduction in new eco-friendly businesses.

Furthermore, the company has expanded its eco-friendly businesses such as waste plastic recycling, bio and hydrogen. The **GS** Caltex R&D Center and each business unit conduct active research and development for eco-friendly products and new technologies. The R&D Center is also seeking diverse investment opportunities in green sectors by raising funds at the **GS** group level, such as conducting joint research with a global start-up possessing carbon reduction equipment and eco-friendly technologies.

The GS Caltex Approach towards Carbon Neutrality



Reduction
Improve energy efficiency within business sites or directly reduce CO_2 from the manufacturing process by applying / utilizing technologies such as CCUS

Replacement
Indirectly reduce CO_2 by converting electricity or steam used in the manufacturing process to new renewable energy

Offset
Carbon offset through eco-friendly activities and businesses

Establishment of the Company-wide Organization and Management System

In 2021, **GS** Caltex reorganized the CSR Committee under the CEO to the ESG Committee to establish a top management decision-making system dealing with climate change response and ESG management issues. The ESG Committee provides a forum for the CEO and senior executives to make decisions on GHG reduction strategies, etc. Company-wide activities for GHG reduction are undertaken based on Committee decisions.

GHG Reduction Council Activities

To constantly monitor and reduce GHG generated from the Yeosu Complex, **GS** Caltex set up a 'Production Headquarters GHG Reduction Council' in January 2022. Through regular council meetings, relevant teams monitor the reduction status of carbon generated in the production process, review competitor movements and new technologies, and discuss energy efficiency improvement opportunities. In addition, the Council reviews practical ways to implement carbon reduction ideas.

Establishment of a GHG Management and Evaluation System

GS Caltex has introduced a daily monitoring system to enable real-time tracking and controlling of GHG emission status. Under the new system, the company can manage GHG emissions more systematically than the previous method of calculating monthly emissions based on a GHG emission factor derived from monthly energy usage. Further, the new monitoring system enables the business to check and control GHG emission trends based on the operational nature of each process, analyze the causes of emission value hunting, identify error data, and prevent over-estimation of GHG emissions.

In addition, **GS** Caltex utilizes a modeling program incorporating GHG impact into the LP Model - a production plan optimization program. The program enables not only the modeling of emissions by process based on carbon emission permits and prices, but also improves the accuracy of utility usage, analyzes emission changes by process, increases operational economics, and checks the impact of GHG emissions in production planning. Furthermore, **GS** Caltex strives to contribute to GHG reduction from a long-term perspective. The company aims to develop optimized production planning where the feed volume for each process is adjusted based on GHG impact and ensure the impact of GHG emissions is reviewed prior to the introduction of new facilities.

Climate Risk Management Activities

Improving Energy Efficiency

GS Caltex has focused on energy saving activities to reduce cost and GHG emissions. To conduct these activities more systematically, an internal project called Scorpions has been in operation since 2021. By implementing 130 energy saving initiatives, the project has produced savings of around KRW 15 billion in energy costs and a GHG reduction of 43,000 tCO_2eq. In the second half of 2021, **GS** Caltex also introduced a co-generation plant to its business site which produces electricity and gas by operating gas turbines fueled by LNG. This replaces part of the electricity supplied by coal-fired power plants and reduces the steam bought from a local supplier in the Yeosu Industrial Complex. It has also contributed to a reduction in GHG emissions.

Moreover, the company is working on a strategy of increasing the operation of existing utility equipment that can produce steam and electricity by using by-product gases from the Yeosu Complex. **GS** Caltex has participated in the study by Solomon, an assessment agency specializing in the oil refinery industry, to evaluate the competitiveness index of global oil refinery companies. In the assessment of 2020 performance conducted in 2021, **GS** Caltex was rated in the first quartile (i.e. the first grade) in the Carbon Emission Index (CEI)™ which measures carbon emission intensity in the refinery process. This recognizes **GS** Caltex as a world-class company. The company has maintained its first quartile rating since 2012 and consistently improved its carbon reduction performance. While continuing to research opportunities to improve energy efficiency, **GS** Caltex will effectively monitor and manage the implementation of energy saving initiatives.

Click to see the relevant data D

Major Activities in 2021	Energy reduction (TJ/year)	GHG reduction (tCO_2eq/year)	Cost saving (KRW 100m/year)
Reduced Fuel Optimized the operational efficiency of the hydrogen production process	21	1,197	2.6
Reduced Steam Reduced steam usage by optimizing the operation of rotating machines	50	4,072	3.8
Reduced Electricity Reduced electricity usage by optimizing the operation of rotating machines by season	3	329	0.2

※ Calculation basis : The amount of reduction is calculated by comparing emission levels before and after energy efficiency improvement by energy source

Capturing & Utilizing CO_2 and Upcycling into Products

From 2021, **GS** Caltex has been actively looking to develop value-added products by capturing and utilizing / converting CO_2 generated in the Yeosu Complex. Various methods of turning CO_2 into products are being explored, such as the direct utilization of CO_2 for making carbonated water (used in industrial, food & beverages, and dry ice), conversion into chemical products, and mineralization for construction materials. Further, **GS** Caltex intends to continue its drive to reduce GHG through active investment and cooperation with specialist companies.

Participation in Korean Emissions Trading System

In anticipation of lowered emission quotas in the long term, **GS** Caltex has proactively secured emission rights by reducing GHG or running external businesses. The company has actively participated in the nationwide cap-and-trade system and plans to continue in Phase 3 (2021~2025).

Introduction of Korea's First Carbon Neutral Crude Oil

GS Caltex was the first company in Korea to import two million barrels of carbon-neutral crude oil from Sweden's Lundin Energy, the world's first certified carbon-neutral crude oil. The crude oil comes from Lundin's Johan Sverdrup oil field offshore of Norway where the extraction process generates 40 times lower carbon emissions than ordinary oil fields. Further, residual emissions are traded for carbon offsets to achieve carbon neutrality. Lundin's crude oil is widely recognized as carbon-neutral through the international VCS (Verified Carbon Standard) certification.

Overseas GHG Reduction Activities

GS Caltex has also been active in reducing GHG in global markets. Since 2018, the company has distributed cookstoves that can reduce fuel costs by up to 66% to replace firepots used for home cooking in the poorest countries. This has contributed to improving the quality of life by promoting the health of low-income families and conserving the environment.

GS Caltex has provided around 152,000 cookstoves in three countries - Myanmar, Malawi, and Zambia. The company will continue to make bold investments in the future to uncover GHG reduction opportunities in global markets.

Utilizing the Voluntary Carbon Market

The International Civil Aviation Organization (ICAO) has introduced the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Under this scheme, if the carbon emissions of international airlines exceed the levels of 2019, airlines are required to purchase offset credit for the exceeded amounts. To prepare for the rapid resulting increase in demand for sustainable aviation fuel (SAF) and join global GHG reduction efforts, **GS** Caltex is reviewing utilizing the Voluntary Carbon Market to trade in carbon offset products.

Expansion of New Eco-friendly Businesses in Response to Climate Change

To fulfill its environmental responsibilities as an energy company, **GS** Caltex is creating a circular economy focusing on the circulation of resources across the business value chain. While continuing its efforts to uncover new opportunities for climate change response, the company has focused on research and development of eco-friendly businesses and products to facilitate conversion to low-carbon energy. **GS** Caltex is also working on a long-term low-carbon power generation strategy.

GS Caltex has taken the lead in developing future energy businesses such as hydrogen, EV charging, and waste plastic recycling. To address waste plastic issues, mechanical recycling (MR) and chemical recycling (CR) are deployed based on the method of waste plastic processing. In addition, the company has consistently expanded its bio businesses as part of an eco-friendly fuel development, such as white bio and biofuel, and has focused on eco-friendly product development to minimize environmental impact and enhance customer satisfaction.

Launch of the Energy Plus Eco Brand

In 2022, **GS** Caltex launched 'Energy Plus Eco', an integrated eco-friendly brand built on the existing 'Energy Plus'. The 'Energy Plus' brand exemplifies a commitment to 'change and expansion as an energy company' and encompasses future-oriented business areas. The 'Energy Plus Eco' brand signifies the company's commitment to eco-friendly management for a sustainable future.

The Energy Plus Eco brand will be applied to those certified eco-friendly products made from eco-friendly materials or which contribute to a circular economy by using recycled materials, such as recycled PP compounds, Kixx BIO1 (lubricant), GreenDiol (cosmetics ingredient). The brand will be widely applied in new business areas such as eco-friendly technologies and products that contribute to carbon reduction.

Brand Identity System

BRAND LOGO

energy eco

The Möbius strip represents the value of a circular economy which is central to our eco-friendly business.
The arrow is an expression of our determination to evolve and expand.

CORE VALUE

Commitment to **Change** and **Expansion**	**Resource circulation** efforts, the key to eco-friendly business	**Dedication** to eco-friendly business
Evolving	Eco-supportive	Trustworthy
GS Caltex continues to grow and evolve as an energy company to provide our customers with even greater value.	We consistently pursue eco-supportive activities throughout the value chain as part of our goal to construct a sustainable, circular economy.	**GS** Caltex has always and will continue to strive to be a trustworthy company. This is the mindset guiding our eco-friendly business.

CORE MESSAGE

"Adding Energy to the Environment"

Hydrogen Business

Leveraging the experience and capability of operating a large-scale hydrogen production facility and fueling / charging networks, **GS** Caltex plans to expand the hydrogen market to enable more people to use hydrogen energy conveniently and economically. In July 2021, the company also established a separate organization to manage the hydrogen business and has been working with several domestic and international partners to conduct new hydrogen-related businesses.

Hydrogen Fueling Stations

To facilitate the development of the hydrogen mobility market in Korea, **GS** Caltex has begun the installation of hydrogen fueling stations. Starting from a convergence energy station equipped with hydrogen fueling facilities jointly unveiled with Hyundai Motor Company in May 2020, the company has now installed hydrogen fueling stations around the country. **GS** Caltex is also seeking various partnerships to expand the hydrogen fueling infrastructure, such as making an equity investment in KOHYGEN, a special purpose company installing hydrogen fueling stations for commercial vehicles.

Production and Supply of Liquid Hydrogen

In May 2021, **GS** Caltex signed an MOU with KOGAS for liquid hydrogen production and supply. Under the agreement, **GS** Caltex will build a hydrogen liquefaction plant with a production capacity of 10,000 tons a year and produce liquid hydrogen by utilizing LNG cold energy from the LNG regasification process, which will be a world first. The liquid hydrogen produced will then be supplied to liquid hydrogen fueling stations to be built by **GS** Caltex in the Seoul metropolitan and central regions.

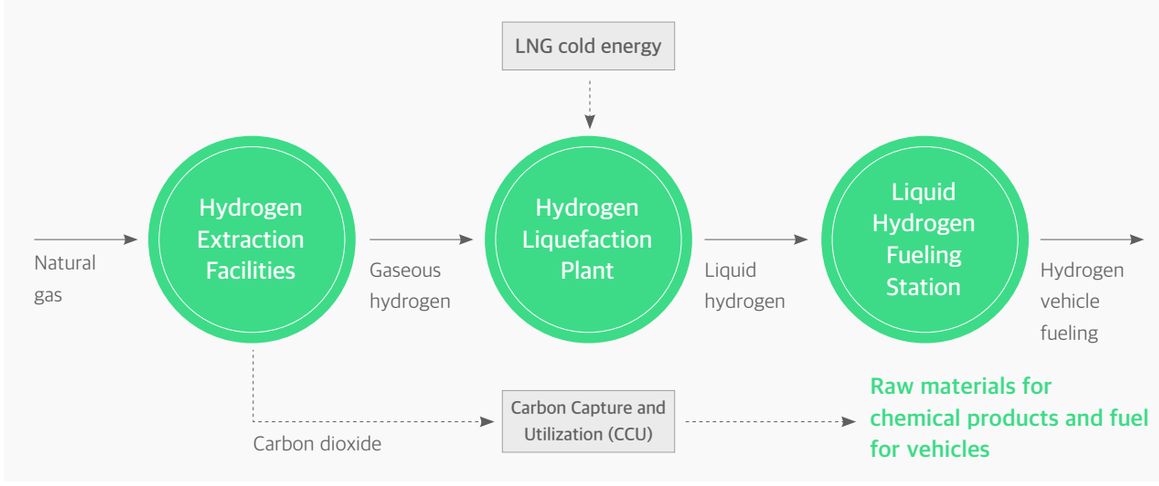
Fuel Cell Power Plants

In June 2021, **GS** Caltex signed an MOU with Yeosu City and Korea East-West Power (EWP) to promote a hydrogen economy and pursue carbon neutrality. As part of this agreement, **GS** Caltex plans to construct a 15MW hydrogen fuel cell power plant on unused land within EWP's Honam Coal-fired Power Plant in Yeosu. Unlike other fuel cell power plants using LNG, **GS** Caltex's fuel cell power plant will use by-product hydrogen which does not generate CO_2, thus being eco-friendly. The electricity generated from this eco-friendly hydrogen is expected to be available to some 50,000 households.

Participation in Hydrogen Business Network

The **GS** Group is a member of the Korea H2 Business Summit, a Korean-version hydrogen council established in September 2021. As an affiliate of the **GS** Group, **GS** Caltex will work with member companies to propose essential policies and conduct joint reviews of technological R&D for global hydrogen projects and the advancement of the hydrogen industry. This will help facilitate the domestic hydrogen economy and enhance global competitiveness.

GS Caltex-KOGAS Liquid Hydrogen Value Chain



EV Charging Network Business

To respond to the changes in the future energy sector and contribute to the diffusion of eco-friendly vehicles, **GS** Caltex started the electric vehicle charging business in 2019. In 2020, **GS** Caltex launched 'Energy Plus Hub', a future-oriented fuel service station combining mobility infrastructure and lifestyle services. In 2021, the company installed EV charging facilities at 167 stands in 77 gas and LPG filling stations nationwide. The chargers installed enable ultra-fast charging over 100kWh.

GS Caltex is expanding the EV charging business in multiple directions by signing an MOU for EV charging business partnerships with car manufacturers and EV battery and rental companies.

In addition, **GS** Caltex has launched the Energy Plus EV app to enhance customer convenience by providing various membership services, including instant charging, charger information search, and charging discounts for app users.

GS Caltex recognizes the importance of energy transformation and digital technology applicable to new mobility trends. The company will therefore continue its efforts to provide services tailored to the new mobility environment and changing lifestyles and deliver a new experience and value for the customer.

Waste Plastic Recycling Business

To contribute to creating sustainable value through efficient utilization of resources. **GS** Caltex has pursued the Mechanical Recycle (MR) and Chemical Recycle (CR) business and has expanded its efforts to address waste plastic issues.

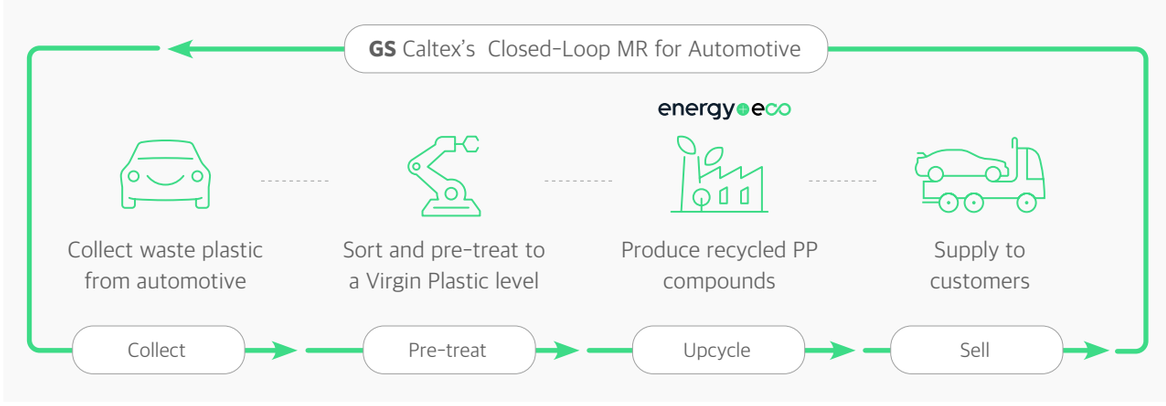
Mechanical Recycling (MR) Partnership with a Pretreatment Company

There are three ways to recycle waste plastic - divided according to the method of treatment : mechanical, chemical and thermal. The most commonly used is mechanical recycling (MR), where waste plastic materials are subjected to physical treatments such as washing, sorting and crushing in order to be rendered into a reusable form.

GS Caltex started using MR material from 2010 to produce recycled PP compounds for cars and home appliances. As of 2021, the sales volume was around 21,500 tons and the sales value around KRW 29 billion. A steep annual growth of over 30% is expected in the future.

Moreover, to increase waste plastic recycling and upcycle it to high value-added products, **GS** Caltex is developing various mechanical recycling technologies for different sources together with domestic and international partners. The first successful outcome is a significant improvement in purity jointly developed with a local company pre-treating waste plastic from domestic cars. By signing a partnership with the pretreatment company, **GS** Caltex has consolidated the cooperative relationship. Based on the high-purity MR materials obtained, **GS** Caltex intends to establish a closed-loop system[1] for upcycling waste plastic from automotive into materials for the further production of vehicles.

GS Caltex's Closed-Loop MR System for Automotive



1) Closed-Loop : The producer of a product made from plastic collects the waste plastic and reuses it for the same product

GRS (Global Recycled Standard) Certification for Recycled PP Compounds

Global Recycled Standard

Certified by Control Union, CU1127414

GS Caltex's recycled PP compounds are functional products upcycled from waste plastic specific to customer needs based on its advanced technology. More than 10% of PP compounds produced by **GS** Caltex are recycled products from waste plastic. This has contributed to a CO_2 reduction of 61,000 tons a year.

In November 2021, **GS** Caltex obtained the GRS certification for the recycled PP compounds - the first oil company in Korea. GRS is an international certification verifying the content of recycling materials in finished products and transparency across the entire process from the sources of the raw materials to manufacturing.

Waste Plastic Pyrolysis Oil Business Based on Chemical Recycling (CR) Technology

GS Caltex plans to develop a business utilizing pyrolysis technology that can use a mixed feed and align with existing oil refinery / petrochemical processes. The waste plastic pyrolysis oil based on the latest technology is fed into the oil refinery process in the Yeosu Complex to produce recycled petrochemical and plastic products such as propylene and polypropylene.

GS Caltex has also started a demonstration project of feeding waste plastic pyrolysis oil into the oil refinery process. The first stage was supplying around 50 tons of waste plastic pyrolysis oil to advanced facilities in December 2021 - a first in Korea. Based on the results, the company is looking to invest in new production facilities for waste plastic pyrolysis oil with a capacity of 50,000 tons a year, targeting the start of operation in 2024. The capacity will be further expanded to 1 million tons a year in the future.

As part of establishing partnerships with domestic eco-friendly companies, **GS** Caltex signed a three-party MOU with **GS** Construction and 'City Oil Field', a waste plastic pyrolysis technology company, in December 2021.

White Bio Business

White Bio is a biotechnology producing eco-friendly products from sustainable biomass resources. Since this replaces chemical materials manufactured from fossil resources such as oil and natural gas, it reduces reliance on fossil-based materials and carbon emissions. **GS** Caltex has been working on the development of microorganism and bioprocess technology to enable the mass production of 2,3-Butanediol (2,3-BDO). Moreover, **GS** Caltex signed a Joint Development Agreement (JDA) with LG Chem to produce 3-Hydroxypropionic acid (3-HP). In addition, high-value-added chemicals, biodegradable plastics, and sustainable materials are being developed and applied in various fields, including cosmetics, foods and agricultural products.

2,3-Butanediol

In March 2020, **GS** Caltex launched the 'GreenDiol' brand of cosmetic grade 2,3-BDO to apply global cosmetics brands. 2,3-BDO is getting noticed for its eco-friendly value and superior performance.

3-Hydroxypropionic acid

GS Caltex has been collaborating with LG Chem to develop 3-HP mass production technology since November 2021. 3-HP is one of the platform chemicals derived from biomass designated by the US DOE[1], which can be converted into major chemicals such as Acrylic acid, Acrylonitrile, and a biodegradable plastic. Based on the **GS** Caltex's processing technology and LG Chem's fermentation technology, the technology for commercialization will be accomplished by 2024.

