



*รังสรรค์โลกน่าอยู่ด้วยนวัตกรรมสีเขียว*  
**Crafting a Sustainable World**  
*with Evolving Greenovation*

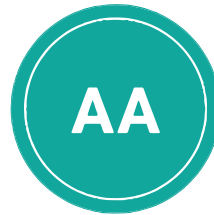
Integrated Sustainability Report 2022  
Bangchak Corporation Public Company Limited



**Sustainability Award**  
Silver Class 2022

**S&P Global**

**MSCI**  
ESG RATINGS



CCC	B	BB	BBB	A	<b>AA</b>	AAA
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Vision



บริษัทโลกแห่งนวัตกรรมสีเขียว  
**Crafting a Sustainable World**  
with Evolving Greenovation

Mission

We commit to accelerate sustainable energy transition, while balancing energy security.  
We are energizing lives through greenovative solution and promoting ESG for all.

Core Values



Corporate Culture

Sustainable Innovative Business Development in Harmony with the Environment and Society

Employee Culture

To be virtuous, knowledgeable, and contributive to others

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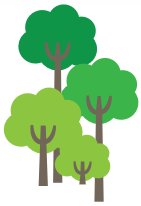




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Assurance Statement

## About this Report

### Report Content

Bangchak Corporation Public Company Limited has prepared an Integrated Sustainability Report to disclose the Company's annual sustainability performance for the 17th year with a reporting period from January 1 to December 31, 2022 (Disclosure 2-3). This report has been prepared in accordance with the GRI Sustainability Reporting Standards (GRI Standards) covering GRI1 (Foundation 2021), GRI2 (General disclosures 2021), GRI3 (Material topics 2021) and GRI11 (Oil and Gas sector 2021) and the United Nations Global Compact (Advance Level) In addition, the company has integrated the Sustainable Development Goals (SDGs) into the strategy and operations of the organization. In order to demonstrate the company's resolve to respond to the company's sustainable development goals, focus on and respond to the demands and expectations of various stakeholder groups.

### Report Boundary (Disclosure 2-2, 3-1, 3-3)

This report discloses 2022 sustainability performance data of businesses under Bangchak Corporation Public Company Limited (BCP) operating in Thailand, covering 3 areas: 1) refinery scope, 2) marketing business scope, which consists of Bangchak Green Net Company Limited (BGN), which operates gas stations, and Retail Company Limited (BCR), which operates coffee shops, and 3) office building scope, consisting of M Tower, Northern Business Center., Northeast Business Center and Southern Business Center The operational statistics for each reference area are reported according to the table (Disclosure 3-2).

Data in the report consists of data on energy consumption and greenhouse gas emissions of the organization in relation to the operation of Scope 1, Scope 2 and Scope 3 greenhouse gas emissions. The operation covers all major areas as stated above, including data on greenhouse gas emission reductions from the refinery, which is the main and significant operating area. (Disclosure 3-2), for water withdrawal, water discharge and water consumption data are performance reports covering office areas and refineries in Sukhumvit Soi 64. This includes the head office (M Tower) (Disclosure 3-2), for air pollution management performance information., significant oil and chemical spill data are specific to refinery-specific performance in Sukhumvit Soi 64 only. In the Waste Management Information section, in addition to reporting on the refinery's performance in Sukhumvit Soi 64. This year, waste management data reporting has also been increased within the scope of the Company's head office building as it is the main and significant area of operation.

Occupational Safety and Health: The Company reports occupational safety and health information covering office and refinery area in Sukhumvit Soi 64 and M Tower head office area

only. In 2022, there were no significant changes related to the organization and supply chain (Disclosure 2-6).

In terms of human rights, the Company has reported the proportion of employee remuneration (female : male) of Bangchak Public Company Limited employees (Disclosure 405-2).

### Report Assurance

This report is reviewed by executives of each business unit and functions (Disclosure 2-14) to ensure the completeness, accuracy and cover stakeholders' expectations. In addition, the report is subjected to an independence third party, who has a professional experience and provides confidence to our business performances in oil and gas industry, leading to gain reliability and transparency in accordance with the GRI Standards. In 2022, company expanded the verification scope of energy performance and GHG emission scope 1 and scope 2 and GHG emission intensity according to GRI 302-1(2016) indicators, GRI 305-1(2016), GRI 305-2(2016) and GRI 305-4(2016) with the reasonable level of assurance. Regarding Scope 3 GHG emissions, GHG emissions reduction, air emissions, incineration and hydrocarbon emissions, water withdrawal, water discharge, water consumption, waste generated, waste diverted from disposal, waste direct to disposal, spill, work-related injuries, work-related ill health, as well as the ratio of employee remuneration (female: male) according to GRI 305-3(2016), GRI 305-5(2016), GRI 305-7(2016), OG6, OGSS, GRI 303-3(2018), GRI 303-4(2018), GRI 303-5(2018), GRI 306-3 (2020), GRI 306-4(2020), GRI 306-5(2020). GRI 306-3(2016), GRI 403-9(2018), GRI 403-10(2018) and GRI 405-2(2016) maintain a limited level of assurance as detailed in page 216 (Disclosure 3-2)

### Contact Information (Disclosure 2-3)

For more information or suggestions, please contact:

- **Sustainability Development and Standard Department**  
Bangchak Corporation Public Company Limited  
E-mail: nintira@bangchak.co.th Tel: 0 2335 4383

Companies within report boundary (Disclosure 2-2, 3-1)

No.	Company	% Equity	Production	Energy	GHG Emissions	GHG Reduction	Water Use	Waste Water	Air Emissions	Waste	OHS
<b>Refinery and Trading Business</b>											
1	Bangchak Corporation Plc.	100	/	/	/	/	/	/	/	/	/
2	BCP Trading Pte. Ltd.	100									
3	Bangkok Fuel Pipeline and Logistics Co., Ltd.	100									
4	General Energy Manning Co., Ltd.	49									
5	Fuel Pipeline Transportation Co., Ltd.	4.78	NR	NR	NR	NR	NR	NR	NR	NR	NR
6	BSGF Co., Ltd.	51									
<b>Marketing Business</b>											
1	Bangchak Retail Co., Ltd.	100	NR	/	/		NR	NR	NR	NR	NR
2	Bangchak Green Net Co., Ltd.	49	NR	/	/		NR	NR	NR	NR	NR
3	Oam Suk Social Enterprise Co., Ltd.	50.40	NR	NR	NR		NR	NR	NR	NR	NR
4	Bangkok Aviation Fuel Services Plc.	2.35	NR	NR	NR	NR	NR	NR	NR	NR	NR
<b>Power Plant Business</b>											
1	BCPG Plc.	57.19					NR	NR	NR	NR	NR
2	Bangchak Solar Energy Co., Ltd.	100									
3	Bangchak Solar Energy (Chaiyaphum 1) Co., Ltd.	100									
4	Bangchak Solar Energy (Nakhonratchasima) Co., Ltd.	100									
5	Bangchak Solar Energy (Buriram 1) Co., Ltd.	100									
6	Bangchak Solar Energy (Buriram) Co., Ltd.	100									
7	• Huang Ming Japan Co., Ltd.	100									
8	Bangchak Solar Energy (Prachinburi) Co., Ltd.	100									
9	• BSE Energy Holdings Pte. Ltd.	100									
10	– BCPG Japan Corporation Ltd.	100									
11	• BCPG Engineering Co., Ltd.	100									
12	BCPG Wind (Ligor) Co., Ltd.	100									
13	BCPG Investment Holding Pte. Ltd.	100									
14	• Greenergy Holdings Pte. Ltd.	100									
15	• Greenergy Power Pte. Ltd.	100									
16	• BCPG Wind Cooperatief U.A.	100									
17	– Petro Wind Energy Inc.	40									
18	• BCPG Formosa Co., Ltd.	100									
19	– BCPG Formosa 1	100									
20	– BCPG Formosa 2	100									
21	– JieYang	100									
22	– Ying-chen	100									
23	Energy Response Co., Ltd.	3.63									
24	Pathumwan Smart District Cooling Co., Ltd.	44									
25	Thai Digital Energy Development Co., Ltd.	75									
26	BCPG Indochina Co., Ltd.	100									
27	• Nam Tai Power Sole Co., Ltd.	25									
28	• Nam Sam 3A Sole Co., Ltd.	100									
29	• Nam Sam 3B Sole Co., Ltd.	100									
30	• Indochina Development and Operation Holding Pte. Ltd.	100									
31	– Impact Energy Asia Development Limited	45									
32	• Monsoon Wind Power Co., Ltd.	84.99									
33	BSE Power Holdings (Thailand) Co., Ltd.	99.99									
34	• BSE Power (Kanjanaburi) Co., Ltd.	99.99									
35	• BSE Power (Kanjanaburi 1) Co., Ltd.	99.99									
36	• BSE Power Co., Ltd.	99.99									
37	– BSE Power (Lopburi) Co., Ltd.	99.99									
38	– BSE Power (Prachinburi) Co., Ltd.	99.99									
<b>Bio-Based Product Business N/R</b>											
1	BBGI Plc.	44.995									
2	BBGI Bioethanol Plc.	100									
3	BBGI Utility and Power Co., Ltd.	100									
4	WIN Ingredients Co., Ltd.	51									
5	BBGI Bioethanol (Chachoengsao) Co., Ltd.	85									
6	BBGI Biodiesel Co., Ltd.	70									
7	Biom Co., Ltd.	20									
8	Manua Bio Inc.	5.6									
9	Ubon Bio Ethanol Plc.	12.39									
10	• Ubon Bio Agricultural Energy Co., Ltd.	100									
11	• Ubon Biogas Co., Ltd.	100									
12	• Ubon Sunflower Co., Ltd.	100									
<b>Natural Resource Business and Business Development</b>											
1	BCPR Co., Ltd.	100									
2	• BCPR Pte. Ltd.	100									
3	– OKEA ASA	45.46									
4	BCP Innovation Pte. Ltd.	100					NR	NR	NR	NR	NR
5	• Bonumose LLC.	5.45									
6	• Enevate Corporation	0.9									
7	• Geltor, Inc.	0.97									
8	• Manus Bio Inc.	0.83									
9	• Transitus Energy	40									
10	• Ion Storage System	2.2									
11	BCV Energy Co., Ltd.	100	NR	NR	NR	NR	NR	NR	NR	NR	NR
12	• Sharge Management Co., Ltd.	2.22									
13	BCV Innovation Co., Ltd.	100					NR	NR	NR	NR	NR
14	• WINNIE Co., Ltd.	55.49									
15	BTSG Co., Ltd.	51					NR	NR	NR	NR	NR
16	Thai Special Gas Co., Ltd.	5					NR	NR	NR	NR	NR
17	Data Café Co., Ltd.	35					NR	NR	NR	NR	NR
18	Mee Tee Mee Ngern Co., Ltd.	20					NR	NR	NR	NR	NR