Major Certifications and Awards

2) ECO CERT COSMOS APPROVED

3) Vegan

4) USDA CERTIFIED BIOBASED PRODUCT PACKAGE 100%

5) IR52 장영실상

Biofuel Business

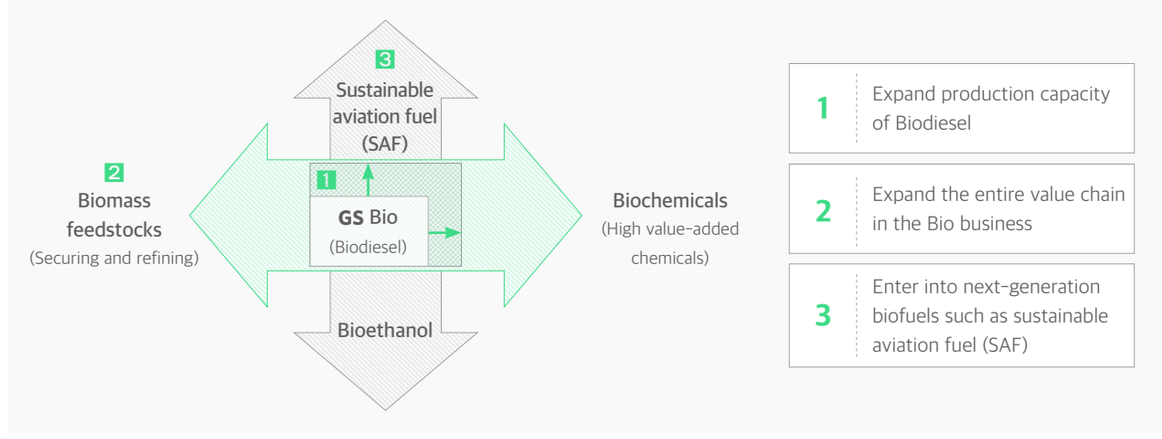
Recognizing the importance of biofuel as an eco-friendly fuel type, **GS** Caltex established **GS** Bio in 2010 as a wholly-owned affiliate specializing in biofuel production. **GS** Bio produces and supplies biodiesel by processing biomass feedstocks and manufacturing glycerin and functional feed additives based on high value-added by-product research. **GS** Bio has produced around 581,000kl of biodiesel over the last five years (2017-2021), leading to a reduction of 1,620,000 tCO_2eq in GHG emissions by replacing petroleum. **GS** Caltex plans to increase the biodiesel production capacity of **GS** Bio and further expand the bio business. As part of this plan, **GS** Caltex intends to extend the biofuel value chain from securing and refining feedstocks to the eco-friendly production of biofuel and chemical products.

To this end, a separate organization was created in 2022 to secure biomass feedstocks and review the production of biochemical products. The company plans to expand its bio-product portfolio to next-generation biofuels such as sustainable aviation fuel (SAF).

Efforts to Secure Biomass Feedstocks

Producing biodiesel using biomass feedstocks significantly reduces carbon emissions and increases profitability. In this regard, **GS** Caltex is working to secure first-generation feedstocks based on vegetable oils, as well as second-generation feedstocks from recycled UCO (used cooking oil) and animal fat. A variety of initiatives are being pursued including the testing of feedstocks in cooperation with related companies.

Bio Business Growth Directions



1) US DOE : The United States Department of Energy
2) COSMOS : Certification for organic cosmetics products, issued by five institutions in four European countries (France, Germany, Italy and the UK)
3) Vegan : Certification issued by the Korean Agency of Vegan Certification for products that do not contain materials derived from animals and have not been tested on animals
4) USDA Certified Biobased Product : Certification issued by the US Department of Agriculture for eco-friendly products. 100% bop-based products that do not contain any petroleum-based materials
5) IR52 Jang Young-sil Award : Awarded to one product per week by the Ministry of Science and ICT in recognition of the developer's contributions to cost-efficient innovations

Launch of an Eco-friendly Lubricant

GS Caltex has made consistent R&D efforts to develop eco-friendly lubricant products that can maintain engine oil performance. As a result, hybrid-specific Kixx HYBRID engine oil was launched in 2020, EV-specific Kixx EV engine oil was launched in 2021, and 'Kixx BIO1', Korea's first eco-friendly engine oil made from plant-based raw materials, was launched in 2022. Kixx BIO1, developed in partnership with Novvi LCC, a global leader in bio-based fuel development, is also made using a base oil from plant-based raw materials. Since the amount of CO_2 absorbed during the cultivation of the raw materials is greater than the CO_2 produced by the base oil, the product contributes to a net carbon reduction.

Kixx BIO1 is recognized as an eco-friendly engine oil through the US Department of Agriculture certification (USDA Certified Biobased Product). In addition, by complying with the latest standards, such as API SP[1] and ILSAC GF-6[2], the product helps maintain the original performance of engine oil by improving fuel efficiency, protecting the engine, and preventing wear.

In addition, **GS** Caltex has established a systematic recycling system where automotive lubricants are collected at the point of disposal and then recycled. The containers are also separately retrieved and recycled. The containers for Kixx BIO1 are also sustainably made using recycled plastic, PCR (Post Consumer Recycled), to minimize environmental impact.

Launch of Kixx BIO1, Korea's first eco-friendly lubricant made from plant-based materials

R&D Activities for Eco-friendly Products and Technologies

GS Caltex has consistently pursued R&D and open innovation to uncover R&D opportunities and secure differentiated technological capabilities in a wide range of fields, including hydrogen, Carbon Capture & Utilization (CCU), and eco-friendly asphalt / polymer products.

Area		Research Contents
Energy	New asphalt products	• Development of eco-friendly warm mix asphalt which emits less CO_2 and VOC (volatile organic compounds) with a lower paving temperature • Development of recycled asphalt by reusing aggregates from waste ascon
	Energy efficiency technology	• Development of energy efficiency improvement solutions by fouling reduction in refinery process
	Hydrogen / CCU	• Development of core-technology for production & transportation/storage of green/blue hydrogen • Development of CCU technology for converting CO_2 emitted from refinery process into value-added chemicals (chemical derivatives or polymers)
Chemical	Next-generation composite materials	• Development of lightweight composite materials for vehicles of the future (electric cars, self-driving cars, etc.) • Development of lightweight parts applying continuous fiber reinforced thermoplastics • Development of eco-friendly materials & chemicals from biomass resources • Development of new composite materials based on recycled materials
	Easily recyclable materials	• Development of polypropylene label or film materials for food packaging

1) API SP : The latest engine oil standard issued by the American Petroleum Institute
2) ILSAC GF-6 : A new performance standard for automotive engine oil issued by the International Lubricants Standardization and Approval Committee (ILSAC)

Environmental Impact Reduction

Minimizing Environmental Impact of Business Sites

Air Quality Management

Air Pollutants Management

GS Caltex has made multi-faceted efforts to reduce air pollutant emissions in compliance with the Total Air Pollution Load Management System[1] introduced by the Korean Government in 2020. In facilities that produce large amounts of nitrogen oxide (NOx) and sulfur oxide (SOx), Selective Catalytic Reduction (SCR) and Ultra-Low NOx Burners (ULNB) have been installed to reduce air pollutant emissions. The company has also replaced mixed fuels used in heating and boiler facilities with a gas fuel. In addition, the company has made consistent efforts to reduce air pollutants by utilizing various types of equipment, such as malodor pollutant incinerators and organic compound retrieval devices.

Click to see the relevant data D

1) The Total Air Pollution Load Management System sets limits on the emissions of sulfur oxides, nitrogen oxide, and particulate matter at work sites. Work sites are expected to keep emissions below the permitted levels through measures including the installation of appropriate facilities.

Air Pollutant Emissions Monitoring

As part of its efforts to reduce NOx and SOx emissions - the main causes of fine dust particles, a Tele-Monitoring System (TMS) for chimneys has been installed to monitor the concentration level of air pollutants emitted from the chimneys in the plants. Through the TMS, levels of NOx, SOx and total suspended particles (TSP) are monitored in real time. Linked to the Operational Monitoring System (OMS) in plants, an alarm is set off if the concentration level of pollutants exceeds the threshold, and corrective measures are taken based on an analysis of the causes. As of 2021, TMS had been installed in 43 vents, and there is a plan to install TMS in a further 17 vents by the end of 2022.

Water Resource Management

GS Caltex monitors industrial water consumption in all its work sites in real time and ensures a stable consumption by adjusting the amount of supply between processes. In addition, the company is reviewing and implementing a variety of methods to make a more efficient use of water resources, thereby saving on energy costs, such as reviewing the feasibility of recycling industrial effluent.

Water Resource Risk Management

In 2021, **GS** Caltex completed the MFC (Mixed Feed Cracker) project. By making projections of industrial water usage based on the MFC project, the company will sign a supply contract with Korea Water Resources Corporation (K-Water) and take internal improvement actions to secure a stable supply of industrial water to new processes. In addition, if there is any risk to industrial water supply due to internal / external issues, the company will proactively communicate with K-Water to ensure a stable supply.

Water Pollutant Management

GS Caltex has consistently focused on reducing water pollutant discharge by operating wastewater treatment facilities based on physical / chemical / biological processes. Various ways to improve the facilities have been reviewed to maximize the efficiency of wastewater treatment based on the Conventional Activated Sludge Process. The Membrane Bio-Reactor (MBR) has been selected as the most optimal method, and detailed implementation plans are being developed.
In addition, for the treatment of high-concentration wastewater, an advanced treatment process, ozone-based AOP (Advanced Oxidation Process) has been introduced to physical / chemical wastewater treatment facilities.

Water Pollutant Discharge Monitoring

TMS (Tele-Monitoring System) checks the levels of pollutants in wastewater in real time, before treated effluent is discharged directly into the sea. The key indicators of wastewater pollutants, such as SS (Suspended Solids), TOC (Total Organic Carbon), and pH (hydrogen ion concentration), are monitored for 24 hours. If any signs of abnormality are detected, best efforts are made to prevent any increase in pollutant discharges by changing operational parameters or improving facilities based on a proactive analysis of causes.

Click to see the relevant data D

Soil Quality Management

GS Caltex strives to prevent soil contamination by conducting regular inspections of the soil at each gas station, and installing oil leakage or spillage prevention facilities, including double-walled tanks, double piping and oil overflow prevention devices. Also, underground oil pipes have been relocated above ground to fundamentally prevent oil and soil contamination on the Yeosu Complex. And rigorous efforts are made to prevent soil contamination, including installation of monitor wells throughout the Yeosu Complex for real-time monitoring of soil and underground water contamination. In addition, for all facilities registered as soil contamination facilities, inspections are conducted bi-annually. **GS** Caltex has also signed a voluntary agreement with the Ministry of Environment to ensure transparency of soil quality management.

Click to see the relevant data D

Odor Management

GS Caltex has been making every effort to keep malodor emissions below the acceptance level since the Yeosu Industrial Complex was designated as a malodor control area on July 1, 2019. To reduce the odors emitted during tank OSS [1], a VOC recovery system has been installed. In June 2021, an additional malodor reduction system (catalytic oxidation equipment) was installed in places that may produce malodors such as wastewater treatment facilities. Further, a real-time malodor monitoring system has been installed at fifteen points including the new MFC (Mixed Feed Cracker) process to monitor odors in areas bordering the work sites. Mobile monitoring equipment mounted on moving vehicles is also being operated to more closely detect malodors around the factories.

1) Tank OOS (Tank Out of Service) : emptying a tank to clean inside and out

Waste Management

GS Caltex strives to reduce waste materials by sharing all data from waste generation on the shop floor to storage and treatment using the SHE (Safety·Health·Environment) information system developed internally. Waste materials are thoroughly sorted and stored by type to increase recycling. Further, together with recycling companies, **GS** Caltex is making efforts to develop technologies to recycle waste materials such as waste oil, catalysts, synthetic resins, tank sludge, and wood, as well as create demand for recycled materials.

Click to see the relevant data D

Environmental Impact Assessment for Work sites

To prevent environmental issues in the conduct of its business, **GS** Caltex carries out environmental impact assessments to investigate, evaluate / predict any environmental impact before conducting a large-scale development project. In 2021, assessments were made for eight development projects to eliminate or minimize any factors that may negatively impact the environment. Moreover, assessments are conducted both mid- and post-project to re-confirm minimal environmental impact.

Further, to prevent and eliminate the causes of environmental pollution or accidents that may occur in normal / abnormal / emergency operations, environmental concerns are identified for all processes and tasks. Based on the results, countermeasures are determined, and plans are drawn up to guide environmental improvement and management activities throughout the year.

Prevention of Environmental Risks

Hazardous Chemicals Management

GS Caltex complies with the hazardous chemical treatment and facility guidelines in accordance with the Chemical Substances Control Act. Also, based on its chemical accident prevention plans, off-site risk assessments and accident scenario analyses are conducted on hazardous chemicals treated at its work sites. In addition, an emergency response system is in place to ensure the safety of facilities and minimize damage in the event of an accident. Response drills are regularly conducted for employees to enable rapid early action and prevent the spread of contamination to the local community in the event of a hazardous chemical leakage incident. Also, in 2013 an emergency response team was set up with other companies in the Yeosu Industrial Complex to develop a common control plan and carry out joint training on chemical leakage incidents every year. To prepare for hazardous chemical leakages, detection alarms, containers for protective gear and control materials are placed near hazardous chemical storage and manufacturing facilities. **GS** Caltex also endeavors to strengthen the safety management capability of partners dealing with hazardous chemicals by encouraging safety checks and training through quarterly safety council meetings.

Click to see the relevant data D

Biodiversity Conservation and Management

In recognition of the growing importance of biodiversity conservation due to climate change, **GS** Caltex is engaging in managing the biodiversity impact in areas adjacent to its worksites in collaboration with local communities and government institutions. No protected areas for eco-system or habitats for endangered species have been found in its domestic or international work sites. No cases of impact on biodiversity or leakage of hazardous materials were reported in 2021.

Marine Oil Spill Accidents and Control Activities

To prevent marine pollution accidents that may occur during oil loading and unloading operations, **GS** Caltex has equipped each dock with control equipment and conducts periodic training on oil spill response scenarios. In particular, to prevent leakage of hazardous chemicals, such as oil, offshore oil booms are installed during ship loading and unloading procedures.

Click to see the relevant data D

Integrated Environmental Management System

Based on the SHE Information System, **GS** Caltex ensures compliance with safety, health, and environment laws and regulations in Korea and abroad and encourages voluntary compliance of employees. SHE stands for Safety, Health and Environment. The SHE Information System is an integrated system to facilitate the systematic management of each area. The SHE information System which used to be primarily for managing safety-related assessment and implementation was revamped in 2020 into an integrated environmental management system to manage all environmental data and process administrative tasks such as permits & approvals. Through this integrated system, all environment-related activities, including air pollution, water contamination, hazardous materials, waste materials, soil contamination, marine contamination control, ISO environmental management, and eco-friendly product developments, are managed more systematically. It has also improved data transparency and work efficiency as related departments share and utilize data through the system.

Issuance of Green Bonds

In October 2019, **GS** Caltex issued green bonds to raise KRW 130 billion. The funds raised are used for investment projects to improve energy efficiency and for reinforcing environmental facilities to reduce and manage pollutants and manage water quality in the Yeosu Complex. As of 2021, around KRW 80.8 billion had been invested in related facilities. The company plans to make continued investments to improve and expand its environmental facilities in the future.

Status of Key Projects

No. 1 RFCC Wet Gas Scrubber

- Total investment cost : KRW 54.6 billion
- Completed

→ To reduce SOx and NOx, the main causes of micro dust particles, **GS** Caltex has invested around KRW 54.6 billion to replace the SOx reduction equipment in No. 1 RFCC facility with a Wet Gas Scrubber. As a result, SOx emissions are about 3,000 tons less per year, and NOx about 160 tons less, compared with the levels prior to investment.

Ozone Advanced Oxidation Process

- Total investment cost : KRW 9.9 billion
- Completed

Membrane Bio Reactor

- Total investment cost : KRW 11.5 billion
- Investment period : 2022 - 2023

→ To minimize impact on the aquatic ecosystem, a project is under way to introduce Ozone AOP / MBR to the existing wastewater treatment facility. This is expected to reduce pollutant discharges to the sea by more than 20% vs. the level prior to investment, and to contribute to conserving water resources through wastewater recycling in the longer term.

04 SOCIAL

Sustainable growth with people and society

GS Caltex endeavors to achieve sustainable growth in tandem with people and society. Based on a corporate culture of respecting human rights and diversity, the company intends to grow by sharing economic and social values with diverse stakeholders in a secure business environment.

Safety and Health

Why is this topic important?

Globally, companies are making active investments in safety and health in the post COVID-19 era.
In Korea, the Serious Accident Punishment Act was introduced in January 2022. This Act stipulates increased duties and responsibilities for business owners and persons overseeing workplace safety and health management. In the energy and chemical industries with a greater degree of risk involving dangerous machinery and substances, the possibility of industrial accidents increases, so a more rigorous safety and health management system is required.
In this regard, **GS** Caltex has set safety and health as essential principles of corporate management and has consistently sought to improve the health and working environment of both internal and external stakeholders.

Safety and Health Management System

Based on SHE management policy and occupational safety and health measures, **GS** Caltex has established a Process Safety Management (PSM)[1] system for employees of **GS** Caltex and partners. Under this system, field studies of working conditions are conducted to ensure the safety of facilities, likely scenarios are analyzed to forestall incidents at worksites, and an emergency response system is in place to ensure speedy action in the event of an incident.

PSM enables the systematic management of safety and health at the worksites by strengthening management capabilities regarding people, facilities, and emergency response.

Safety and Health Organization

GS Caltex has appointed a CSEO (Chief Safety & Environment Officer) to operate an independent safety management organization and has assigned specialists to major business divisions to enhance safety and health management at the worksites.

1) This system applies to internal and partner employees at the Yeosu Complex and distribution centers across the country in accordance with Articles 44 & 55 and Enforcement Rules 50~54 of the Occupational Safety & Health Act

Process Safety Risk Analysis System

The process risk assessment techniques employed by **GS** Caltex include Layer of Protection Analysis (LOPA), Hazard and Operability Study (HAZOP), Quantitative Risk Assessment (QRA), and Safety Integrity Level (SIL).
A Job Safety Analysis is conducted to ensure a safe working environment by proceeding with a job risk assessment based on a job analysis.
Also, a safety supervisor is assigned to each site to oversee safety management. If any job tasks are changed, a job safety analysis is conducted a second time, and the safety work procedure is updated to prevent any injury or incident in the manufacturing process.

Safety Management for New Projects

When undertaking a new project, a Project Safety Management Plan (PSMP) is drawn up to ensure safety management throughout the entire process, from design and purchasing to construction. In addition, for all **GS** Caltex employees including its partners', work safety analysis, safety observation, special safety training, and the management of short-term workers are conducted to prevent major industrial accidents such as crashes, falls and crushes. The MFC (Mixed Feed Cracker) project was completed in 2021 without any serious accidents and is now in full operation.

Emergency Response System

GS Caltex operates a 24-hour emergency response system to rapidly and effectively deal with emergency situations such as industrial accidents, safety incidents, and natural disasters. Its emergency response manual details procedures from the announcement of an emergency to its closure. At the Yeosu Complex, an emergency / marine control dispatch system is in operation with a total of 250 people on standby, including dedicated emergency personnel and first & second responders. Emergency response training on each process is carried out at least once a month based on various scenarios that may occur in the process. Also, a large-scale fire drill facility is set up at all worksites to conduct mock fire training for the emergency response team. In particular, for the MFC project which started commercial operation in 2021, emergency drill scenarios were developed, and field training was conducted in advance. This led to the full establishment of an emergency response system and training plans across the entire process. Moreover, since the **GS** Caltex Yeosu Complex is designated a national security facility, stringent security standards are maintained in accordance with related laws and regulations, and worksite protection plans are in place to ensure a speedy response to any emergency situation. Apart from the emergency drills conducted internally, a comprehensive joint training session is held semi-annually with the military, the marine police and the local government.

Life Saving Golden Rules

GS Caltex has introduced a set of Life Saving Golden Rules that all worksite employees must abide by to protect their personal safety and prevent serious life-threatening accidents. The six rules were developed following analysis of past accidents which involved human casualties.
Using these Life Saving Golden Rules as a basis, each worksite draws up a more detailed list in accordance with their specific characteristics and requirements.

GS Caltex's Life Saving Golden Rules

1. Establish and obey barriers and exclusion zones
2. Protect yourself against a fall when working at height
3. Verify isolation and zero energy before work begins
4. No work without appropriate personal protective equipment
5. Keep yourself and others out of the line of fire
6. Obtain authorization before entering a confined space

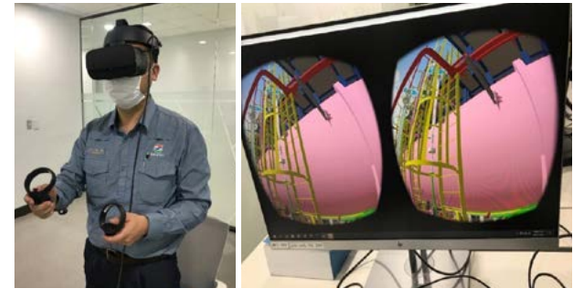
Advancing Workplace Safety

Intelligent Plants

GS Caltex is utilizing Digital Twin technology to create virtual replicas of its plants. Also, as part of the Digital Transformation (DX) initiative, the company has adopted new digital technologies such as 3D and AI in many areas to help prevent serious disasters and improve the operational efficiency of its plants.