Companies that disclose sustainability performance in the Integrated Sustainability Report 2022 according to GRI Standards indicators, which are companies in which Bangchak Corporation Public Company Limited holds 42% or more shares and operate in Thailand and have significant environmental and safety information (Disclosure 3-3).

It is an office building. No need to collect environmental and safety data

• Non Relevance (NR) The data is not significant to Bangchak's business operations and does not affect Bangchak's overall outlook.

/ Data is published in the report.

Font color Displays the status of the company.

Blue subsidiary is holding 42% of ≥ shares.

Green Associated Company is holding 20% – 42% shares.

Orange Other companies

# Message from Group Chief Executive Officer and President, Bangchak Corporation Public Company Limited

Countries around the world are striving to accelerate the recovery of their economies and businesses from the COVID-19 situation, which is starting to ease. However, the ongoing tensions between Russia and Ukraine have led to disruptions in the supply chain, causing an escalation of energy prices and consumer goods. High inflation rates in several countries have become a major topic of discussion on the global stage, such as at the World Economic Forum in Davos, Switzerland, who plays a significant role in shaping global economic, environmental, and social policies. The ongoing Russia-Ukraine conflict is a crucial risk factor that could impact the energy crisis, particularly in relation to petroleum.

While the world emphasizes the importance of investing in clean energy, which is experiencing rapid growth, the transition in the energy sector does take time. Moreover, there are crucial risk factors such as the energy crisis which is likely to cause energy shortages in some countries. Therefore, Bangchak Group continues to emphasize our stance on conducting business that focuses on balancing the Energy Trilemma, which consists of three aspects: energy security, energy affordability, and environmental sustainability. We strive to enhance the country's energy security at an affordable cost for the public while ensuring the sustainability of resources and the environment. We also aim to achieve a balance between utilizing energy from the globe and mitigating carbon dioxide emissions to sustainably preserve the environment and care for our planet.

For Bangchak, as a leader in the energy transition, we have adapted ourselves to the situation by focusing on reducing risks to businesses while simultaneously seeking opportunities to expand into new ventures. These include businesses in the power business, bio-based business, natural resources businesses, and new businesses beyond the core businesses of refinery and oil trading, and marketing. A journey to new horizons amidst the challenges of the current global situation, this has led to the introduction of the "New Leaf" corporate identity, symbolizing an endless drive towards energy innovation and a sustainable future. It aligns with the vision of "Crafting a Sustainable World with Evolving Greenovation," with the mission of "We commit to accelerate sustainable energy transition, while balancing energy security. We are energizing lives through greenovative solution and promoting ESG for all."

Bangchak Group's organizational strategies for growth and business expansion are based on the 4S Business Strategy (Security, Synergy, Sustainability, Scalability) combined with

the 4G Sustainability Strategy (Green Business, Green Production, Your Greenovative Destination, Green Society). We operate our businesses with a focus on creating a balance between value and virtue that covers the ESG (Environmental, Social, and Governance) aspects. The Group aims to become a sustainable organization beyond 100 years under the "Bangchak 100x" target and demonstrate our commitment to addressing climate issues by driving the green economy and working towards a low-carbon society. BCP 316 NET plan has been initiated, covering four directions, to achieve our target of being carbon-neutral by 2030 and achieving net-zero greenhouse gas emissions by 2050. The plan emphasizes tangible processes and long-term outcomes, focusing on the following:

**Breakthrough Performance** (30%) promoting energy efficiency and reducing carbon emissions while being environmentally friendly. The Group has implemented high-efficiency production processes and utilized technology and fuels that help minimize carbon emissions, installing solar cells at service stations. Inthanin, a leading brand in sustainable coffee, uses biodegradable plastic cups, Bio Cups, which are made from 100% naturally degradable.

**Conserving Nature and Society** (10%) creating a balanced ecosystem linked to a low-carbon society through nature-based carbon sequestration. We develop programs and activities that enhance carbon sequestration from the environment, including the Green Carbon project that involves reforestation with the Department of Forestry, the Blue Carbon project that focuses on coastal ecosystems with the Department of Marine and Coastal Resources, as well as initiatives supporting the Faculty of Fisheries, Kasetsart University, in studying the potential use of seagrass beds to capture greenhouse gases in the coral reef in Koh Mak and Koh Kradad, Trat Province. Additionally, efforts are made to

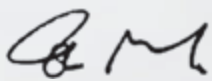


enhance the capacity of personnel in carbon credit assessment.

**Proactive Business Growth and Transition** (60%) focusing on business transformation towards clean energy and aims for Net Zero GHG target through innovative technologies to achieve sustainable growth, increasing income share from green businesses, and focusing on new investments to reduce greenhouse gas emissions, covering such low-carbon business technologies as sustainable aviation fuel (SAF) or carbon capture, utilization and storage (CCUS), etc.

**NET Zero Ecosystem** establishing an environmental system to support the Net Zero GHG target through various initiatives. These include providing and distributing low-carbon alternative fuels, developing a platform for electric motorcycle rental called “Winnonie,” establishing the Carbon Markets Club to raise public awareness of global warming and promote carbon credit trading, participating in the Syn Bio Consortium, and launching campaigns like “Bangchak100x Climate Action: Everyone Can Help.” Furthermore, Bangchak engages in waste reduction campaigns with customers and consumers, such as “Seedling Cups,” “Rak Pan Suk,” and “Mobile Orphan Waste.” These initiatives aim to reduce waste at the source and provide knowledge and communication to stakeholders to foster a sustainable supply chain and ensure no one is left behind.

On behalf of Bangchak Group, I would like to express my heartfelt gratitude to all our shareholders and stakeholders for your trust, confidence, and continuous support. We remain committed to driving significant growth and leading the energy transition journey to meet the expectations of our stakeholders. Our unwavering dedication is aimed at creating a balanced approach that addresses the expectations of our shareholders by fostering sustainable business growth, ensuring energy security, promoting energy accessibility, and contributing to the well-being of both Thai society and the global community. We will never cease in our efforts to create long-lasting value for future generations.



**(Mr. Chaiwat Kovavisarach)**

Group Chief Executive Officer and President,  
Bangchak Corporation Public Company Limited



## Bangchak Overview



### Company Name (Disclosure 2-1)

Bangchak Corporation Public Company Limited

### Stock Market Name : BCP

Bangchak Corporation Public Company Limited is in the petroleum and renewable energy business. The five core businesses include refinery and oil trading business, marketing business, bio-based products business, power plant business, natural resources business and business development. The Company invests in the core businesses domestically and internationally with the aim to create energy stability for the nation, to drive business with innovation, and to ensure business continuity and sustainability for both the organization and Thai society. (Disclosure 2-6)

### Date of establishment : 8 November 1984

**Headquarters** (Disclosure 2-1) : No. 2098 M Tower, 8th Floor, Sukhumvit Road, Phra Khanong Tai, Phra Khanong, Bangkok 10260, Thailand