Adoption of 3D OTS (Operation Training Simulator)

For the new MFC (Mixed Feed Cracker) factory, a 3D OTS (Operation Training Simulator) has been installed to enable training with virtual replicas of the process operation and control systems. Using the virtual 3D training model, operators can learn how to switch the process on and off and respond to emergencies. This repetitive virtual training enables operators to improve their operational and emergency response skills, and is expected to help minimize incidents caused by human error under real working conditions.



Training using 3D OTS

Expansion of AI-based Prediction System

GS Caltex has built a solution-based AI model for key rotating machinery to proactively detect anomalies and predict potential errors. This model is constantly being refined through machine learning, tracking changes in the work environment. The previous method was to have an alarm go off if any malfunctions occurred in a facility and take remedial action accordingly. With the introduction of the AI solution, machine learning of past data enables the proactive detection of potential anomalies. The company plans to expand the application of this AI system to all its key rotating machines to forestall facility accidents and promote stable operation.

AI Model for Safety Observation Text Analysis

The Yeosu Complex has implemented a safety observation scheme where employees record their observations and select a pertinent category on the safety management system when they come across any unsafe behaviors. However, since this data was text-based, it was difficult to conduct a statistical analysis, and employees frequently mis-selected the pertinent category. To address these issues, an AI model has been developed to enable text analysis and automatic classification of safety observation data. Through this AI-based data analysis, **GS** Caltex has improved focused safety observations and root cause analyses. Also, by aligning with safety inspection data and external factors such as weather conditions, the company intends to further refine the model to enable it to detect signs of safety accidents in advance.

Use of Robots to Carry out Catalyst Replacement in a Nitrogen Atmosphere

Catalyst replacement in a nitrogen atmosphere typically carried out as part of maintenance work in refining and chemical facilities increases the likelihood of exposing workers to nitrogen suffocation. To reduce the risk, **GS** Caltex has collaborated with a specialist Korean company to employ robots to carry out these dangerous processes. After creating a virtual workspace and conducting mock tests, robots were installed on-site to perform the catalyst replacement work in a nitrogen environment. The use of robots has enabled a closer assessment of the risks involved in working with nitrogen and is also expected to produce savings in time and cost. The company intends to increase the application of robots at refining and chemical facilities to enhance the safety and competitiveness of the manufacturing process.

Use of Drones for the Performance of Dangerous Tasks

GS Caltex has been using drones at the Yeosu Complex since 2015. It had previously not been possible for an operator to directly inspect the flare stack while in operation since it is dangerous to approach a 100m+ chimney emitting flames. By using drones equipped with a thermal zoom camera, it is now possible to safely conduct regular inspections even when the fire stack is in operation. The company plans to expand the use of drones to a wide range of facility inspection and management activities.

In 2021, **GS** Caltex conducted a K-Drone System PoC (Proof of Concept) Project in collaboration with the Ministry of Land, Infrastructure and Transport, where drones were used to deliver dangerous product samples. Previously, moving a product sample from the Hangdong DC to Incheon DC involved traveling the 10km distance in a land vehicle. With a drone, this distance is cut to 3km over the sea. Since Incheon DC has a Dolphin Wharf just off the coast, moving product samples via ferry has now been replaced by drone delivery. This has resulted in a saving of both time and cost.

Remote Gas Monitoring System

To prevent serious accidents such as fire explosion and suffocation while working in a closed space, in 2021 **GS** Caltex developed its own wireless gas detector. Operators working in closed spaces are in great danger of being exposed to gas leaks. It is thus essential to conduct a gas check before they start work in a closed space. In particular, measuring gas at multiple outlets placed at height takes a great deal of time and effort. There is also a danger of a gas leak at times when no measurement is being taken. To address such risks, the company has developed a remote gas detector system that enables the real-time monitoring of gas leaks over 24 hours. A total of 170 units were installed in places at height in 2021. This system greatly reduces the likelihood of potential accidents while working in a closed environment, simultaneously saving on the workload and time taken to conduct gas measurements.

Robots employed in high-risk nitrogen work

K-Drone PoC Project at the Incheon DC

Wireless Gas Detector

Systematic Management of Product Quality

Customer Safety Management

In order to protect both the customer's health and the environment, **GS** Caltex constantly endeavors to identify the toxicity and health hazards of its chemical products. Considering the variety of impacts that the quality of oil products could have on human safety, the environment and product performance, **GS** Caltex has sought to systematically manage its chemical products in accordance with EU-REACH (EU-Registration, Evaluation, Authorization and Restriction of Chemicals) and the Korean Act on Registration and Evaluation of Chemicals (henceforth, Chemical Registration and Evaluation Act). Starting with pre-registration in 2008, **GS** Caltex has completed the registration of its chemical products exported to Europe in the amount of over 1 ton under EU-REACH. By 2021, over 1,000 tons of existing chemicals had been registered under the Chemical Registration and Evaluation Act. The company plans to complete the registration of a further one ton of its existing chemicals by 2030.

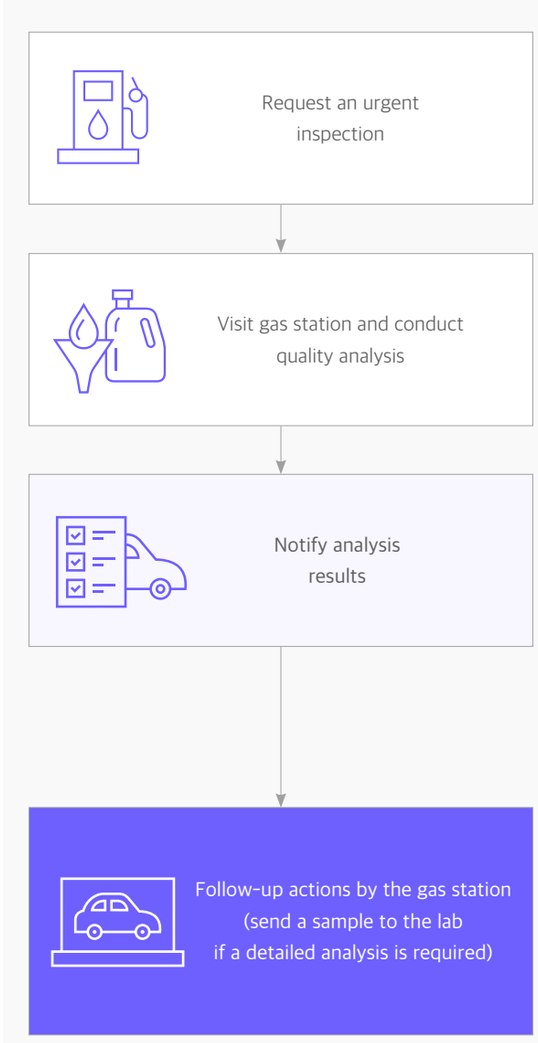
Quality Management System over the Entire Process

GS Caltex strives to provide best-quality oil products for the customer by applying stringent quality standards across the entire process, from production to storage and distribution. **GS** Caltex's products are manufactured in ISO 9001 (quality management system) certified factories in accordance with internal quality standards that are more stringent than legally required. Quality inspections are conducted for products at the factory shipment stage and when products are received at the distribution centers or stored long term. When products are shipped out to the distribution centers across the country, quality inspections are conducted in accordance with the related regulations, **GS** Caltex's internal work rules, and safety and environmental procedures.

Operation of Kixx Quality Service Vehicles

GS Caltex was the first company in the industry to operate a mobile lab for Kixx to conduct quality inspections at gas stations across the country and effect prompt dispatch in the event of customer complaints or emergency situations. Additionally, quality service vehicles for LPG filling stations have been in operation since 2013. Through this service, the company ensures more stringent quality management to prevent regulatory violations flowing from operational negligence of LPG filling stations. Going forward, **GS** Caltex plans to enhance quality management by developing a mobile app for gas stations to enable real-time monitoring and efficient management of data.

Kixx Quality Service Procedure



Safety and Health Programs

Chemical Management Portal System

GS Caltex manages all chemical materials across the entire process from manufacturing, purchasing, consumption and sales via a Chemical Management Portal (CMP). It strictly adheres to the governing regulations, such as the Act on Registration and Evaluation of Chemical Substances, the Chemicals Control Act, and the Occupational Safety and Health Act.

All chemicals manufactured, purchased or used in R&D are subject to prior review by internal chemicals specialists. Regular monitoring checks and confirms full ingredient information, toxicity registration status, and compliance with the regulations governing chemical substances. These measures ensure the company is working proactively to ensure the safe treatment of chemicals by employees, partners and customers.

In addition, the system is periodically updated to keep pace with changes in relevant regulations. For instance, following the complete revision of the Occupational Safety and Health Act in 2021, a Material Safety Data Sheet should now be submitted to the government before the manufacturing or import of chemicals, and any purchased materials can only be used after checking whether they have been submitted to the government.

Employee Health and Wellness Programs

1. Operation of a health clinic (at the Yeosu Complex)
2. Regular medical checkups
3. A variety of health and wellness programs (Obesity management, prevention of musculoskeletal disorders)
4. Home treatment kits for those in self-quarantine due to COVID-19
5. Hygiene products to prevent infections for those on international business trips

Activities to Internalize Safety Culture

Category	Activities
Inspection of Safety and Health Environment	• Periodic inspections of worksites are conducted together with external specialists to confirm the satisfactory safety and health environment at worksites and compliance with related regulations • API[1] certified inspectors visit the worksites every three years to conduct safety audits based on API standards
Safety Culture transformation Program	• A company-wide Safety Leadership Committee chaired by the CSEO (Chief Safety & Environment Officer) discusses and makes decisions on key issues concerning a safety culture transformation program and the internalization of a safety culture • Specific programs are conducted based on the characteristics of each worksite, such as safety observations, operational discipline, and accident investigation. Monitoring of the progress of key activities is made every month by worksite through the Safety Leadership Committee
Facilitation of Safety Communication	• Periodical publication of CSEO message and a 'safety card news' (newsletter) • Sharing of safety information and incident cases via the SHE Information System • Monthly training of distribution center managers via video conferencing (sharing of SHE Issues)
Selection of Best Safety and Environment Practices	• Best practices are selected from the safety environment activities conducted by worksites or partners for application company-wide. The selected best practices are announced by the Safety Environment Council and receive an award from the Safety Leadership Committee

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

Support of Safety Gear and Medical Checkups for Partners

Since 2017, **GS** Caltex has operated an incentive scheme for truck drivers employed by partners (seven companies for gas stations and LPG filling stations), providing safety gear such as workwear, safety helmets and safety boots, and medical checkups for older-age drivers. Through this scheme, **GS** Caltex has endeavored to prevent safety incidents and provide consistent welfare benefits for its drivers.

COVID-19 Response Activities for Employees

GS Caltex set up an infectious disease emergency response team based on internal guidelines on 28th January 2020, when COVID-19 began to spread, and Korea was still in the early response stage. On 24th February 2020 when the alert level went to red, the company upgraded the team to a corporate-level emergency response committee charged with carrying out measures to protect the safety and health of employees of both **GS** Caltex and its partners.

After monitoring infection rates in Korea and abroad and taking note of government directives on the pandemic, **GS** Caltex implemented a variety of protective measures such as flexible working hours, working from home, fever checks, and disinfecting offices and meeting rooms. The company has also strived to support employees' physical and mental health by regularly issuing facial masks and providing internally developed 'healing kits' to those in self-quarantine.

Key Activities of the COVID-19 Emergency Response Committee

Monitors COVID-19 cases in Korea and abroad, and reviews the protective measures taken across worksites	• Reviews and shares corporate-wide issues regularly • Discusses and implements major decisions such as revising internal guidelines
Establishes and implements company-wide guidelines to maintain employees' health	• Shares daily key issues including revised internal guidelines via internal SNS, and encourages voluntary compliance with precautions • Establishes guidelines for working from home, business trips and meetings, and supports efficient work performance • Provides 'healing kits' for those infected and in self-quarantine to help relieve COVID blues
Secures the business continuity of all worksites	• Encourages working from home and flexible working, and implements business continuity plans for all worksites • Conducts virtual reports and meetings via an online platform • Changes work patterns and disinfects the affected facilities in the event of cluster infections • Establishes and implements protocols for field operations and effective quarantine activities in the event of cases reported at worksites or on board marine vessels

Supply Chain

Shared Growth with Partners

Basic Policy of Shared Growth

GS Caltex has endeavored to implement a win-win relationship with its partners with the aim of realizing shared growth. To this end, a variety of management support programs are in place, including training & education, financing, and technical development. Also, based on the core principles of fairness, integrity and effectiveness for shared growth, the company has promoted fairness in its business transactions, sound and ethical business relationships, and the enhancement of partners' capability and productivity.

Support of Shared Growth Program

Since 2016, **GS** Caltex has run a 'Go-Together for Productivity Innovation' program to provide substantive support for its SME partners to enable them to secure necessary technology and build their competitiveness. As part of this scheme, **GS** Caltex offers not only funds but also technical / testing materials to strengthen partners' R&D capabilities. The company additionally provides support for partners to engage in the development of the technologies, products or services it is planning to purchase.

In 2021, the Go-Together program results were presented. Nine projects were supported for eight companies, contributing to a combined sales growth of KRW 10.9 billion and a cost saving of KRW 2.4 billion for the partners concerned.

Over the past six years from 2016, a total of 59 projects have been supported for 36 companies, contributing to a combined sales growth of KRW 60 billion and a cost saving of KRW 12.4 billion for the partners involved.

In addition, a loan support program operates to assist the financing of SME (Small and Medium Enterprise) partners. In collaboration with selected banks, a 'shared growth fund' has been created to support those partners in a win-win partnership agreement. In 2021, prime rate loans of KRW 31.3 billion were issued for 69 partners.

Click to see the relevant data D

Supply Chain ESG Management

Supply Chain Management System

As part its systematic supply chain management, **GS** Caltex conducts partner assessments covering not only financial aspects such as product quality, order fulfillment capacity, and financial status, but also non-financial elements in the area of ESG. To this end, the 'Code of Conduct for **GS** Caltex Partners' has been established to provide guidance on business ethics compliance, respect for employees' human rights, eco-friendly workplace management, and a safe work environment. In addition, from 2020, ESG-related clauses concerning corporate social responsibility in terms of safety, the environment and labor have been added to business contracts. Partners are requested to conduct a self-assessment and support onsite inspections in compliance with the Code of Conduct and ESG management. Also, a training video on the importance of ESG, supply chain management, and domestic & international developments has been created and shared with both partners and purchasing teams. In 2021, training was conducted online due to COVID-19.

Supply Chain ESG Assessment

In 2021, **GS** Caltex conducted ESG assessments for 316 key partners in Korea and abroad. The partners conducted an online self-assessment based on global ESG standards for workers' rights, a safe work environment, eco-friendly workplace management, and business ethics compliance. An assessment report was then produced and shared with each partner, which included an evaluation score and a list of improvement opportunities for each partner.

Based on the results, 13 companies were selected for on-site inspection and consultation with ESG specialists to increase their understanding of ESG and lay the groundwork for ESG management. For the risks identified through this consultation, a detailed recommendation for improvement was drafted and shared with the partners.

In order to support the development of partners' capabilities in ESG management, **GS** Caltex intends to expand the scope of assessment to more partners in the future.

Click to see the relevant data D

Supply Chain ESG Assessment Process

1 Raise partners' awareness
- Partners sign their compliance with the Code of Conduct for **GS** Caltex Partners
- Add ESG items to business contracts
- Support training on ESG and supply chain management

2 Conduct a self-assessment on ESG
- Key partners conduct voluntary self-assessment on ESG

3 Conduct on-site inspection and verification based on self-assessment results
- Conduct on-site checks based on the information submitted by partners
- Share ESG management best practices, and conduct awareness-raising training

4 Identify and evaluate risks in the supply chain
- Identify improvement opportunities based on on-site inspection results (based on the reliability of submitted information and ESG management criteria)

5 Draw up improvement plans and take follow-up actions
- Confirm issues with worker's rights and business ethics compliance
- Request corrective measures

Human Rights

Human Rights Management

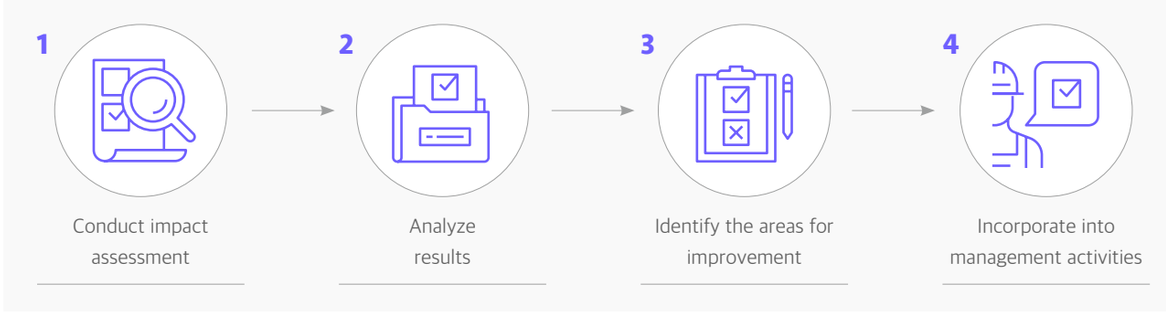
Principles

In order to promote and implement human rights for all its stakeholders, **GS** Caltex has established basic principles based on its Human Rights Policy, Code of Conduct for Partners, and Stakeholder Policy. **GS** Caltex advocates the rules and guidelines set by international organizations including the UN Framework and Guiding Principles on Business and Human Rights. In particular, the company's business operations manual and Business Conduct and Ethics Code clearly state that workplace harassment and sexual harassment are strictly prohibited. To manage this more rigorously, a separate set of guidelines for preventing and responding to workplace intimidation is included in the business operations manual.

Human Rights Impact Assessment

Every year, **GS** Caltex conducts a human rights impact assessment, based on the 'OECD Due Diligence Guidance for Responsible Business Conduct' and the 'National Human Rights Commission Guidelines for Human Rights in Business'. Through this exercise, the company endeavors to prevent human rights violations that might take place in the course of business activity. The assessment is conducted for all employees in nine areas including anti-discrimination, a ban on forced labor and child labor, a safe workplace environment, freedom of assembly, and personal privacy. The evaluation results are analyzed by team and age. Areas for improvement are identified based on the results and incorporated into management activities. **GS** Caltex will continue regular assessments in order to identify, evaluate and reduce any potential risks of human rights violations across the business.

Human Rights Impact Assessment Process



Creating a Culture of Respect for Human Rights

Every year, **GS** Caltex provides compulsory training on sexual harassment and disability for all employees to raise their awareness and sensitivity to human rights issues. A company policy of prohibiting workplace harassment has been in place since July 2019. There is also an internal channel for employees to securely report any incidents of workplace harassment or sexual harassment. When employees connect to the in-house groupware, they will see on the initial screen guidance on the counselling / reporting procedures for workplace harassment and sexual harassment.

2 cases

Workplace harassment reported and handled in 2021

To report workplace harassment
healing@gscaltex.com,
(02) 2005-6012

1 case

Sexual harassment reported and handled in 2021

To report sexual harassment
metoo@gscaltex.com,
(02) 2005-6012

※ The number is the same, but the caller will be directed to the relevant section after connecting.

Respect for Diversity

In conjunction with a **GS** Caltex subsidiary, 'Hanul Love Co. Ltd' (Hanul Love), cafes were opened in the Project Center Building (PCB) and in the welfare center of No.1 Factory at the Yeosu Complex in March and November 2020, to provide a space where people with disabilities can work together with the non-disabled. As of 2021, Hanul Love employs 13 disabled and three non-disabled people. The disabled employees carry out a variety of tasks including receiving and serving customers and chauffeuring other disabled workers. Hanul Love helps create jobs for the disabled and provides training to enhance their job performance, such as safety training, beverage service and hygiene training, and customer reception and communication training. If disabled workers experience any difficulty in carrying out tasks, they can receive help from disability assistants.

GS Caltex donated KRW 40 million raised from the cafe operation to a local disability organization, the Jeonnam Association of the Deaf, in March 2021. **GS** Caltex will continue to explore various ways to create jobs and help people with disabilities in the local community.

Fair Performance Evaluation and Compensation

Performance Evaluation Principles

GS Caltex seeks to provide compensation based on fair evaluation of results and job performance while strictly prohibiting discrimination in wages, evaluation and promotion driven by factors other than actual achievements. As part of the annual goal-setting process, employees set individual objectives based on corporate / team goals and a checklist of weighted performance evaluation criteria. Performance review meetings are held to support individuals' personal development and long-term capability plans. The progress of individual job performance is checked throughout the year, and employees can ask for support when needed during the process. At year-end, individual performance, including major achievements and contributions, is assessed based on an evaluation checklist. The results are then shared with the employee.

In order to ensure fairness and prevent distortion of results influenced by factors other than actual achievements, evaluation results are only used as a basis for compensation, not related to promotion or appointments. In addition, in consideration of the various collaborative tasks or projects undertaken inside the company, the project manager and the line manager jointly share responsibility for the performance appraisal.

Performance Evaluation Process

The annual year-end evaluation focuses on both qualitative and quantitative aspects of major achievements. To ensure fairness and acceptance, evaluators conduct personal interviews. In the event of employees raising objections to their evaluation results, a petition scheme is provided. For clarity of feedback, a four-level grading system is used : Outstanding, Exceeds Expectations, Meets Expectations, In Need of Improvement. The previous fixed grading quota has now been relaxed to give greater discretion to the evaluator. In the interests of fairness, a checklist is provided to guide objective assessment. Regular training is provided for evaluators to maintain their proficiency in performance evaluation.

To raise job satisfaction and give motivation to employees, **GS** Caltex's compensation system is linked to individual performance. Differential compensation is provided depending on the evaluation results, level of contribution, and job value. Accordingly, high-performers are rewarded with additional compensation.

Peer-Review System

GS Caltex implements a peer-review system to encourage collaboration between employees and ensure fairness in evaluation. Peer reviews are conducted anonymously on the strengths and weaknesses of the evaluated against organizational values (trust, flexibility, challenge and excellence). From 2021, all manager-level employees including professional researchers are subject to peer-review. Results are shared with the evaluated and used as a point of reference in appointments.

Innovations in the Workplace

Open Innovation in the Workplace

Based on the Design Thinking approach introduced in 2016, **GS** Caltex has sought to change ways of working, enhance capabilities on the shop floor, and build problem-solving experience (through camps or hackathons) in the workplace. As part of this approach, those employees who understand Open Innovation and share the direction for change are selected as Catalysts. These people are voluntarily engaged to learn design thinking methodology and build their skills in identifying and solving problems. About a third of all employees have now experienced Open Innovation techniques as a result.

Leveraging the capabilities of its people, **GS** Caltex organized a Production DX (Digital Transformation) Camp and a 'Digital Hackathon' in 2021.

Through these open innovation programs, members can raise issues and identify pain points on the shop floor, define and develop possible solutions, and then present the final prototypes to the management. Quite a few prototypes derived from this process have been adopted, and a variety of activities ranging from data gathering to system development are being applied to real-life business.

In addition, an explorative 'SBT' (Self-designed Business Trip) program has been in operation since 2018. The SBT program is concerned with exploring / learning about future issues from various perspectives and reviewing / sharing the implications for the business internally. Major achievements in 2021 include the use of robots in factory facilities, construction of prototypes in collaboration with an external specialist, and actual implementation in real-life factory maintenance.

Performance Improvement Program, 'Scorpions'

GS Caltex has operated a performance improvement program called 'Scorpions' to strengthen existing business operations since 2021. This identifies and implements improvement opportunities across all business activities to produce real financial benefits. Changes are made in the ways of working in order to sustain innovation in the workplace.

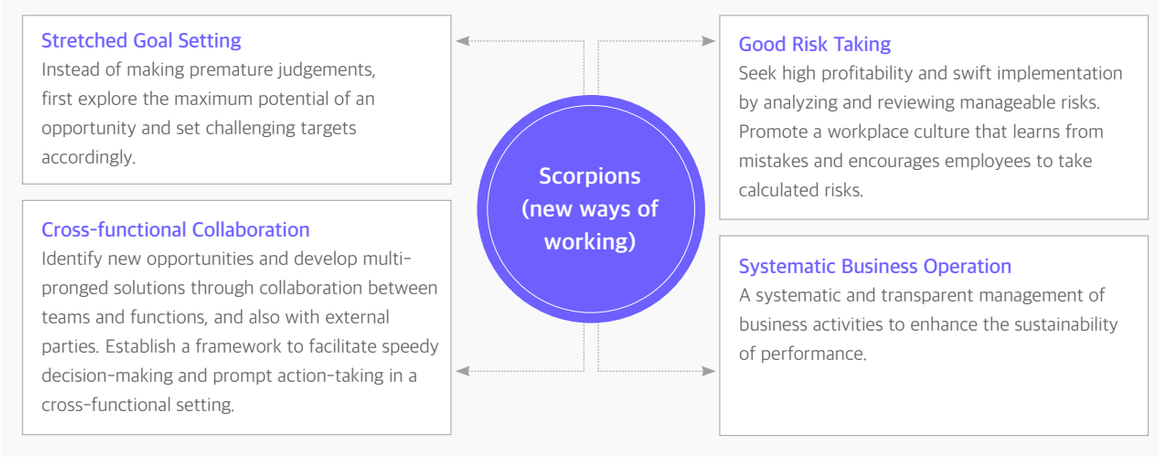
Key directions are stretched goal setting, cross-functional collaboration, good risk taking and systematic business operation. To fully integrate Scorpions into work practices, corporate KPIs are managed, the operational capabilities and expertise required for each business unit are bolstered, and initiatives to enhance employees' health are implemented.

Creation of a Work Environment based on Autonomy and Responsibility

GS Caltex seeks to create a flexible work environment where employees can perform to the best of their ability. The company believes that increasing autonomy imbues employees with a greater sense of responsibility, leading them to better concentrate on their work and deliver improved results.

In response to COVID-19, **GS** Caltex has operated a work-from-home policy to protect employees' health since 2020. In addition, the company has distributed an effective working-from-home guide to have each team set their own ground rules and use collaboration tools in this new mode of working.

Directions of Scorpions



Welfare and Benefits

GS Caltex's welfare system is designed to help its employees stay focused on their jobs with pride and emotional stability.

A variety of programs are available to satisfy the needs of different employees, including support for healthcare, housing, living costs, childcare, personal development, and leisure activities. To ease anxieties about having children and childcare costs in this age of low birth rates, the company provides a wide range of child support services including baby bonus, education allowance, medical allowance, installation of nursing rooms, reduced working hours, childcare centers at the **GS** Caltex headquarters and work sites, parental leave, subsidies and leave for infertility treatment, etc. The company also offers employees access to the human resources development center, and condominiums and resorts nationwide for family holidays, as part of its efforts to promote an improved work-life balance.

Learn more about **GS** Caltex's welfare program

Rational Recruitment and Better Communications

Fair Recruitment Process

GS Caltex conducts public recruitment to hire talented people best fit for the job, regardless of gender, age, educational or regional background. The job application process has also been simplified and assessment is focused on job skills and competencies. To further enhance the fairness, accuracy and efficiency of the selection process, AI and deep learning technology have recently been incorporated into certain steps in the process to complement reviews by the relevant managers.

In addition to regular recruitment, various internship programs are offered including general, global, industry-academic cooperation, and chemical engineering leadership. This latter, as well as the chemical engineering talent mentoring program and industry-academic fieldwork are run in cooperation with universities to share practical industry knowledge and know-how with students.

Active Use of Diverse Communication Channels

GS Caltex operates diverse communication channels to share management directions and business status and facilitate communications between employees. In particular, the use of digital platforms and technologies has increased in the COVID-19 era. The new year kick-off ceremony and presentation of business status were already conducted via video or online. Through the in-house social media network (Workplace), company news and industry information are shared with employees.

Employees can also attend lectures on a wide range of topics through the 'Jium' Academy and the Leader Insight Forum (LIF) which provides a platform for employees to discuss their views and share opinions. Furthermore, an anonymous message board is available where employees can post their ideas or comments on any topic. In 2021, 102 postings were made, of which 35 were reviewed and actioned.

Cooperative Labor-Management Relations

With the vision of 'Creating a constructive labor-management relationship', the Declaration and Charter for Harmonious Labor-Management Relations' was adopted in 2005. Since then, **GS** Caltex has taken concrete steps to strengthen shared growth and cooperation between labor and management. Labor and management have also jointly engaged in activities for workplace innovation, collaborative organizational culture, and community volunteer service.

Moreover, labor-management council and task force meetings are organized to facilitate communication and consensus-forming on any issues which may arise. For the ongoing improvement of working conditions, wages and collective agreements are regularly reviewed and agreed upon.

The Occupational Safety and Health Committee which naturally prioritizes worker safety and health has also established a collaborative management relationship with labor.

Development of Female Leaders

GS Caltex appoints managers based on fair and objective criteria including job performance, expertise and leadership. Gender is not a factor of consideration. A pool of female employees is under development using existing female managers as role models, and the number of future female leaders is expected to grow.

GS Caltex conducts regular monitoring to check if there are any barriers to personal development within the workplace driven by outmoded ideas about gender differences or gender roles. The company constantly updates and refines its internal system to ensure managers are appointed based on healthy competition and equal opportunity. **GS** Caltex intends to continue its various programs to develop the operational expertise and leadership skills of female leaders, and also explore ways to improve work-life balance issues which are the main concern for female employees.

Human Resource Development Programs

GS Caltex operates systematic people development programs reflecting the diverse needs of employees, ranging from training by years of service or experience level, to job skills training, coaching or mentoring, and external degree courses.

Program	Contents
Talent Development	• Academic degree courses including EMBA / MBA and professional graduate courses • A Self-Designed Learning program allowing employees to select study topics and training courses
Coaching & Mentoring	• Outsourced professional coaching programs for executives and team leaders to enhance their leadership skills and operational capabilities • Internal coaching programs to help junior employees adjust to the organization and develop their potential • Mentoring programs to support new employees (graduates / experienced)
Leadership Development	• Leaders (executives and team leaders) : EDP, future leader courses, new team leader courses, group learning for team leaders • Team members : leadership training based on years of service
Job Competency Development	• General competencies : business communications, negotiations, accounting basics, analysis of financial statements • Professional job skills : basic and intensive courses specific to the required skills of each job • Digital Transformation-related training (e.g. python, tableaux, R)
Re-employment support for prospective retirees	• Career design : change management, lifecycle design, self-assessment, career planning, relationship management, etc. • Lifecycle financial planning, understanding pension schemes

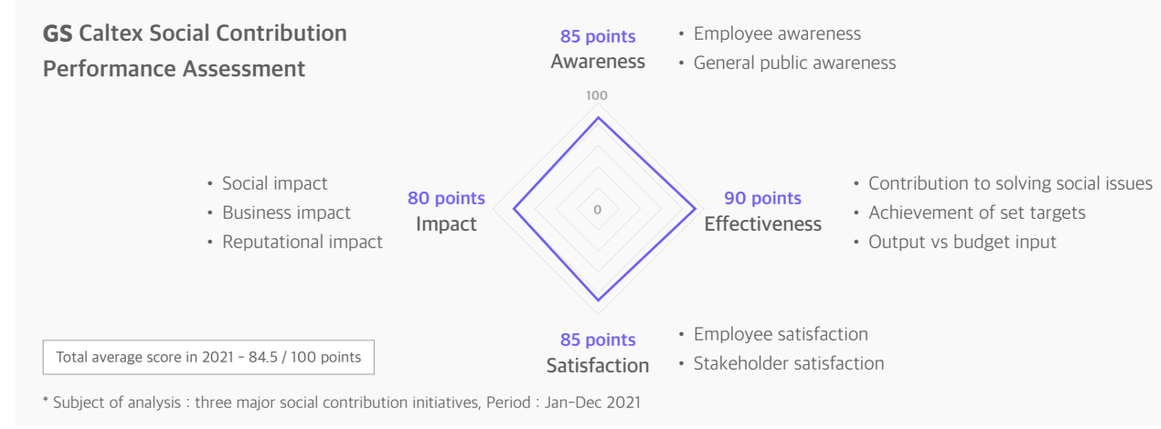
Social Contribution

Social Contribution Strategy

In pursuit of social value creation, **GS** Caltex has focused on arts and culture to add vitality to people's lives and provide psycho-emotional support for the local community. Notable examples are Maum Talk Talk, an art therapy program for children and youth, and **GS** Caltex Yeulmaru, a culture & arts park in Yeosu where **GS** Caltex's main production complex is located. These initiatives underline **GS** Caltex's commitment to social contribution activities focused on the local community.

Social Contribution Performance Assessment System

GS Caltex developed an evaluation system in 2020 to assess the outcomes of its social contribution activities and to explore areas for improvement based on an objective assessment. This evaluation system was developed by applying the CBBE (Customer-Based Brand Equity) model to social contribution. **GS** Calex makes a holistic evaluation of its social contribution activities by analyzing the outcomes from four key perspectives : satisfaction level of key participants (beneficiaries), effectiveness, business relevance, and social impact.

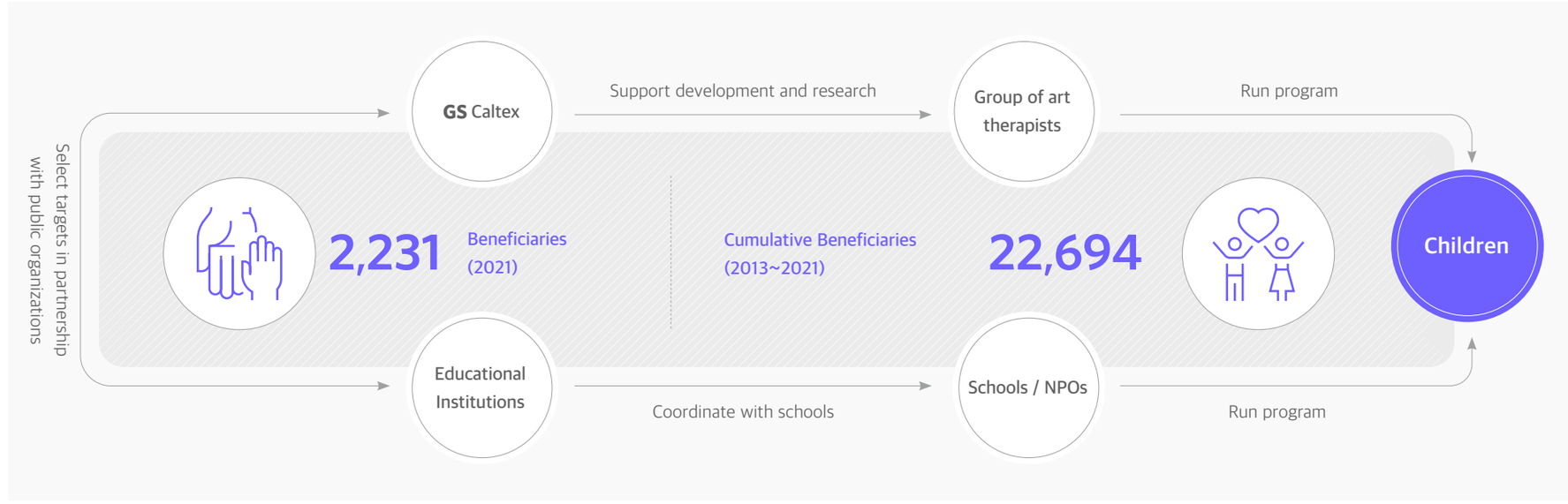


Category	Overall Evaluation
Awareness	Employee awareness of overall activities was relatively high at 82.7%. Public awareness was enhanced through increased viral marketing and awareness-raising campaigns.
Effectiveness	SROI (Social Return on Investment) of each initiative was 120.7% - a high level of social return vs budget input, despite the prolonged COVID-19.
Satisfaction	Stakeholder satisfaction with overall activities was very high at 4.26 points, while employee satisfaction was relatively lower at 3.65 points which needs improvement.
Impact	Social impact was very highly evaluated thanks to external diffusion efforts, and business contribution was also found to be positive due to the efforts made to improve stakeholder relations.

Maum Talk Talk

GS Caltex has operated the Maum Talk Talk initiative since 2013 to help enhance the social and emotional competence of children and adolescents. The initiative is funded by voluntary employee donations and the company's matching grant. There are two types of programs : prevention and therapy. Quality art therapies are provided through a systematic cooperation between educational institutions, NPOs and a group of professional art therapists. Over the last nine years, the initiative has helped a total of 22,694 children and adolescents across the country to build up their emotional stability and better cope with life at school.

Click to see the relevant data D



Prevention Program

'Healing Class' for all first-year middle school students. Learning how to avoid and respond to peer problems through group art therapy.

Therapy Program

Art therapy specifically designed to address emotional and psychological problems of children from low-income families or victims of school violence.

Validated Effectiveness of Maum Talk Talk

The effectiveness of Maum Talk Talk has also been recognized by external academic institutions. A thesis entitled 'Validation of the effectiveness of a group therapy program for middle school students based on socio-emotional learning' (by Professor Dong-il Kim, Department of Education, Seoul National University), analyzing the effectiveness of 'Healing Class', the prevention program of Maum Talk Talk, was presented at the second academic conference of the Korean Educational Psychology Association in 2021. Also, a thesis analyzing the effectiveness of the Maum Talk Talk program for children from low-income families, 'The effect of group art therapy for psycho-emotional support of children and adolescents', was published in the Korea Society for Wellness Journal. This included both quantitative and qualitative analysis of children's pictures, such as PPAT and DARP, and provided a detailed validation of the Maum Talk Talk program.

Support for School Violence Prevention Program

To raise awareness and interest in the importance of addressing the issue of school violence in our society, **GS** Caltex has produced a musical 'Falling Stars' as part of the Maum Talk Talk healing program, together with the association of families of school violence victims. The video has been distributed to schools free of charge to be used as educational material for school violence prevention. As of March 2022, a total of 954 schools (around 260,000 students) had seen the musical.

Establishment of a Preliminary Social Enterprise, 'White Abyss'

A social economy entity consisting of Maum Talk Talk arts therapists **GS** Caltex has supported since 2018 has now been incorporated as 'White Abyss'. This company was designated a preliminary social enterprise (in the job creation category) on 1st November, 2021 and began providing psychological counselling services for adults. White Abyss strives to make its counselling service more widely available for the general public, and has conducted a total of 469 counseling sessions since its initiation - 143 in 2021 alone.

Training Programs for Job-seekers

GS Caltex runs a special program for young job-seekers to help relieve their psychological anxiety and build emotional resilience during the job search process. In 2021, a wide range of activities were organized for 1,464 job-seekers, including forming the habit of an early morning start - a challenge competition to give participants a sense of achievement, talks with mental health specialists about coping with stress and anxiety, and an arts therapy workshop for in-depth psycho-emotional support.

A scene from the Maum Talk Talk 'healing' musical 'Falling Stars'

GS Caltex Yeulmaru

Set amidst a stunning natural landscape with eco-friendly architecture, **GS** Caltex Yeulmaru has become a landmark arts and culture center on the south coast since its opening in May 2012. By hosting a wide range of high-quality arts and culture programs, Yeulmaru has brought a breath of fresh air to the local community and contributed to enhancing the quality of life for local citizens. As part of the second phase of the Yeulmaru project, 'Jando, the Island for Art & Healing' was constructed in May 2019, which includes a bridge to the island that is under water during low tide, a creative studio and an exhibition hall.

In April 2021, as the final stage of the Yeulmaru project, renovation of the observation platform and creation of new walkways to Mt. Mangma were completed, thereby linking the top of the mountain directly to Jango Island. Also, as part of the Jando Island of Art project that started in 2021 and in conjunction with Yeosu City, trails with an ocean view have now been laid down, and the creation of a temperate forest and ecological restoration of the woods are in plan for the future.

During Covid-19, **GS** Caltex Yeulmaru has strictly followed pandemic prevention rules while providing high-quality cultural and arts programs for local citizens. Notable shows have included a concert by world-class pianist 'Seongjin Cho', and the popular musicals - 'Cats' and 'Chicago'. Also hosted were the 'Kim Hee-geun Collection' exhibiting the works of world-class artists such as Roy Lichtenstein, and education programs on ecology and art conducted on the Jangdo Island of Art. As of December 2021, the total number of visitors to Yeulmaru was around 1.02 million, and to Jango about 820,000.