**Chief Executive Officer** : Mr. Chaiwat Kovavisarach  
Group Chief Executive Officer and President

**Paid-Up registered capital** : 1,376,923,157 baht

**Number of permanent employees** (Disclosure 2-7) :  
1,098 employees (as of December 31, 2022)

**Business type** : Oil & Gas Refining & Marketing

**Membership of association** (Disclosure 2-28) :



Global Compact  
Network Thailand





### Bangchak operates



**Refinery and Oil Trading Business Group**  
 (Capacity of 120,000 barrels per day)



**Marketing Business Group**  
 (1,343 service stations)



**Power Plant Business Group**



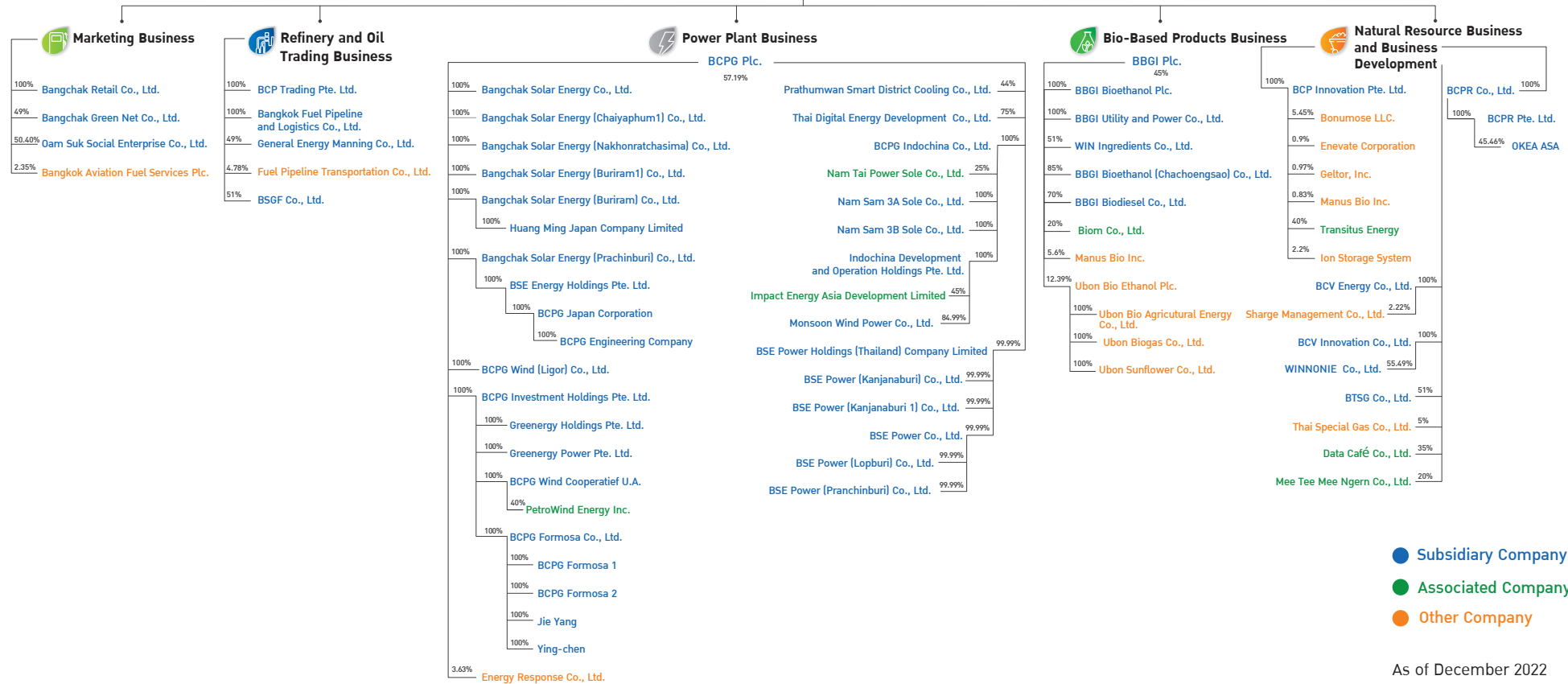
**Bio Based Products Business Group**



**Natural Resource Business and Business Development Group**

Bangchak operates its refinery and oil trading business, marketing business, bio-based products business, power plant business, natural resources business and business development around 13 countries, which are Thailand, Cambodia, Laos, Vietnam, Singapore, Philippines, Japan, Taiwan, Hong Kong, Netherland, Australia, Norway and the United State of America (Disclosure 2-1)