Click to see the relevant data D

Panoramic view of **GS** Caltex Yeulmaru

Social Contribution Activities for the Local Community

Communicating with the Local Community

GS Caltex pursues a win-win relationship with the local community. By holding regular meetings with the residents near the Yeosu Complex where its major processing facilities are based, **GS** Caltex shares any anomalies that may occur during operation so as to establish mutual trust and a cooperative relationship with the residents. Also, by actively communicating with public interest groups such as local welfare organizations and civil groups, **GS** Caltex listens to the views of the local community and incorporates them into the business. The company intends to continue its efforts to communicate closely with diverse stakeholders to address local issues and facilitate the development of the local community.

General Social Contribution Programs

GS Caltex conducts social contribution activities that would make a real difference in the life of the local community. Particularly for vulnerable groups such as children, the elderly and the disabled, the company operates long-term contribution projects, and puts forward new projects every year to match the needs of the local community. To provide special support for COVID-19, in 2021 we conducted high-impact contribution activities, such as disinfecting public facilities in nearby villages and delivering relief food to elderly people living alone.

Category	Program	Activities
Local community-focused Social contribution activities	**GS** Caltex Righteous person Award	• Introduced in 2020, this award is given to individuals in Yeosu / Suncheon / Gwangyang regions who took a personal risk to protect other people's lives or safety, or who set an example for others by consistently performing good deeds
	GS Caltex Soup Kitchen for Elderly	• Since 2008, soup kitchen open for low-income senior citizens in the Yeosu area, providing lunch for about 350 people a day. • From 2020, due to COVID-19, food delivered once a week to the elderly in need instead of the soup kitchen • Special energy-boosting food provided during national holidays and in high summer
	GS Caltex Hopeful Energy Class	• Since 2010, an experiential learning program run for primary / middle school students to help build their dreams and vision for the future at the Yeosu Children's Welfare Centre
	GS Caltex English Classes in Remote Islands	• Since 2007, native-speaker English teachers sent to primary / middle / high schools in remote islands near Yeosu
	GS Caltex Warm Meals for Job-seekers	• Since 2018, free lunch provided for low-income job-seekers in Yeosu City • In 2021, online mentoring opportunities provided in conjunction with **GS** Caltex Program for Job-seekers
Environmental Contribution Activities	Conservation Activities (Land, Sea)	• Employees, together with their families and partner employees, cleared environmental pollutants around the villages, streams, beaches and tourist attractions near the Yeosu Complex
	Conservation of Marine Resources	• Abalone spats and fish fry released into the waters of Yeosu to increase the sea-life population and protect marine resources
Employee Volunteer Activities	**GS** Caltex Volunteer Group	• Voluntary clean-ups / house repair / disinfection services organized all year round • On the company's foundation anniversary and at year-end, rice / heating oil / kimchi support for nearby villagers • From 2020, due to COVID-19, small-scale / online volunteer activities such as disinfecting, 'plocking' and soap-making organized
	GS Caltex One-Heart Fund	• Since 2005, the company matches the sum employees raise and donates the funds to public organizations designated by employees

GOVERNANCE 05

Sound and responsible corporate governance

GS Caltex seeks to make sound business decisions and incorporate ESG in all management activities.
To this end, the company has established sound corporate governance to ensure fair and responsible compliance across all business activities.

Compliance

Why is this topic important?

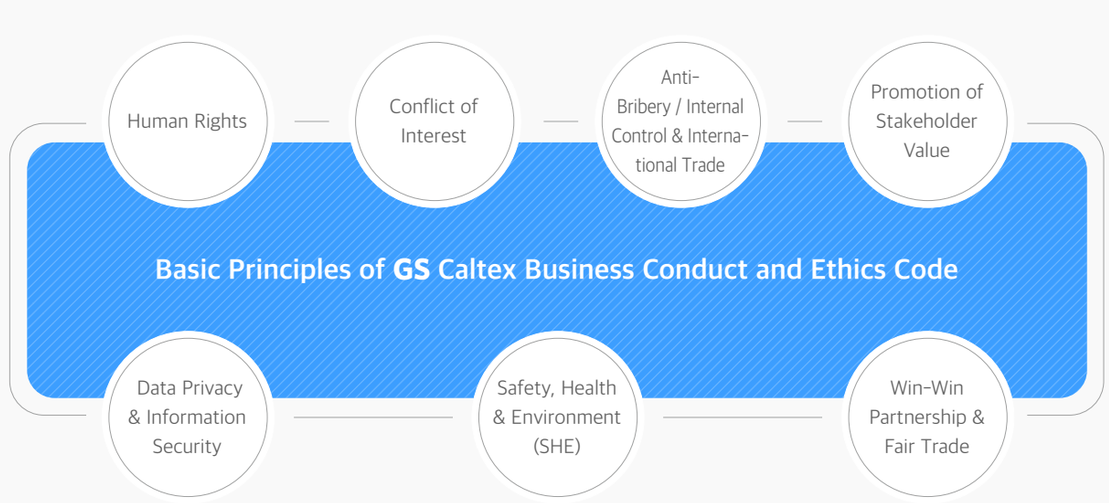
With the growing importance placed on transparency and fairness in corporate management, regulations for business ethics in the areas of corruption, unfair trade practices, and information security have been tightened in recent years. In particular, as demonstrated by the US Foreign Corrupt Practices Act (FCPA) and the UK Bribery Act, the scope for global anti-corruption regulations has been further widened. In line with this trend, it is necessary to keep pace with global requirements by proactively identifying and preventing any ethical / legal issues that may affect management activities, and by strengthening internal compliance programs. Recognizing the importance of corporate ethics and social responsibility as a prerequisite for sustainability and as a key competitive advantage, **GS** Caltex intends to raise its compliance management to the high level required by the global business environment.

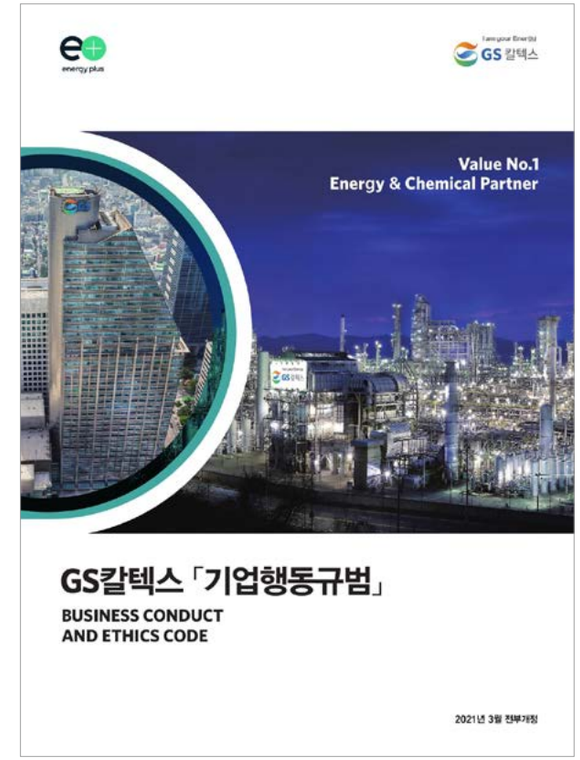
Ethical Management Practices

Business Conduct and Ethics Code

The **GS** Caltex Code of Ethics of 1997 was completely revised and became the 'Business Conduct and Ethics Code' in March 2021. The new code consolidates a number of policies and procedures and better reflects global standards such as ESG. By aligning with the latest compliance-related laws and regulations in Korea and abroad, the new code provides a set of practical guidelines for both employees and stakeholders to be responsible corporate citizens.

It has also incorporated the company's ESG management system with a view to supporting sustainable growth and strengthening ESG capability. **GS** Caltex plans to regularly evaluate the validity of the code to keep it up-to-date and applicable to the changing business environment.





Communication Channels for Ethical Management

GS Caltex communicates compliance activities with stakeholders through its ethical management website, and with employees through the compliance portal and compliance newsletters on internal social media. An ethical management hotline is also open for employees and stakeholders to report any suspected violations of domestic and international laws and internal regulations, or to consult on any ethical dilemmas faced in day-to-day activities.

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

Ethical Management Hotline
ethics@gscaltex.com
02)2005-6011

Principles of the Ethical Management Hotline

The anonymity of those who report or consult on the ethical management hotline is strictly protected, and any form of reprisal is prohibited. When any report of fraud, complaint, or petition is received via the hotline, it is sent to the relevant department for verification, review and action. The results are shared with the whistleblowers, if requested.

Any unethical behaviors that may adversely impact sound business operations can be reported via the hotline. These include unfair transactions, illegal business activities with stakeholders, inappropriate work practices, demanding or providing bribes (money, gifts or entertainment), and violation of human rights.

Click to see the relevant data D

Promotion of an Ethical Management Culture

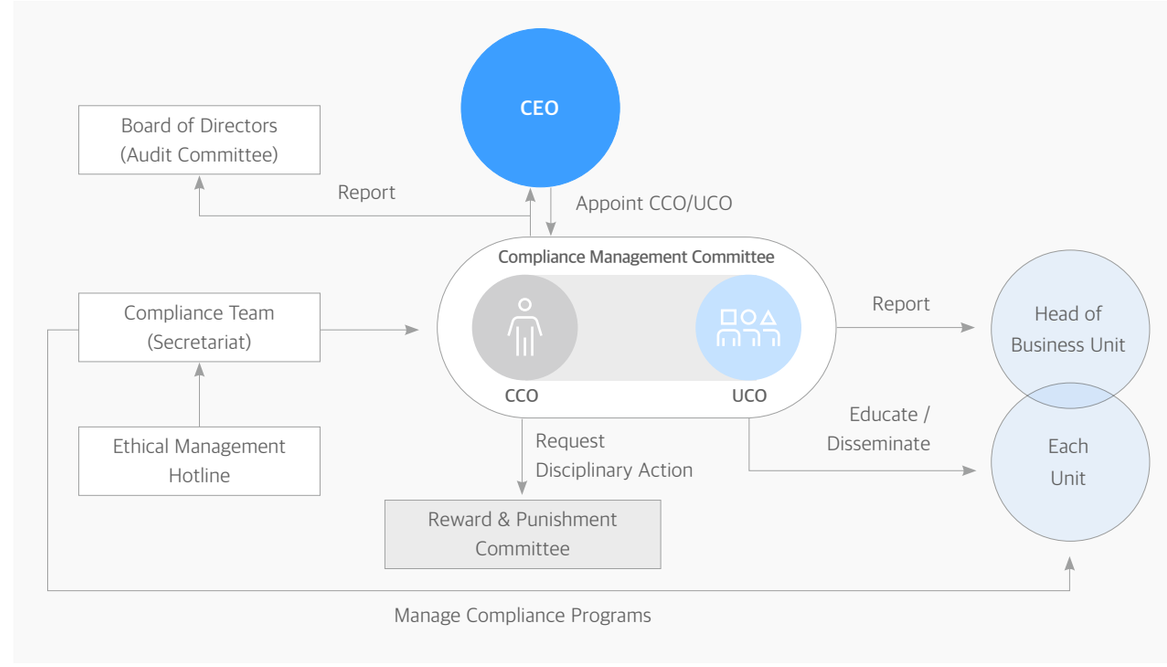
GS Caltex engages in a variety of activities to raise employee awareness and promote an ethical management culture. Every year, the CEO sends a letter to its employees, customers and suppliers stressing the importance of ethical business practices. Ethical issues are regularly shared via internal SNS. Also, every year all employees are requested to sign a voluntary pledge of compliance. Through these efforts, **GS** Caltex strives to firmly establish a culture of ethical management.

Compliance Management

Organization and Report System

As part of establishing an advanced compliance management system, a 'Compliance Management Committee' has been set up consisting of a Corporate Compliance Officer (CCO) who oversees corporate compliance programs and Unit Compliance Officers (UCO) responsible for conducting compliance activities in each business unit. The Committee discusses any compliance issues and activities as well as checks the operational status of compliance programs. The activities of the Compliance Management Committee are in turn reported to the Board of Directors by the Audit Committee. The Compliance Team under the CCO is responsible for the planning and implementing of effective compliance programs.

GS Caltex has consistently upgraded its compliance management system, including compliance management policies, monitoring, effectiveness evaluation, and risk management. By obtaining the ISO 37301 certification (compliance management system) in 2021, **GS** Caltex is well on its way to establishing a compliance system which meets global standards.



ISO 37301 Certification for Compliance Management System

In 2021 **GS** Caltex became the first Korean energy company to obtain an ISO 37301 from the British Standards Institution, a global certification agency. ISO 37301 is an international standard for compliance management systems set by the International Organization for Standardization (ISO).

This certification recognizes **GS** Caltex for establishing and operating an effective world-class compliance system.

GS Caltex will continue to strengthen its ethical management and compliance to realize the principles of ESG.

Compliance Programs

GS Caltex's Corporate Compliance Program (CCP) consists of the 'Business Conduct and Ethics Code' together with other internal policies and procedures, compliance training and promotion programs, a reporting system, an ethical management hotline, investigation of compliance violations, monitoring and effectiveness evaluation.

As part of the Corporate Compliance Program, 'Basic Compliance Training' is provided yearly as a mandatory course for all employees, including domestic and overseas affiliates' permanent employees, part-time employees, and contractors. The training encompasses four major areas -'Compliance & Business Ethics', 'Fair Trade', 'Information Security', and 'Safety / Health / Environment Management Activities'.

Click to see the relevant data D

Fair Trade Compliance Activities

To reinforce fair trade practices, **GS** Caltex runs an Anti-trust Compliance Program (ACP), which covers topics such as fair-trade regulations, training and monitoring. An Anti-trust Compliance Officer (ACO) is appointed to conduct fair trade-related training and raise employee awareness. Also, to ensure fair trade compliance, enactments or revisions of related laws and regulations, as well as policy directions, are closely monitored. The results are then communicated to the employees, as well as to relevant institutions such as the Fair Trade Commission.

A set of 'Business Conduct and Ethics Code Standard' is now available to instruct employees on fair trade practices. Based on this code, consultation and training on specific fair-trade issues are provided, and proactive monitoring is conducted to ensure fair trade compliance.

In addition, a 'proactive review of competitor communication' is in place to prevent any direct or indirect communication with competitors concerning matters that may infringe on fair trade laws and regulations.

GS Caltex operates an internal transaction review system to ensure fairness in internal transactions. The department responsible for the review checks the appropriacy of any internal transactions against the related laws (Fair Trade Act, Commercial Act, Tax Act). It then notifies the results to the relevant business unit which decides whether to progress or change the transaction.

In addition, a subcontractor transaction review system ensures fair trade with subcontractors by checking compliance with related laws prior to trading with small businesses.

ISO 37301 certification award ceremony

The Board of Directors

Composition of the Board of Directors

Principles

Directors are selected each year at the general shareholders' meeting from candidates nominated by the Korean shareholder, **GS**, and the US shareholder, Chevron, based on their business and risk management expertise.

As of February 2022, the Board comprises ten directors, including two representative directors, one executive director and seven non-executive directors. There are no outside directors. The term of office for directors expires each year at the conclusion of the first ordinary general shareholders' meeting after their appointment.

GS Caltex's Board of Directors Chairman and CEO, Mr. Saehong Hur, was appointed chairman by the Board in February 2022 based on his in-depth understanding of the business with his experience as the CEO of major affiliates. The operations of the Board are governed by Article 36 (Meetings of Directors) and Article 37 (Board Resolutions) of the company's Articles of Incorporation. The directors' remuneration is decided at the general shareholders' meeting, and no additional compensation is made for Board activities.

Current Board Composition

(As of end of June 2022)

Role	Name	Current Job Title and Position	Reasons for Appointment
Representative Director	Saehong Hur	President & CEO, **GS** Caltex Corporation, Chairman of the Board	Contributing to the success of the company and the Board, based on his experience as the CEO of **GS** Caltex and major affiliates, and his in-depth understanding and business expertise
	Doohee Lee	CSEO / Representative Director & Head of Yeosu Complex, **GS** Caltex Corporation	Contributing to the success of the Board, based on his long career with the company and his business expertise
Executive Director	Hyung Kuk Kim	President, Head of Chemical Business, **GS** Caltex Corporation	Contributing to the success of the Board, based on his long career with the company and his business expertise
Non-executive Director	Soon-Ky Hong	President & CEO, **GS** Holdings Corporation	Contributing to the success of the Board, based on his experience and business expertise as well as his time as the CEO of major affiliates
	Yongsoo Huh	President & CEO, **GS** Energy Corporation	Contributing to the success of the Board, based on his experience and business expertise as well as his time as the CEO of major affiliates
	Brant T. Fish	President, International Fuels & Lubricants, Chevron Corporation	Contributing to the success of the Board, based on his experience and expertise as the President of Chevron International Fuels & Lubricants
	Andrei F.B. Behdjet	Vice President & General Counsel Downstream, Chemicals & Midstream, Chevron Corporation	Contributing to the success of the Board as General Counsel of Chevron Downstream, Chemicals & Midstream
	William L. Stone	CEO, Singapore Refining Company, Chevron Corporation	Contributing to the success of the Board, based on his career with Chevron Refining and his expert knowledge of the refining business
	Christopher E. Jablonski	Vice President, Downstream Technology & Services, Chevron Corporation	Contributing to the success of the Board as Vice president of Chevron Downstream Technology & Services
	Brian C. Payne	Country Chairman, Chevron Korea, Chevron Corporation	Contributing to the success of the Board and effective communications as the resident Director of Chevron Korea

Activities

As stated in the Articles of Incorporation, the BOD resolutions require an affirmative vote of more than two-thirds of all registered directors. To ensure the independent operation of the Board and avoid conflicts of interest, members with a conflict of interest in relation to a specific item on the agenda are prohibited from exercising their voting rights on that matter.

In 2021, nine Board meetings were held to review and vote on key issues including the 2022 business plan, equity investment in Kakao Mobility, and a performance improvement project. Also discussed were ESG-related matters including safety, compliance and governance. All meetings were held virtually to prevent the spread of COVID-19.

The Board Support Office facilitates the Board meeting based on active communications with the directors and relevant departments. Board members are provided with meeting materials in advance so that they have sufficient time for review.

Click to see the relevant data D

Committees and their Roles

The Accountability Committee, the Audit Committee (not an audit committee under the Commercial Code), and the LNG Procurement Management Committee are contained within the Board. The independence of each committee is guaranteed to enable them to perform their accountabilities and functions in a transparent and responsible manner. In 2022, the setting up of a SHE Committee to deliver corporate responsibility for safety is under review.

Committee	Purpose & Roles	Composition	Meetings in 2021
Accountability Committee	Review governance-related matters	1 Representative Director, 1 Non-executive Director	3
Audit Committee	Review financial, accounting and audit reports	4 Non-executive Directors	4
LNG Procurement Management Committee	Review LNG procurement-related matters	1 Representative Director, 1 Non-executive Director	2

Auditor Training

Auditor training is provided to facilitate the auditing of financial reports and evaluation of the operational status of the internal accounting management system.

Date	Contents
3rd February 2021	Purpose of the internal accounting management system and internal process training

Digital Security

Digital Security & Protection System

Digital Security Organization

As the highest decision-making body concerned with digital security, a 'Digital Security Committee' has been set up consisting of a CISO (Chief Information Security Officer), a chairperson, and a senior director for each business division. The committee discusses a wide range of investments, activities and matters concerning digital security, such as ICT (Information and Communication Technology) compliance, personal data protection, IT (Information Technology) / OT (Operation Technology) security, and employee awareness-raising.

Digital Security Management System

GS Caltex has implemented systematic digital security policies to safeguard against security threats to important internal data and IT·OT security. Also, to protect the company's tangible and intangible assets including customer information and maintain business reliability, the company also operates an advanced information security management system based on domestic and international laws and standards.

In line with the changes in the digital environment, information processes are digitalized to enable a more efficient operation of the system and make it more convenient for employees and internal / external customers. In addition, a Zero Trust Security Model[1)] has been adopted to counter new security threats. A dedicated 'Digital Security Team' of experts continually analyzes the latest security trends to update the company's digital security and management system.

Further, 'Security Assurance' sweeps are conducted to make a timely detection of abnormal activity and security violations, as well as predict potential threats. Also, 'Detection Control' policies are set up by risk type to minimize damage in the event of a breach.

1) Zero Trust Security Model : Unlike the conventional security model which sets internal and external network boundaries, this reinforced security strategy is based on the assumption that no area can be trusted, and a stricter verification and authorization is required for access to internal systems and data.

Customer Information Security & Protection

In 2013, **GS** Caltex became the first in the industry to obtain the Korean government's PIMS (Personal Information Management System) certification. This certification was later updated to ISMS-P (Personal Information & Information Security Management System) to reinforce the secure management of personal information. To maintain the certification, the company undergoes a rigorous audit by relevant authorities every year.