# Shareholding Structure (Disclosure 2-1)

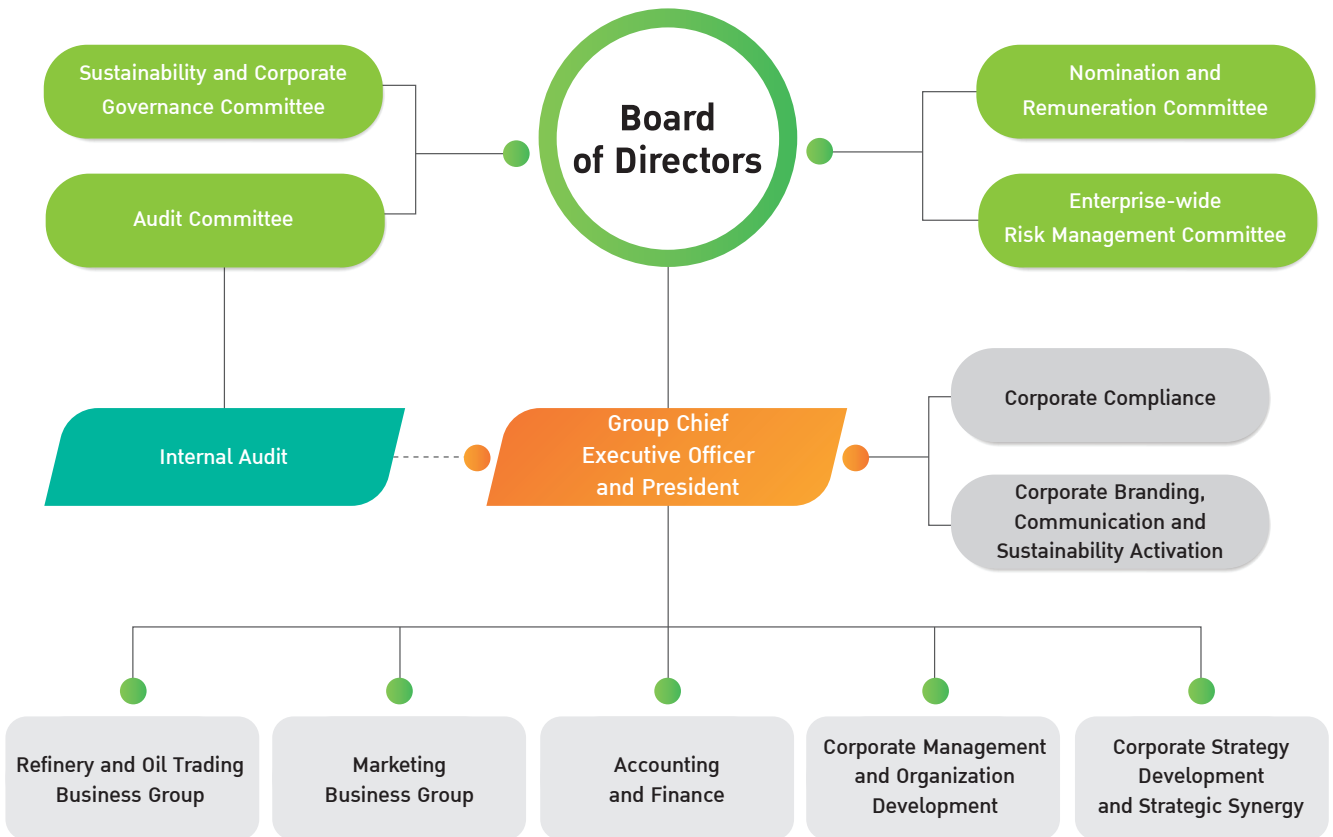


- Subsidiary Company
- Associated Company
- Other Company

As of December 2022

## Management Structure (Disclosure 2-9, 2-11, 2-13)

Refer to Form 56-1 One Report under topic “Corporate Governance Structure and Key Information about the Board, Sub-committees, Management, Employees, and Others”



- Remark :
- The Audit Committee considers, appoints, transfers, dismisses, and undertakes annual evaluation of the Chief Audit Executive and review the independence of Internal Audit.
  - On August 18, 2022, President and Group Chief Executive Officer change the position name to Group Chief Executive Officer and President

## Bangchak Business Value Chain (Disclosure 2-6)

### Natural Resources Business

The Company divides its natural resource businesses into 2 areas: **First is the petroleum exploration and production businesses** through BCPR Pte. Ltd. in Singapore; it has invested in OKEA ASA, which holds rights to the Draugen, Gjøa, Ivar Aasen, Brage and Nova oil fields, and holds rights or is developing various oil and natural gas concession fields in Norway. Furthermore, being an operator for many fields, OKEA ASA continues to seek opportunities to grow its business through continuous M&A. **Next is natural resources and business development businesses** through BCP Innovation, Pte., Ltd. in Singapore. Carrying out business and investing in lithium-related businesses under the lithium purchase agreement with Lithium Americas Corp., BCPI currently has the right to purchase up to 6,000 tons per year of lithium from the Cauchari-Olaroz project and has invested in many startups.

### Marketing Businesses

Bangchak distributes refined products directly through 1,343 Bangchak's service stations networks across the country, consisting of 724 standard service stations and 619 community service stations (as of December 31, 2022), with focus on the sale of high-performance and environment-friendly renewable fuels in both gasoline and diesel groups. In addition to, Bangchak has developed EV chargers at service stations joining with business partners along main routes to support electric vehicles (EV) users by a total of 179 branches (as of December 31, 2022).

Furthermore, the company also expanded business through non-oil businesses and various services at service stations to attract more service station customers, such as convenience stores, coffee shops, and maintenance centers for lubricant replacement and car wash services. In 2022, the company has over 1,002 Inthanin coffee shops located in service stations and outside.



### Refinery and Oil Trading Business

Bangchak refinery is a modern complex refinery with a daily capacity of 120,000 barrels. Refinery yields are mostly premium products in the gasoline and diesel groups and are of the government-required Euro 4 standard. The refinery also produces oils that are used for other purposes other than fuel, such as White Spirit 3040 (solvent), Unconverted Oil (UO, a precursor of lube base oil), liquified petroleum gas (paint conductors in spray paint). Bangchak was the first in Asia to produce Gasohol E20 S EVO and Hi Premium Diesel S with Euro 5 standards, an environment-friendly fuel with less than 10 ppm (parts per million) of sulfur content, down by five times from Euro 4 specifications.

Bangchak will strive further to raise process energy efficiency by using electricity and steam from its own cogeneration power plant, where environment-friendly natural gas is used in place of fuel oil. The FAST + project was launched to further raise refinery process to maximum capacity for maximum benefits. In addition, the company is continuously developing the international oil trading business through BCP Trading Pte. Ltd. (BCPT) with emphasis on expanding out-out trading (procuring and trading oil with companies other than Bangchak) for key products such as crude, gasoline, diesel, fuel oil and naphtha products, of which new business partners have been reached in new countries including Republic of Gabon, Qatar, and the UAE. Moreover, BCPT has proactively procured crude oil directly from national oil companies, increasing cooperative development with low-sulfur fuel oil partners, and finding new income opportunities in the biofuels market. Cordial relationships with partners and favorable market conditions have raised trading volumes for BCPT.

## Power Plant Business

The company invests in green power businesses through the operation of BCPG Public Company Limited (BCPG), which was particularly established for production and distribution of electricity generated from renewable energy and new forms of clean energy in Thailand and abroad. As of December 31, 2022, BCPG generated a total of 390.5 megawatts of electricity, comprising solar power generation in Thailand and Japan, wind power generation in Nakhon Si Thammarat Province, Thailand and in Philippines and hydro power generation in Laos. Additionally, it has invested in the convertible bonds of VRB Energy which operates the business of manufacturing and distributing utility-scale energy storage system using Vanadium Redox Flow technology in the amount of USD 24 million and signed a 25-year power purchase agreement with Vietnam Electricity for the purchase of electricity under contractual capacity of 600 megawatts at the Lao PDR-Vietnam border.