To protect the security of customers' personal information, important personal data is stored and transmitted in encrypted form. Storing personal data is possible only through a separate system to which a minimum number of employees have access. Additionally, any access to personal data is controlled through a system that monitors access history and abnormalities. To prevent any misuse of personal information, violation of privacy, or infringement of laws, internal teams and contractors responsible for handling personal information are subject to a regular / ad hoc audit every year.

In addition to domestic laws, **GS** Caltex fully complies with the EU General Data Protection Regulation (GDPR). Moreover, the company notifies customers of their personal information processing status more than once a year to guarantee customers' right to self-determination of personal data. Through these various activities, **GS** Caltex strives to reinforce personal information security and protection.

정보보호 및 개인정보보호 관리체계 인증
ISMS-P
Personal information & Information Security Management System

Certification Scope	**GS**&POINT Service, **GS** Caltex Bonus Card Service
Validity Period	June 10, 2020 ~ June 9, 2023

Digital Security Activities

Digital Security Risk Management

With the accelerated Digital Transformation across the business, **GS** Caltex is making efforts to manage a wide range of security risks in the new digital environment including IoT (Internet of Things) and OT (Operation Technology). To this end, a dedicated team of experts in information security continually reviews security issues occurring both in Korea and abroad to strengthen its digital security management system.

The team utilizes a range of security solutions to conduct monitoring and log analysis of any network abnormalities, such as attempts to gain unauthorized access. To check the level of risk management and control of physical assets, unannounced security inspections and mock infiltration tests are undertaken. Using in-house risk assessment methodology, various technical assessments are also conducted, such as vulnerability tests and mock hackings, to identify and prevent risks.

Information Security Training

Annual training sessions are provided for all employees on information security and personal information protection to enhance employee awareness and capability. There are also various training and awareness-raising programs, including simulations of the latest security concerns such as malicious emails, as well as security campaigns and seminars. In order to maintain and enhance the overall level of information security across the company, assessments and training are provided for employees of both **GS** Caltex and its subsidiaries.

At the **GS** Caltex Yeosu Complex, in particular, given that it is a national security facility, anyone entering the site is required to complete a training course on security & safety compliance and restriction guidelines.

Access Control & Visitor Management System

For the **GS** Caltex Yeosu Complex, a national security facility, all visitors and vehicles are managed by an Access Control System. The entire premises are classified into controlled or restricted zones which prevent unauthorized entry, and all visitors need to obtain internal approval through a visitor reservation system.

Risk Management

Business and Financial Risk Management

Risk Governance

GS Caltex operates a solid risk management system to flexibly respond to various domestic and foreign factors that may affect management activities, such as the market prices of crude oil / petroleum products and industry volatility, and also pre-empt potential risks. To maintain a sound financial structure, Crude Oil Operation, MI (Market Intelligence), and Performance Support teams are designated risk management operations to monitor & analyze internal / external developments and report the results. A risk management committee meeting chaired by the CEO is held every quarter to review major company-wide risks and develop counter-measures.

Financial Risk Management

GS Caltex has focused on maintaining financial stability by closely responding to the rapidly changing business environment and preparing for industry volatility. To secure sound financial capability, borrowings have been kept at an optimal level. As a result, despite the increase in working capital due to oil price rises in 2021, the company has maintained the highest level of credit rating in the industry. **GS** Caltex has also diversified its borrowing to create a balanced loan portfolio and has secured sufficient credit lines to bolster financing capability.

Risk Management Committee Status

Classification	Attendance and Major Activities
Chairman	CEO
Members	General Managers of Chemical, Supply & Trading, Finance, Lubricants, Strategic Planning, and **GS** Caltex Singapore Pte. Ltd.
Attending Executives	Heads of Aromatics Business, Crude Oil, Business Operations, and Treasury
Secretary / Secretariat	Heads of Accounting / Performance Support Team
Activities	Provides guidelines on risk management and reviews performance
Meeting Frequency	Four times a year (every quarter)

Non-financial Risk Management

With the ever-growing importance of ESG, a company-wide committee consisting of the CEO and senior executives has been set up to strengthen the management of non-financial risks in these areas. This ESG committee is convened regularly to review and decide on ESG-related issues. Any risks flagged by the Committee are in turn passed on to the Safety & Environment Committee, the Corporate Compliance Committee, and the Information Security Committee for detailed review and discussion.

Non-financial Risk Management System

Area	Governance	Related Key Policies	Main Activities
Ethics / Compliance	• Corporate Compliance Committee	• Business Conduct and Ethics Code • Business Conduct and Ethics Code Standard	• Operation of company-wide compliance programs • Operation of compliance programs for specialized areas (fair trade, anti-corruption, sanctions)
Environment	• ESG Committee • Safety and Environment Committee	• Business Conduct and Ethics Code • SHE Management Policy • Environmental Management Policy • Petroleum Product Quality Control Policy	• Establishment of a greenhouse gas monitoring / evaluation system (daily emission status monitoring, carbon emission impact analysis by process) • Environmental impact mitigation and preventive measures for environmental risks
Safety and Health	• Corporate Safety Leadership Committee • Safety and Environment Committee • Occupational Safety and Health Committee • COVID-19 Emergency Response Committee	• Business Conduct and Ethics Code • SHE Management Policy • Safety and Environment Consulting Policy • SHE Training Policy • Emergency Response Policy • Safety & Health Accidents Management Policy	• Risk assessment of processes • Risk assessment of tasks • Safety management plans for new projects • Safety training • Emergency response training
Supply Chain	• ESG Committee	• Business Conduct and Ethics Code • Code of Conduct for Partners • SHE Management Policy for Partners	• ESG training for Partners • ESG assessment for Partners
Information Security	• Digital Security Committee	• Information Security Policy • Security Incident Response Policy • Information Security Monitoring Policy • Customer / Personal Information Security Policy	• Countermeasures for information security laws and policies • Operation of information security management system and risk management

ESG PERFORMANCE 06

Financial Data

Consolidated Statements of Financial Position

Category	Unit	2019	2020	2021
Total assets	KRW 1M	20,427,735	19,740,218	23,582,457
Total current assets		8,653,959	6,797,551	10,506,301
Total non-current assets		11,773,776	12,942,667	13,076,156
Total liabilities		9,430,712	9,696,509	12,449,474
Total current liabilities		5,211,036	5,229,255	7,820,737
Total non-current liabilities		4,219,676	4,467,254	4,628,737
Total equity		10,997,023	10,043,709	11,132,983

Consolidated Statements of Income

Category	Unit	2019	2020	2021
Sales	KRW 1M	33,261,489	22,300,614	34,538,430
Operating Profit		879,660	(919,208)	2,018,852
Net Income		452,617	(775,432)	1,051,740

Credit Rating

Category	2019	2020	2021
S&P	BBB+(N)	BBB(S)	BBB(S)
Moody's	Baa1(S)	Baa1(S)	Baa1(S)
Korea Ratings	AA+(S)	AA+(S)	AA+(S)
Korea Investors Service	AA+(S)	AA+(S)	AA+(S)
NICE	AA+(S)	AA+(S)	AA+(S)

Domestic & Foreign Tax Payments

Region	Unit	2019	2020	2021
Korea	KRW 1M	137,802	(315,987)	340,974
Asia		2,534	3,639	6,605
Europe		1,413	335	(35)
Others[1]		(1)	(6,003)	1,880
Total		141,747[2]	(318,015)[2]	349,424

Domestic Tax Payments[3]

Category	Unit	2019	2020	2021
Nominal Tax	KRW 1M	133,305	(318,411)	335,704
Nominal Tax Rate	%	23.5	28.6	25.04
Effective Tax	KRW 1M	137,064	(583)	109,425
Effective Tax Rate	%	24.2	0.1	8.2

R&D Investment[4]

Category	Unit	2019	2020	2021
R&D Investment	KRW 100M	510	549[5]	549

1) Internal transactions between consolidated entities are adjusted and reflect in the Others category
2) There may be differences in total amounts and the sum total per region according to unit round-off
3) Separate financial statement
4) Excluding government subsidy
5) Numbers adjusted following alternations to the scope and basis of calculation

ESG Data & Performance Environment

GHG[1)]

Category		Unit	2019	2020	2021
Scope1 : Fixed combustion, mobile combustion and process emissions	Direct emissions	tCO_2eq	6,356,466	6,100,541	6,545,251
	Intensity[2)]	tCO_2eq/KRW 100M	19.11	27.36	18.95
Scope2 : Externally purchased steam and power	Indirect emissions	tCO_2eq	1,690,788	1,688,245	1,897,581
	Intensity[2)]	tCO_2eq/KRW 100M	5.08	7.57	5.49
GHG emissions	Carbon dioxide (CO_2)	1,000 ton	7,993.9	7,743.9	8,392.0
	Methane (CH_4)	ton	2,136.1	1,825.6	1,815.0
	Nitrogen dioxide (N_2O)		27.6	21.1	40.9

Energy Consumption[3)]

Category	Unit	2019	2020	2021
Fuel	TJ	71,855	67,857	77,537
Electricity		25,719	25,089	27,750
Steam		8,352	8,583	10,757
Total Energy Consumption		105,917	101,519	116,029
Intensity[4)]	TJ / KRW 100M	0.32	0.46	0.34

Air Pollutant Emissions[5)]

Category	Unit	2019	2020	2021
Dust	ton	193.2	101.2	82.3
Nitrogen Oxide (NOx)		2,858.4	2,091.2	3,594.8
Sulfur Oxide (SOx)		1,901.5	138.4	169.2
Carbon Monoxide (CO)		359.7	37.1	59.9
Volatile Organic Compounds (VOC)		97.8	57.8	58.4
Hazardous Air Pollutants (HAPs)		46.0	22.0	23.4

Air Pollutant Concentrations[6)]

Category	Unit	Legal requirement	2019	2020	2021
Dust	mg/m^3	15	3.1	3.3	2.9
Nitrogen Oxide (NOx)	ppm	130	42.0	32.7	34.8
Sulfur Oxide (SOx)		120	9.2	1.2	1.7
Carbon Monoxide (CO)		200	8.7	10.5	15.2

Water Resource Management

Category		Unit	2019	2020	2021[7)]
Industrial water consumption	Daily average consumption	ton/day	53,852	54,230	65,745
Wastewater discharge	Daily average discharge		31,517	29,272	30,269
Recycling rate of wastewater	Volume of recycled wastewater / Generated wastewater	%	17.6	17.5	19.4

Water Pollutant Emissions[8)]

Category	Unit	2019	2020	2021[9)]
Biochemical Oxygen Demand (BOD)	ton	129.3	256.6	386.4
Chemical Oxygen Demand (COD)		169.3	223.8	341.3
Suspended Solids (SS)		80.6	84.9	134.1

Water Pollutant Concentrations[10)]

Category	Unit	Legal requirement	2019	2020	2021
Biochemical Oxygen Demand (BOD)	ppm	30	7.3	8.2	7.8
Chemical Oxygen Demand (COD)		40	10.7	11.7	10.6
Suspended Solids (SS)		30	3.9	6.6	6.0

1) GHG figures here concern all **GS** Caltex work sites, and are calculated based on the guidelines for GHG emission reporting and certification under the emissions trading system (The Ministry of Environment notice no. 2021-278, Republic of Korea) and the 2006 IPCC guidelines
2) Based on sales as reported in the current year's Annual Report
3) Energy consumption figures are calculated based on the guidelines for GHG emission reporting and certification under the emissions trading system (The Ministry of Environment notice no. 2021-278, Republic of Korea) and the 2006 IPCC guidelines, Since the figures here are rounded to the nearest whole number, there could be a difference of less than ±1 TJ to the actual figures
4) Based on sales as reported in the current year's Annual Report
5) Major air pollutant discharging facilities : RFCC CO Boilers, Heaters, Package Boilers
6) Average concentration level of standard boilers (Dust / NOx /SOx) and incineration facilities (Carbon Monoxide) at the Yeosu Complex
7) Water consumption and wastewater discharge has increased since the second half of 2021 due to a new MFC (Mixed Feed Cracker) process; by installing graywater reuse facilities for the wastewater from the MFC process, the wastewater recycling rate has increased
8) Major facilities discharging water pollutants : petroleum refinery facilities, basic petrochemical compound production facilities, industrial water purification facilities
9) Water pollutant emissions have increased since the second half of 2021 due to a new MFC (Mixed Feed Cracker) process
10) Discharge standards and concentration level of ocean effluence

Hazardous Chemical Consumption

Category	Unit	2019	2020	2021
Caustic soda (NaOH)	ton	37,842	62,862	71,522[1]
Sulfuric acid (H_2SO_4)		510	369	1,463[1]
Hydrochloric acid (HCl)		1,727	1,695	1,707
Ammoni (NH_3)		344	314	375

Waste

Category			Unit	2019	2020	2021
Waste discharge	Designated waste		ton	26,325	16,833	12,849
	General waste			21,315	25,024	26,740
	Subtotal			47,640	41,857	39,589
Waste treatment	Recycling	Recovered fuel (waste oil / solvents)		15,076	6,839	7,458
		Recovered metal (catalysts)		8,132	7,282	5,023
		Fertilizer (for composting)		320	320	356
		Other types of recycling		12,675	18,417	18,889
		Subtotal		36,203	32,858	31,720
		Recycling rate (%)		76.0	78.5	80.1
	Incineration			1,771	3,574	2,199
	Landfill			9,117	4,751	5,468
	Comminution			549	674	594
	Total			47,640	41,857	39,589

Environment / Energy Certification

Category	Worksite	Validity Period
ISO 14001	Yeosu Complex	July 2021 ~ July 2024
ISO 50001	Yeosu Complex	Dec 2020 ~ Dec 2023

Soil Contamination Inspection

Category	Unit	2019	2020	2021
Gas stations soil contamination inspection	Number	308	59[2]	99

Investment in Environmental Protection

Category	Unit	2019	2020	2021
Wastewater & marine contamination	KRW 100M	48	62	68
Air pollution		380[3]	60	116
Volatile organic compounds		31	37	71
Soil contamination		109	94	56
Others		48	52	6
Total		616	305	317

Voluntary Environmental Management Agreements

Category	Period	Related Activities
Voluntary Agreement for Soil Preservation	2013 ~ 2023	Prevention of soil contamination by oil spills through voluntary inspection and restoration
Joint Agreement for Emergency Response to Chemical Accidents (Chemical Safety Association)	2013 ~	Establishment of an emergency response plan for the prevention and management of chemical accidents
Voluntary Agreement for Reducing High Concentrations of Fine Dust	Dec 2019 ~ Dec 2022	Implementation of more stringent emission standards than legal requirements

Violation of Environmental Regulations

Category	Unit	2019	2020	2021
Fine or above	case	0	0	0
	KRW 1M	-	-	-
Administrative fines (over $10,000)	case	3	1	4
	KRW 1M	8.4	1.6	5.3

1) Increased consumption due to the operation of a new MFC (Mixed Feed Cracker) process
2) Soil contamination decreased in 2020 due to the reduced number of gas stations
3) Includes investment in RFCC Wet Scrubber

Protected Areas around Worksites and Relevant Activities

Category	Details	Note	Related Activities
Water Supply Source Protection Area	One Water Source Protected Area designated in Yeosu (Mipyeong, 1.07km^2)	Distance from the worksite : 6.9km	-
Wildlife Reserve	Three Wildlife Protected Areas in Yeosu, with the closest located in Jungheung-dong	Distance from the worksite : 3.7km	Post-environmental impact assessment (terrestrial flora and fauna research)
Nature Park	Odong Island, located off the eastern part of the Yeosu Peninsula, is part of the Hallyeo National Marine Park. The frontal waters and adjacent isles of Dolsan-eup are designated as part of Dadohae National Marine Park	Distance from the worksite - Hallyeo National Marine Park : 8.7km - Dadohae Marine National Park : 29.0km	-
Fishery Resources Protected Area	Two Fishery Resources Protected Areas are designated around Yeosu, with the closest to the worksite located in Gamak Bay	-	-
Designated Island Area	14 Designated Island Areas in Yeosu, with the closet in Soho-dong (Gadeok Island, 23,901km^2)	Distance from the worksite : 13.5km	-
Specially-managed Sea Areas	Worksite located within the Gwangyang Bay Specially Regulated Sea Area	-	Activities to protect the eco-system (cleaning activities)
Migratory Bird Sanctuary	Adjacent to Yeosu, Gwangyang Bay and Galsa Bay designated areas	Distance from the worksite : 3.8km	-
Natural Monuments	Natural Monument No. 434 : fossil dinosaur footprints in Nangdo-ri, and one designated sedimentary rock area in Yeosu	Distance from the worksite : 32km	-
Conservation Zone for Forest Gene Resources	Ten Forestry Genetic Resource Reserves are located in Yeosu, with the closest to the worksite in Shinwol-dong	Distance from the worksite : 13.2km	-
Special Countermeasure Area for Air Quality Protection	The Yeosu National Industrial Complex and other confirmed sites are designated as 'Air Conservation Special Measures Areas'	-	Activities to reduce air pollutants (Installation of Best Available Technology facilities)
Air Control Zone	As part of the Air Quality Management District in the southern region, pursuant to the 'Special Act on the Improvement of Air Quality in Air Control Zones'	-	Additional installation of TMS chimneys, improvement of burners, installation of denitrification facilities
Low Sulfur Oil Supply and Use Area	Pursuant to the notice on the use of clean fuels, 'Low Sulfur Oil Supply and Use areas', the sulfur content in heavy oil must be 0.3% or less in Yeosu	-	For all fuels, Low Sulfur Oil replaced with LNG (April 9, 2020)

Employees

Employees[1)]

Category		Unit	2019	2020	2021
Total		Persons	3,283	3,267	3,259
By employment type	Executives		48	46	44
	Full-time		3,136	3,129	3,101
	Part-time		99	92	114
By location	Seoul & Others		1,387	1,339	1,339
	Yeosu		1,896	1,928	1,920
By age	Over 50		884	969	886
	30~50		1,827	1,754	1,818
	Under 30		572	544	555
By gender	Male		2,964	2,967	2,955
	Female		319	300	304
Employees on a pension scheme			2,796	2,786	2,752
Retirees			195	148	189
Retirement rate		%	5.9	4.5	5.8
Percentage of female employees			9.7	9.2	9.4
Percentage of employees with disabilities			1.2	1.9	1.9
Total employee compensation		KRW 100M	3,669	3,400	3,437
Years of continuous service		Years	14.7	15.2	15.8

Recruitment

Category		Unit	2019	2020	2021
New employees		Persons	278	175	257
By gender	Male		235	123	198
	Female		43	52	59
By location	Headquarters, Regions		136	50	102
	Yeosu Complex		142	125	155

Parental Leave

Category		Unit	2019	2020	2021
Employees on parental leave	Male	Persons	4	5	14
	Female		10	20	29
Employees returned from parental leave	Male		1	3	10
	Female		9	9	23
Employees who have worked for 12 months after returning from parental leave	Male		2	2	9
	Female		6	11	23

Female Management Positions

Category	Unit	2019	2020	2021
Executive	persons	1	1	1
	%	2.1	2.2	2.3
Senior Managers	persons	12	13	14
	%	4.9	5.7	6.4
Managers	persons	90	93	101
	%	10.4	10.5	11

HR Development

Category	Unit	2019	2020	2021
Training investment expenses	KRW 100M	62	30	28
Training hours per person[2)]	Hours	58	48	52
Organization competency survey result (Satisfaction / Immersion)	Points	76	72	67

1) As of the end of December 2021

2) Including online and offline training of all employees, based on the number of employees as reported in the relevant year's Annual Report

Labor Union

Category	Unit	2019	2020	2021
Members registered with labor union	Persons (registered / employee number)	1,524/1,936	1,520/1,897	1,502/1,925
Discussion and negotiation on changes in business management with the labor union	No. of issues	0 (no significant change in business management)	0 (no significant change in business management)	0 (no significant change in business management)
Labor disputes	Cases	0	0	0

Wages

Category		Unit	2019	2020	2021
Percentage of new employees' wages to minimum wage at key worksites[1]	Manufacturing engineering	%	139	135	159
	Office staff		197	194	206

Performance Evaluation

Category	Unit	2019	2020	2021
Percentage of employees whose performances are assessed by their direct supervisors based on agreed, measurable goals[2]	%	99	98	99
Percentage of employees who received periodical reviews on performance and career development[3]		87	89	90

1) Based on all domestic worksites including the **GS** Caltex Head Office and Yeosu Complex. No gender difference
2) Excluding those on leave who worked less than 6 months of the year, and new employees who joined the company that year
3) Percentage of employees whose performances are evaluated based on set goals through interim and year-end reviews
4) 5) Numbers adjusted following alternations to the scope and basis of calculation
6) Procedures and processes set by the company to protect and continuously manage customers' personal information in a systematic manner
7) An integrated information security management system that develops information protection policies specific to the company and takes a series of measures to counter risks
8) Management system consisting of a raft of measures and actions to protect corporate and personal information. The company is subject to an integrated ISMS-P certification following the integration of PIMS and ISMS in 2020.

Customers

Customer Satisfaction Certification

Category	2019	2020	2021
KSQI (Korean Service Quality Index)	Excellent Call Center	Excellent Call Center	Excellent Call Center
NCSI (National Customer Satisfaction Index) Gas Station Category	1st place (11 years in a row)	1st place (12 years in a row)	1st place (13 years in a row)

Customer Satisfaction Activities

Category	Unit	2019	2020	2021
No. of gas stations	Stations	2,368	2,354	2,261
No. of LPG filling stations		391	389	368
Domestic market share (Mogas/Kero/Diesel)	%	23.9[4]	23.5	23.6
Customer complaint processing time	Days	0.7	0.8[5]	0.7

Quality Inspection

Category	Unit	2019	2020	2021
Gas station	No. of inspections	5,643	5,723	6,303
LPG filling stations		437	432	447

Quality Management Certification

Category	Worksite	Validity Period
ISO 9001	Yeosu Complex	July 2021 ~ July 2024

Information Security Certification

Category	2019	2020	2021
PIMS (Personal Information Management System)[6]	Certified	Obtained ISMS-P integrated certification	Obtained ISMS-P integrated certification
ISMS (Information Security Management System)[7]	Certified		
ISMS-P (Personal Information & Information Security Management System)[8]	-	Certified	Certified

Customer Information Security

Category		Unit	2019	2020	2021
Customer information-related complaints	Issues raised by external complainants and verified in-house	No. of incidents	0	0	0
	Issues raised by regulatory bodies		0	0	0
Customer data leak, theft or loss			0	0	0

Safety and Health

Occupational Safety and Health Indicators

Category		Unit	2019	2020	2021
Employees & Partners	TRIR[1]		0.15	0.19	0.14
	DAFWR[2]		0.08	0.15	0.09
	LTIFR[3]		0.77	0.96	0.46
	LTISR[4]		0.023	0.033	0.022
Employees	TRIR[1]		0.09	0.30	0.09
	DAFWR[2]		0.03	0.21	0.06
	LTIFR[3]		0.45	1.49	0.30
	LTISR[4]		0.027	0.050	0.014
	Work-related deaths (Male)	Persons	0	0	0
	Work-related deaths (Female)		0	0	0
Partners	TRIR[1]		0.19	0.16	0.17
	DAFWR[2]		0.12	0.13	0.11
	LTIFR[3]		0.97	0.78	0.55
	LTISR[4]		0.020	0.028	0.025
	Work-related deaths (Male)	Persons	0	0	0
	Work-related deaths (Female)		0	0	0

Occupational Illness Frequency Rate[5]

Category	2019	2020	2021
Occupational illness frequency rate among employees (OIFR)[6]	0	0.30[7]	0.45

1) TRIR (Total Recordable Incident Rate) : No. of incidents (any injuries, illnesses, and fatalities, excluding those equivalent to, or less serious than, incidents requiring first aid) that occur per every 200,000 man-hour (hours 100 **GS** Caltex and partners' employees work for one year) (No. of incidents / No. of hours worked) x 200,000 man-hours
2) DAFWR (Days Away From Work Rate) : No. of incidents that cause a loss of one or more days' work per every 200,000 man-hours (No. of incidents that cause a loss of work / No. of hours worked) x 200,000 man-hours
3) LTIFR (Lost Time Injury Frequency Rate) : No. of accidents x 1,000,000 / annual total hours of work
4) LTISR (Lost Time Injury Severity Rate) : No. of workdays x 1,000 / annual total hours of work
5) Based on Korea Workers' Compensation & Welfare Service standards
6) Occupational Illness Frequency Rate (OIFR) : Cases x 1,000,000 / total hours worked
7) Figure amended following a change to the number of approved cases of disease-related illness

Accidents Related to the Safety of the Production Process[8]

Category	Unit	2019	2020	2021
Tier 1[9]	No. of Incidents[10]	0	0	0
Tier 2[9]		2	1	2

Occupational Safety Drills

Category	Drill Type	2019	2020	2021
Company-wide	Company-wide fire prevention / control drills	Once every quarter	Once a year	Once a year
Work site[11]	Fire drills	Twice a year by shift	Once a year by shift	Once a year by shift
	On & offshore oil spill response drills	Twice a year by shift	Once a year	Once a year by shift
	Process emergency response drills	Entire worksite training, 16 times / year	Entire worksite training, 16 times / year	Entire worksite training, 16 times / year
	Process Dry Training[12]	Once a month by shift	Once a month by shift	Once a month by shift
	Early response training	Once a month by shift	Once a month by shift	Once a month by shift

Occupational Safety Certification

Category	Worksite	Validity Period
KOSHA-MS	Incheon Lubricant Plant	Dec 2021 ~ Dec 2023

8) Process safety standards defined by the American Petroleum Institute (API) based on accident severity
9) Tier 1 & Tier 2 : Incidents with damage over 100,000 USD and 2,500 USD, respectively, based on API standards
10) No. of incidents per million work hours
11) The workplace drills referred to here relate to the Yeosu Complex. Other sites conduct internal drills under their own guidelines.
12) A type of training conducted as part of an emergency response scenario

Supply Chain

Partner Status

Category	Unit	2019	2020	2021
Partners with transaction performance[1]	No. of companies	1,446	1,275	1,236
Purchase amount	KRW 100M	33,316	12,371	11,984

Mutual Growth Prime Rate

Category	Unit	2019	2020	2021
Partners	No. of companies	84	75	69
Amount	KRW 100M	622	477	313

Partners Industrial Safety Training[2]

Category		2019	2020	2021
Yeosu Complex	Construction supervisor safety training	22 companies / 60 participants	Canceled[3]	24 companies / 130 participants
	Signalman certification course	50 companies / 340 participants	46 companies / 400 participants	32 companies / 257 participants
	Safety manager certification, maintenance training	46 companies / 300 participants	18 companies / 48 participants	30companies / 42 participants
	Cargo crane operator safety training	60 companies / 310 participants	62 companies / 392 participants	63 companies / 330 participants
	TA special safety training	About 3,000 participants	About 3,500 participants	About 3,100 participants
Head-quarters	Safety training for coaster owners/crews	11 companies / 4 times (approx. 200 participants / time)	11 companies / 4 times (approx. 200 participants / time)	11 companies / 4 times (approx. 200 participants / time)
	Safety training for tanker owners/crews	8 companies / 2 times	8 companies / 2 times (230 participants / time)	8 companies / 2 times (230 participants / time)
Distribution Center	Training for Long-term contract partners	8 companies / 30 participants	Canceled[3]	8 companies / 30 participants (Online training)
	Safety training for DC construction workers	About 500 participants	About 500 participants	About 500 participants
	Safety training for tanker drivers	Once every half-year for all tanker drivers	Due to COVID-19, face-to-face training replaced with video training	Due to COVID-19, face-to-face training replaced with video training

Partner ESG Management

Category		Unit	2020	2021
Signatories to the Code of Conduct for **GS** Caltex Partners	Target	No. of companies	1,044	1,150
	Completed	No. of companies	1,044	1,150
	Percentage	%	100	100
Partners signing contracts containing environment, labor or human rights clauses	Target	No. of companies	1,044	1,150
	Completed	No. of companies	1,044	1,150
	Percentage	%	100	100
Key partner ESG training[4]	Target	No. of companies	107	316
	Completed	No. of companies	107	310
	Percentage	%	100	98
Key partners that undertook ESG assessment	Target	No. of companies	107	316
	Completed	No. of companies	102	310
	Percentage	%	95	98
Key partners that undertook ESG audit	Target	No. of companies	102	310
	Completed	No. of companies	4	13
	Percentage	%	4	4

1) Partners include materials suppliers (chemicals, facilities, equipment) and service providers (process, maintenance)
2) Based on the total number of participants in the program (multiple participation by program and session)
3) Group training canceled due to COVID-19
4) ESG training conducted online for key partners

Social Contribution

Social Contribution

Category	Unit	2019	2020	2021
Total social contribution spending[1]	KRW 100M	157	154	123
Annual number of persons who took part in volunteering[2]	Persons	1,024[3]	750[3][4]	1,154

Social Contribution Program : Maum Talk Talk

Category		Unit	2019	2020	2021
Maum Talk Talk	Prevention program (Healing class)	No. of schools	5	7	7
		No. of children	744	1,140	1,136
	Therapy program (Low-income / school violence victims)	No. of organizations	29	18	17
		No. of children	2,211	819	1,095
	Total	No. of children	2,955	1,959	2,231

GS Caltex Yeulmaru Spending & Performance

Category	Unit	2019	2020	2021
Amount invested in GS Caltex Foundation[5]	KRW 100M	48	49	34
Annual number of visitors to performances	Persons	78,506	17,769	38,543
Annual number of visitors to exhibition		76,734	35,287	46,679
Annual performances, exhibitions and academy events	No. of events	417	141[6]	423

1) Amount executed for social contribution purposes. It is different from donations specified in the business report
2) The number of volunteers decreased compared to 2017 due to the 52-hour workweek
3) Numbers adjusted following alternations to the scope and basis of calculation
4) Non-contact volunteering activities due to COVID-19
5) The amount included in GS Caltex social contribution spending, as part of an operating expense paid to GS Caltex Foundation
6) Reduced activities due to COVID-19

Governance

Board Meeting Attendance Status

Category	Unit	2019	2020	2021
Average board meeting attendance rate	%	95.0[1)]	96.3	100.0

Directors and Auditors Composition Status[2)]

Category		2019	2020	2021
By type	Executive director	3	3	3
	Non-executive director	7	7	7
	Auditor	2	2	2
By gender	Male	12	11	11
	Female	-	1	1
By age	Over 60	3	4	3
	50~60	7	6	5
	Under 50	2	2	4

Fair Trade Issue

Category	2019	2020	2021
No. of legal actions (ongoing or settled) due to violations of anti-competition laws and regulations	• **GS** Caltex was fined for the delay in reporting the combination of enterprise between Cardoc and LUFTT Korea. • **GS** Caltex was fined for failure to register an affiliate in a borrowed name : Working to prevent a recurrence by strengthening employee training and improving internal processes.	None	Corrective orders (future prohibition and training orders) issued by the Korean Fair Trade Commission for charges of collusion during the bid for oil supply to the US Forces Korea. Activities to strengthen compliance are ongoing, including employee training and improvement of company policies & procedures.

Compliance Training[3)]

Category		Unit	2019	2020	2021
Training participants	Online	Persons	2,355	2,368	2,262
	Offline		941	875	988
Official letter of cooperation on ethical management sent out		No. of cases	5,774	5,457	4,890

Compliance Management Certification

Category	Worksite	Validity Period
ISO 37301	Seoul Headquarters	Oct 2021~ Oct 2024

Ethical Management Hotline Reports & Actions (2021)

Reports Received

Category	Unit	Complaints	Corruption	Petition	Other	Total
Customers	No. of cases	2	1	0	0	3
Partners		1	5	2	0	8
Employees		0	0	2	0	2
Others		0	3	8	0	11
Total		3	9	12	0	24

Actions taken

Investigation (Audit)	No. of cases	0	5	4	0	9
Transfer to relevant departments		3	4	7	0	14
Others		0	0	1	0	1
Total		3	9	12	0	24

* No. of disciplinary cases as a result of actions : 0

1) Figure amended following correction of error in data calculation in 2019
2) As of Jan 1, 2022
3) Includes Human Rights Education

UN SDGs Related Activities

To participate in the UN Sustainable Development Goals (UN SDGs) initiative, **GS** Caltex are engaging in nine goals out of a total of 17 sustainable development goals.

1 No Poverty

GSC Goal

Provide support for enhancing living standards of the underprivileged through social contribution programs

2021 Outcome

- House repair by **GS** Caltex volunteer group, COVID-19 prevention activities
- 1,154 employees participated in volunteering activities in 2021 (non-contact activities due to COVID-19)

2 Zero Hunger

GSC Goal

Provide support for improving eating standards of the underprivileged in local communities

2021 Outcome

- Operated soup kitchen fand deliver food or the elderly in need
- Provided lunch for low-income job-seekers

4 Quality Education

GSC Goal

Provide support for healthy growth and development for selected people requiring educational support

2021 Outcome

- Supported art therapy for children (cumulatively 22,694 children)
- Operated native-speaker English teaching programs for schools in remote islands
- Produced and distributed a musical video for training to prevent school violence (cumulatively, 260,000 viewers)
- Operated a job camp program for job-seekers

5 Gender Equality

GSC Goal

Pursue gender equality across all management activities and create an environment where female employees can realize their potential

2021 Outcome

- No discrimination in recruitment, evaluation, compensation and promotion
- Operated a female leader development program

7 Clean Energy

GSC Goal

Contribute to the preservation of the global environment by developing and implementing an eco-friendly energy technology

2021 Outcome

- Started production and supply of liquid hydrogen
- Launched hydrogen fuel-cell power generation business
- Expanded biofuel business through a subsidiary '**GS** Bio'
- Launched eco-friendly engine oil 'Kixx BIO1' based on botanical ingredients

8 Decent Work and Economic Growth

GSC Goal

Contribute to economic development by creating quality jobs and establishing a sustainable supply chain through sound management and investment activities

2021 Outcome

- Strengthened sustainable management capability of the supply chain by conducting ESG assessment for partners (316 key partners in Korea and abroad)
- Created jobs through the MFC project (2 million people annually during the construction period)

11 Sustainable Cities and Communities

GSC Goal

Contribute to the development of local communities by promoting communications between local stakeholders and collaborative efforts

2021 Outcome

- Supported operation of **GS** Caltex Yeulmaru Art Center in Yeosu
- Supported the 'Go-Together program' for small business productivity innovation (Supported 9 projects for 8 companies, partner sales growth KRW 10.9 billion)

12 Responsible Consumption and Production

GSC Goal

Produce eco-friendly / high-quality products by saving resources and expanding recycling

2021 Outcome

- Expanded waste plastic recycling business
- Environmental investment : KRW 31.7 billion
- Wastewater recycling rate 19.4%, water material recycling rate 80.1%

13 Climate Action

GSC Goal

Actively undertake GHG reduction activities to help address climate change issues throughout the value chain

2021 Outcome

- Issued green bonds and invested in eco-friendly facilities (cumulatively, about KRW 80.8 billion)
- Reduced GHG through the Scorpions project (43,000 tCO_2eq)
- Introduced cogeneration facilities by using LNG fuels within worksites

APPENDIX

07

Materiality Assessment

GS Caltex conducts a materiality assessment to meet the demands and expectations of diverse stakeholders and identify sustainability issues with high impact on business activities. Following analysis of global ESG management trends, benchmarking of industry ESG activities and outcomes, and collection of internal / external stakeholder opinions, key issues are identified based on business relevance (Relevance) and stakeholder impact (Impact).

In 2021, global standards including GRI Standards, WEF, DJSI, ISO 26000, UNGC, UN SDGs, SASB, and IPIECA were reviewed, media research was conducted, and industry benchmarking data were analyzed. Based on this, a pool of 32 issues were identified. Following internal / external stakeholder surveys and expert evaluations, 12 issues were shortlisted for reporting, of which four key issues were finally selected.

GS Caltex has assessed the performance of its major sustainability activities in 2021 focusing on the four selected issues, and set forth the results in this report. **GS** Caltex faithfully discloses essential management information and performance outcomes relevant to the interests of its diverse stakeholders.

Materiality Assessment Process

STEP 1 Create an Issue Pool

Analysis of Global ESG Standards

- Analyzed the requirements of global standards, such as GRI Standards, WEF, DJSI, ISO 26000, UNGC, UN SDGs, SASB, and IPIECA

Media Research

- Analyzed 3,297 relevant articles out of 9,645 articles that covered **GS** Caltex in 2021

Industry Benchmarking

- Analyzed the key sustainability issues reported by 17 competitor companies in Korea and abroad

STEP 2 Assess Materiality

Relevance to Business

- Analyzed global ESG standards
- Analyzed ESG status of competitors and leading companies
- Analyzed internal data and conducted employee interviews and surveys (a total of 472 employees participated)

Impact on Stakeholders

- Conducted a stakeholder survey (a total of 152 customers, partners, and experts participated)
- Analyzed media coverage of issues

STEP 3 Select Issues for Reporting

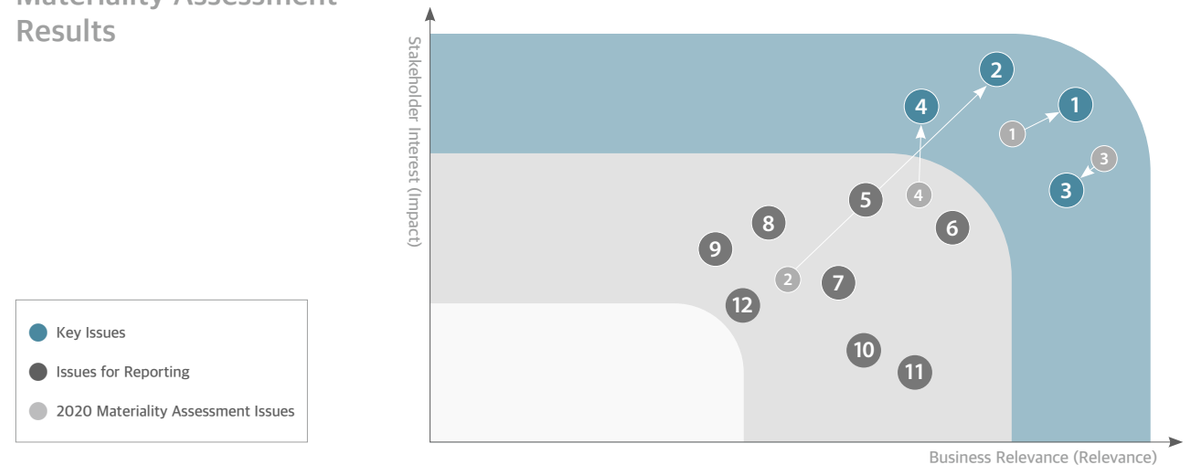
Global ESG trends
Competitor ESG issues
Internal data
Employee survey

Issues for Reporting

Impact on Internal / external stakeholders
Level of media coverage

→ 12 issues shortlisted for reporting, 4 key issues selected

Materiality Assessment Results



Area	Rank	Issues	GRI Standards Topic	Reporting Scope	Pages
Environmental	1	Pursuit of eco-friendly projects for conversion to low-carbon society	GRI 305 Emissions GRI 306 Waste	**GS** Caltex internal / external	17-21
Environmental	2	GHG reduction activities for climate change response	GRI 302 Energy GRI 305 Emissions	**GS** Caltex internal / external	14-17
Social	3	Prevention of safety incidents and dissemination of a safety-focused culture	GRI 403 Occupational Health and Safety	**GS** Caltex internal / external	26-28, 30-31
Economic	4	Ethics management / Fair Trade	GRI 205 Anti-corruption	**GS** Caltex internal	42-44
Economic	5	R & D and technology innovation	Non-GRI	**GS** Caltex internal	18-21
Social	6	Local community contributions	GRI 203 Indirect Economic Impacts GRI 413 Local Communities	**GS** Caltex internal / external	37-40
Economic	7	Increasing business diversification and global competitiveness	GRI 201 Economic Performance	**GS** Caltex internal	17-21
Environmental	8	Environmental waste reduction and recycling	GRI 306 Waste	**GS** Caltex internal / external	19, 23
Social	9	Improved access to products and services	GRI 416 Customer Health and Safety	**GS** Caltex internal / external	29
Social	10	Fair performance evaluation and compensation	GRI 401 Employment	**GS** Caltex internal	34-35
Social	11	Sound corporate culture	GRI 407 Freedom of Association and Collective Bargaining	**GS** Caltex internal	34-36
Social	12	Increased support for mutual growth with partners	GRI 414 Supplier Social Assessment	**GS** Caltex internal / external	32

Communications with Stakeholders

GS Caltex categorizes stakeholders into national & regional governments, local communities, customers, partners, employees, and shareholders & investors, and actively listens to their respective voices in conducting sustainability activities. Using a variety of communication channels for different stakeholders, the company regularly canvasses their views and incorporates them into sustainability management.

Stakeholder Communications	National & Regional Governments	Local Communities	Customers	Partners	Employees	Shareholders & Investors
Main Communication Channels	• Public hearings • Meetings • Seminars • Newsletter • Regional government websites	• Social contribution programs • Meetings • Briefings	• Customer Service Centers • Social media • Website	• Meetings • Purchasing portals • Surveys	• Company newsletter • Internal bulletin board • Surveys • Collective bargaining • Labor-management meeting • Labor-management task forces	• Business reports • Corporate disclosures
Key Topics	• Changes in government policy • Legal / tax compliance • Trends by industry • Trends by regional government	• Environmental protection • Contribution to local economy • Job creation • Social contribution	• Customer services • Customer safety • Personal privacy • Pricing • Marketing • Product quality • Networks • Response to future environment	• Occupational safety and health • Mutual growth • Changes in government policies • Fair trade	• Collective agreements and negotiations • Compensation • Talent development • Human rights protection • Occupational safety and health	• Disclosure of management information • Investments • Protection of shareholder interests

Global Standards & Initiatives

GRI Index			UNGC Advanced	SASB	IPIECA	Pages	Notes
General Standards							
Organizational Profile	102-1	Name of the organization				About This Report	
	102-2	Activities, brands, products, and services	2			5~6, Homepage	https://www.gscaltex.com/en/business
	102-3	Location of headquarters				About This Report	
	102-4	Location of operations				Homepage	https://www.gscaltex.com/en/company/network/Domestic
	102-5	Ownership and legal form				45-46, About This Report	
	102-6	Markets served				Homepage	https://www.gscaltex.com/en/company/network/overseas
	102-7	Scale of the organization				51, 55	
	102-8	Information on employees and other workers				55	
	102-9	Supply chain	2			58	
	102-10	Significant changes to the organization and its supply chain				Refer to the business report	p.34 Company added to consolidation accounting : Suzhou **GS** Caltex Trading Co., Ltd.
	102-11	Precautionary Principle or approach	1			49	
	102-12	External initiatives	15-18		GOV-4/CCE-6	12, 61, 71	
	102-13	Membership of associations	15-18			71	
Strategy	102-14	Statement from senior decision-maker	19-20			4	
Ethics and Integrity	102-16	Values, principles, standards, and norms of behavior			GOV-1	8, 10, 42	
	102-17	Mechanisms for advice and concerns about ethics	12-14		GOV-2	42-44	
Governance	102-18	Governance structure	2		GOV-1	11, 45-46	
	102-20	Whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental, and social topics	1			11, 46, 49	
Stakeholder Engagement	102-40	List of stakeholder groups				64	
	102-41	Collective bargaining agreements	3-5			-	In the event there is any revision to Article 17 of the Collective Agreement of Labor regarding Duty of Disclosure, such a revision shall be notified to all employees.
	102-42	Identifying and selecting stakeholders				63-64	
	102-43	Approach to stakeholder engagement				63-64	
	102-44	Key topics and concerns raised				63	

GRI Index			UNGC Advanced	SASB	IPIECA	Pages	Notes
Reporting Practice	102-45	Entities included in the consolidated financial statements				Refer to the business report	p.289-296
	102-46	Defining report content and topic Boundaries				63	
	102-47	List of material topics				63	
	102-48	Restatements of information				About This Report	
	102-49	Changes in reporting				63	Stated separately at the related content
	102-50	Reporting period				About This Report	
	102-51	Date of most recent report				About This Report	
	102-52	Reporting cycle				About This Report	
	102-53	Contact point for questions regarding the report				About This Report	
	102-54	Claims of reporting in accordance with the GRI Standards	21			About This Report	
	102-55	GRI content index				65-67	
	102-56	External assurance				69-70	
Management Approach	103-1	Explanation of the material topic and its Boundary				14, 26, 42	
	103-2	The management approach and its components				14, 26, 42	
	103-3	Evaluation of the management approach				14, 26, 42	
Topic-Specific Standards							
Economic (GRI 200)							
Economic Performance	201-1	Direct economic value generated and distributed			SOC-14	51, 55, 59	
Market Presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage			SOC-5	56	
Indirect Economic Impacts	203-1	Infrastructure investments and services supported			SOC-13	37-40	
Anti-corruption	205-2	Communication and training about anti-corruption policies and procedures	12-14		GOV-3/SOC-8	43-44, 60	
	205-3	Confirmed incidents of corruption and actions taken			GOV-3/SOC-8	60	
Anti-competitive Behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		EM-RM-520a.1		60, Refer to the business report	p.282-286
Environmental (GRI 300)							
Energy	302-1	Energy consumption within the organization			CCE-3/CCE-6	52	
	302-3	Energy intensity			CCE-6	52	
	302-4	Reduction of energy consumption			CCE-3	16	
Water and effluents	303-3	Water withdrawal			ENV-1	52	
Biodiversity	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas			ENV-3/ENV-4	54	
Emissions	305-1	Direct(Scope 1) GHG emissions		EM-RM-110a.1 EM-RM-110a.2	CCE-2/CCE-4	14-16, 52	
	305-2	Energy indirect(Scope 2) GHG emissions			CCE-2/CCE-4	14-16, 52	
	305-5	Reduction of GHG emissions			CCE-2/CCE-6	16	
	305-7	Nitrogen oxides(NOx), sulfur oxides(SOx), and other significant air emissions			CCE-5/CCE-7/ENV-5	52	
Waste	306-2	Management of significant waste-related impacts	9-11		ENV-2 /ENV-7/ENV-8	23	
	306-3	Waste generated	9-11	EM-RM-150a.1	ENV-7	54	
Environmental Compliance	307-1	Non-compliance with environmental laws and regulations	11	EM-RM-140a.2		53, Refer to the business report	p.282-286

GRI Index			UNGC Advanced	SASB	IPIECA	Pages	Notes
Social (GRI 400)							
Employment	401-1	New employee hires and employee turnover			SOC-4/SOC-6	55	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees			SOC-4	35-36	
Occupational Health and Safety	403-1	Occupational health and safety management system	6-8	EM-RM-320a.2	SHS-1	26, 57	
	403-2	Hazard identification, risk assessment, and incident investigation			SHS-1/SHS-6	26	
	403-3	Occupational health services			SHS-2	30-31	
	403-4	Health and safety topics covered in formal agreements with trade unions	6-8			26-28, 30-31	
	403-6	Promotion of worker health			SHS-2	30	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships			SHS-6	26-28, 30-31	
	403-8	Workers covered by an occupational health and safety management system			SHS-1	57	
	403-9	Work-related injuries		EM-RM-320a.1 EM-RM-540a.1	SHS-3/SHS-4/SHS-6	57	
	403-10	Work-related ill health			SHS-2	57	
Training and Education	404-2	Programs for upgrading employee skills and transition assistance programs			SOC-7	36	
	404-3	Percentage of employees receiving regular performance and career development reviews			SOC-5/SOC-7	34, 56	
Diversity and Equal Opportunity	405-1	Diversity of governance bodies and employees			SOC-5	55	
	405-2	Ratio of basic salary and remuneration of women to men			SOC-5	Refer to the business report	P.271-272
Non-Discrimination	406-1	Incidents of discrimination and corrective actions taken			SOC-1	-	No such case
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			SOC-6	34-36, 56	
Child Labor	408-1	Operations and suppliers at significant risk for incidents of child labor	3-5		SOC-1	-	No such case
Forced or Compulsory Labor	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	3-5		SOC-1	-	No such case
Rights of Indigenous Peoples	411-1	Incidents of violations involving rights of indigenous peoples			SOC-10/SOC-11	-	No such case
Human Rights Assessments	412-2	Employee training on human rights policies or procedures	3-5		SOC-1	33, 60	
Local Communities	413-1	Percentage of operations with implemented local community engagement, impact assessments, and/or development programs			SOC-9/SOC-12	37-40	
Supplier Social Assessment	414-2	Negative social impacts in the supply chain and actions taken			GOV-3/SOC-2/SOC-2	-	No such case
Customer Health and Safety	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services			SHS-5	-	No such case
Marketing and Labeling	417-2	Incidents of non-compliance concerning product and service information and labeling				-	No such case
	417-3	Total number of incidents of non-compliance with regulations and/or voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship				-	No such case
Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data			SHS-7	-	No such case
Socioeconomic Compliance	419-1	Significant fines and non-monetary sanctions for non-compliance with laws and/or regulations in the social and economic area				Refer to the business report	p.282-286

Key ESG Policies

SHE Management Policy

Business Conduct and Ethics Code

Human Rights Policy

Tax Policy

Code of Conduct for **GS** Caltex Partners

Stakeholder Policy

Please click on the icon for details.

Third Party Assurance Statement

To : The Stakeholders of GS Caltex Corporation

Introduction and objectives of work

BSI Group Korea (hereinafter "the Assurer") was asked to verify **GS** Caltex's '2021 Sustainability Report' (hereinafter 'the Report'). This assurance statement applies only to the relevant information contained in the scope of the assurance. **GS** Caltex is solely responsible for all information and assertion contained in the report. The responsibility of the assurer is to provide independent assurance statement with expert opinions to **GS** Caltex's executives by applying the verification methodology and to provide this information to all stakeholders of **GS** Caltex.

Assurance Standards and Levels

This assurance was based on the AA1000AS v3 (2020) Assurance Standard and confirmed that the report is prepared in accordance with the Core Option of GRI Standards. The assurance level was based on the Type 1 that confirmed compliance with the four principles of AA1000 AP (2018) in accordance with the AA1000 AS and the Type 2 assurance that verified the quality and reliability of the information disclosed in the report.
The Type 2 assurance was applied to the following disclosure of the GRI Specific Topic Standards related to material topics :

- GRI 300 (Environmental) : 302-1, 302-4, 303-3, 305-1~2, 305-7, 306-2~3, 307-1
- GRI 400 (Social) : 403-3~4, 403-6~10, 404-2, 404-3, 405-1~2

Scope of Assurance

The scope of assurance applied to this report is as follows;

- Based on the period from January 1st to December 31st, 2021 included in the report
- Appropriateness and consistency of processes and systems for data collection, analysis and review
- Major assertion included in the report such as sustainability management policies, strategies, objectives, business and performance
- Information related to material issues determined as a result of materiality assessment
- The following items were not included in this assurance
  - Financial information, UN SDGs Index included in the report appendix
  - Other related additional information such as the website presented in the report

Methodology

As part of its independent assurance, the assurer has used the methodology developed to collect relevant evidence to comply with the verification criteria and to reduce errors in the reporting, and has performed the following activities;

- To determine verification priorities, review of materiality issue analysis process and verification of the results;
- System review for sustainability strategy process and implementation;
- Review the evidence to support the material issues through interviews with senior managers with responsibility for them;
- Verification of data generation, collection and reporting for each performance index

Assurance Opinion

On the basis of our methodology and the activities described above, it is our opinion that

- The information and data included in **GS** Caltex`s Sustainability Report are accurate and reliable and the assurer cannot point out any substantial aspects of material with mistake or misstatement.
- The report was prepared according to the Core option of the GRI Standards

The assurance opinion on the four principles presented by the AA1000 AP (2018) is as follows.

AA1000 AP (2018)

Inclusivity : Stakeholder Engagement and Opinion

GS Caltex divided stakeholders into customers, shareholders/investors, suppliers, employees, local communities and government and has communication channels and processes to implement stakeholder engagement program. They have communication channels for each group and collect opinions. Also, 32 issues were derived by analyzing international standards/norms, analyzing media, and surveying to identify stakeholder issues, and it was confirmed that derived material issues are reflected in decision-making on sustainability management.

Materiality : Identification and reporting of material sustainability topics

GS Caltex identified materiality for issues by analyzing stakeholder interest and business impact on the 32 issues derived. As a result, the material issues of 4 topics and general reporting issues of 8 topics were selected.

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

GS Caltex strives to establish processes to monitor, measure, assess and manage the impact of organizational activities for more effective decision making and management. Identified impact should be integrated into stakeholder engagement and periodic importance assessment processes to inform organizational governance, strategy, goal setting and operations, thereby increasing informed decision making and responsiveness. In addition, the impact determined by each key issue from sustainability topics are disclosed in the report.

Responsiveness : Responding to material sustainability topics and related impacts

GS Caltex establishes and implements a response plan for each issue to appropriately respond to the derived core issues that reflects the expectations of stakeholders, and discloses detailed response activities and performance for them through the report

Key areas for ongoing development

To the extent that the results of the verification are not affected, the following comments were made.

- As the requirements of the relevant regulatory bodies, such as the Serious Disaster Penalty Act, establishing a health and safety management system(ISO 45001) to manage issues related to the chemical and oil refining industries can help manage social and health issues.
- **GS** Caltex has expanded and reorganized the CSR committee under the CEO to ESG committee, and is making decisions related to environmental and governance issues related sustainability issues. It may be helpful disclosure of the ESG Committee's operational performance and plans upgrade the sustainable management.
- We recommend further development of sustainability governance by setting up clear responsibility within the processes for evaluating the governance body's own ESG performance.

Statement of independence and competence

The assurer is an independent professional services company that specializes in Quality, Health, Safety, Social and Environmental management with almost 120 years history in providing independent assurance services. No member of the assurance team has a business relationship with **GS** Caltex.

We have conducted this verification independently, and there has been no conflict of interest. All assurers who participated in the assurance have qualifications as AA1000AS assurer, have a lot of assurance experience, and understand the BSI Group's assurance standard methodology.

Evaluation against GRI 'In Accordance' Criteria

The assurer confirmed that this report was prepared in accordance with the GRI Standards Core Option and the disclosures related to the following Universal Standards and Topic-specific Standards Indicators based on the data provided by **GS** Caltex.

[Universal Standards]

Organizational Profile 102-1~13, Strategy 102-14, Ethics and Integrity 102-16~17, Governance 102-18, 102-20 Stakeholder Engagement 102-40~44, Reporting practice 102-45~56, Management Approach 103-1~3

[Topic-specific Standards]

- Economic : 201-1, 202-1, 203-1, 205-2~3, 206-1
- Environmental : 302-1, 302-3~4, 304-1, 305-1~2, 305-5, 305-7, 306-2~3, 307-1
- Social : 401-1~2, 403-1~4, 403-6~10, 404-2~3, 405-1~2, 406-1, 407-1, 408-1, 409-1, 411-1, 412-2, 413-1, 414-2, 416-2, 417-2~3, 418-1, 419-1

11 July 2022

S. H. Lim / BSI Group Korea, Managing Director

AA1000
Licensed Report
000-47/V3-3H9WF

GHG Assurance Statement

Introduction

Korean Foundation for Quality (hereinafter 'KFQ') has been engaged by 『GS Caltex Corporation』 to independently verify its 2021 Greenhouse Gas Emissions and Energy consumption Report (hereinafter 'GHG Inventory').

■ Verification Scope & Standard

KFQ's verification was conducted domestic business sites under operational control of 『GS Caltex Corporation』. 'Guidelines on the Reporting and Certification of Emissions of Greenhouse Gas Emission Trading Systems (Notification No. 2021-278 of Ministry of Environment & IPCC Guidelines 2006)' were mainly applied in verification process but also the Company Guidelines for GHG Inventory was considered.

■ Verification Procedure

The verification was planned and carried out in accordance with the procedures stipulated in the verification guidelines for the operation of the greenhouse gas emission trading system (Notification No. 2021-112), and the verification guarantee level was carried out to meet the reasonable guarantee level.

■ Limitations of verification

Accuracy and completeness of emission data reported in the 'GHG Inventory' are subject to inherent limitations due to their nature and the methodology used in determining, calculating and estimating such data.

■ Conclusion/Opinion

Through verification procedures such as ISO 14064-1, ISO 14064-3, the following conclusions are presented on greenhouse gas emissions data.

1. The Inventory Report has been stated in accordance with 'Rule for emission reporting and certification of greenhouse gas emission trading Scheme'
2. The result of Material discrepancy satisfied the criteria for an organization that emits more than 5,000,000 tCO_2-eq shall not exceed 2% from total emissions as per "Greenhouse Gas and Energy Target Management Scheme"
3. Thus, KFQ conclude that the Greenhouse Gas Emissions of the Company in 2021 is correctly calculated and stated in accordance with 'Rules for verification of operating the greenhouse gas emission trading scheme'.

2021 Greenhouse Gas emissions and Enery consumption of 『GS Caltex Corporation』Year

Year	GHG emissions (tCO_2-eq)			Energy consumption (TJ)			
	Scope 1	Scope 2	Total	Fuel	Electricity	Steam	Total
2021	6,545,251	1,897,581	8,442,821	77,537	27,750	10,757	116,029

※ The above GHG emissions and Enery Consumption are cut in units of integer for each business site, and a difference of less than ±1 tCO2eq (or TJ) from the actual value of the system may occur.

June 7th, 2022

Ji Young Song

CEO Ji-Young Song
Korean Foundation for Quality (KFQ)

External Sustainability Activities

Membership in Major Associations and Organizations

Federation of Korean Industries	Institute for Global Economics	International Air Transport Association (IATA)	Korea Business Council for Sustainable Development (KBCSD)
Korea Economic Research Institute	Korea Enterprises Federation	Korea Fair Competition Federation	Korea Institute of Hazardous Materials
Korea-Japan Economic Association	Korea LPG Industry Association	Korea Lubricating Oil Industry Association	Korea Management Association (KMA)
Korea Oil Association	Korea Oil Station Association	Korea Petroleum Association	Korea Petrochemical Industry Association
National Academy of Engineering of Korea	Seoul Chamber of Commerce and Industry	UN Global Compact	World Economic Forum
Yeosu Chamber of Commerce and Industry	Yeosu Industrial Complex Environment Council	Yeosu Industrial Complex Integrated Protection Council	Yeosu Industrial Complex Plant Manager Council

Major Donee Organizations

Bright Youth	Catholic Archdiocese of Seoul Office	Community Chest of Korea	Community Chest of Korea, Gyeonggi-do Branch
Community Chest of Korea, Jeollanam-do Branch	Creativity Engineering Institute	Good Neighbors	GS Caltex Foundation
Hope Bridge Korea Disaster Relief Association	Korea-America Association	Korea Education Volunteer Group (Seed School)	Korea Forum for Progress
Korea Foundation for Support of the Senior Citizen in Need	Korea Green Foundation	Korea Mecenat Association	Pearl S. Buck Foundation Korea
School Violence Victims Family Association	Seorak High School	The Korea Society	The Korean Institute of Chemical Engineers
Work Togerther Foundation	Yeodo Educational Institute	Yeonam Middle School	7th Maneuver Corps

ABOUT THIS REPORT

This **GS** Caltex Sustainability Report for 2021 aims to provide transparent disclosure of its main achievements in environmental, social and governance sectors in accordance with global guidelines. As part of the process, materiality assessment was conducted based on the benchmarking of leading companies in domestic and overseas oil & gas and chemicals industries as well as the feedback of internal / external stakeholders. This is the seventeenth annual report since the publication of the first sustainability report in 2006.

Period

This report covers the period from 1st January 2021 to 31st December 2021. For major quantitative results, data over the past three years (2019~2021) is also shared to enable comparative analyses. Newly disclosed quantitative and qualitative results are indicated as such. For some significant activities or results, information related to the first half of 2022 is also included in light of its current relevance.

Scope

The scope of this report encompasses the **GS** Caltex head office, Yeosu Complex, and other main domestic worksites. Some data covers the lubricant plant, distribution centers, gas stations, charging stations, as well as both domestic and overseas branches and subsidiaries. Any instances that fall outside the scope or any changes to the data are indicated as such in the report.

Standards

This report was prepared in accordance with the Core Option of the GRI (Global Reporting Initiative) Standards and reflects an effort to incorporate diverse feedback through stakeholder engagement as per AA1000SES (stakeholder engagement standard). To ensure relevance to industry characteristics, the issues covered in this report were selected with reference to Oil & Gas Sector Disclosure (2018) and SASB (Sustainability Accounting Standards Board) industry standards. There are no significant changes in the scope, boundaries or methodology compared to the previous report. In instances where the method of data collection had changed, the data was updated to the 2021 basis and annotated in the report.

Assurance

This report was reviewed by BSI (British Standards Institution), a third party assurance provider, to ensure the objectivity and accuracy of the content and data. In relation to specific sustainability performance indicators such as water consumption, the amount of waste generated, and air pollutant emissions (GHG, VOC), a Type 2 assessment was also conducted. The assurance statements can be found in the Appendix to the report.

Company	**GS** Caltex Corporation
Address	**GS** Tower, 508 Nonhyeon-ro, Gangnam-gu, Seoul, Korea
Issue date	July 2022
Issued by	**GS** Caltex CSR Team
Contact	02-2005-1618 / comezero@gscaltex.com

GS Caltex