## Bio-based Products Business

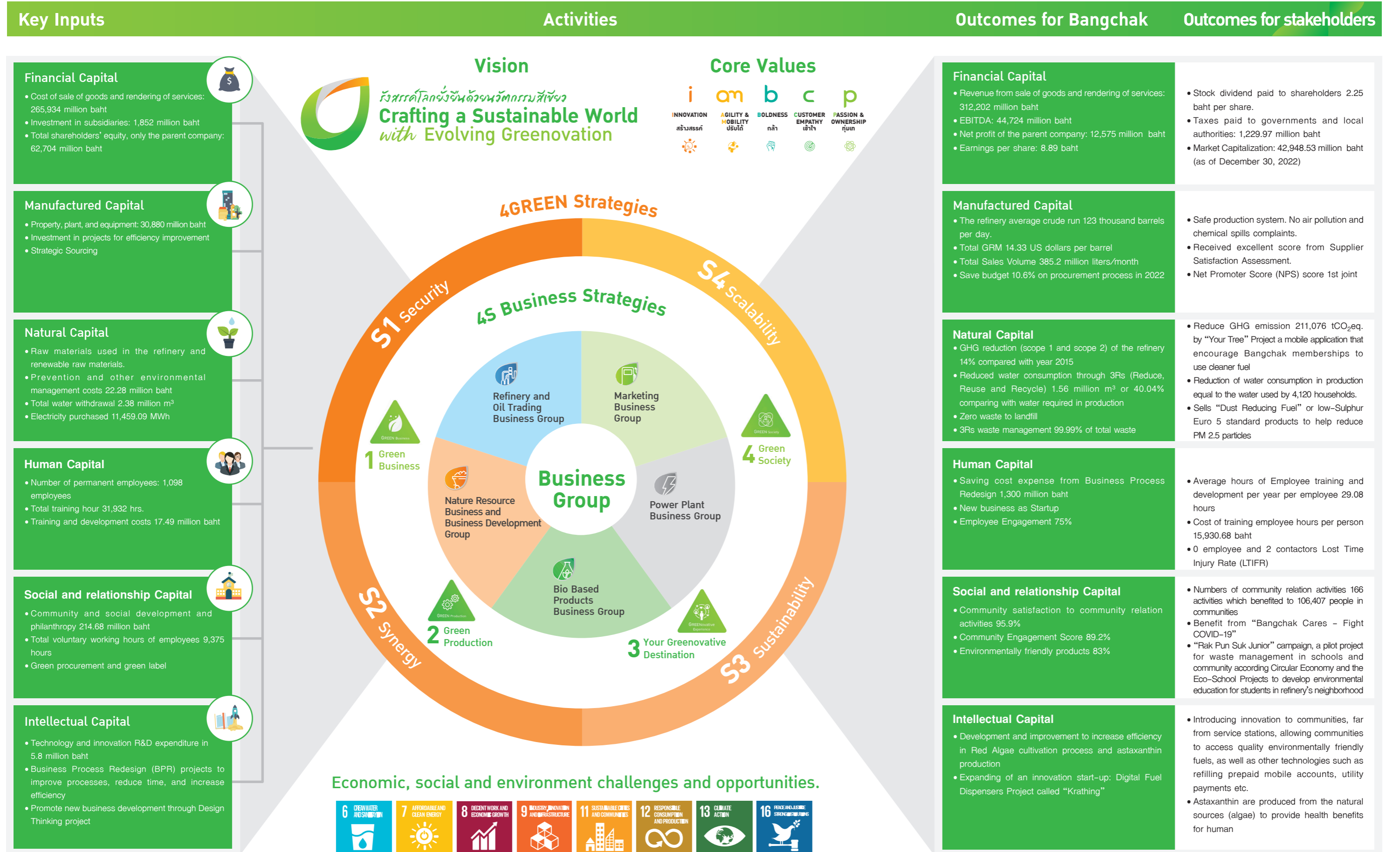
The company operates bio-based products through BBGI Public Company Limited (BBGI), the largest biofuel producer and distributor in Thailand. BBGI's subsidiaries and associates have a total production capacity of 1,600,000 liters per day, divided into 600,000 liters of ethanol per day and 1,000,000 liters of biodiesel per day, with the goal of reducing the trade deficit from oil imports, contribute to national energy security, support farmers, and preserve the environment. Accordingly, the company has promoted the blending of ethanol and biodiesel with gasoline and biodiesel to produce Gasohol 91 and 95, Gasohol E20 and E85 and Hi Diesel products. As for other high-value bio-based products, the company operates a business of manufacturing, distributing, importing and exporting bio-based products and experimental research and development in biotechnology using synthetic biology technology (synthetic biology).

In 2022, the company established BSGF Co., Ltd. (BSGF), a joint venture with BBGI and Thanachok Oil Light Co., Ltd. to operate the business of sourcing raw materials, producing and distributing sustainable aviation fuel (SAF) from used cooking oil.

## Research, Development and Business Innovation

The company has established the Bangchak Initiative and Innovation Center (BiIC) with the objective to create a green ecosystem for driving innovations with a focus on green energy and bio-based areas to expand business both domestically and internationally derived from Research and Development, Corporate Venture Capital while engaging in Business Ecosystem and Incubation with the aim to become Asia's leading green innovation company.

# Business Model





# Bangchak at a Glance in 2022

## Economic Growth

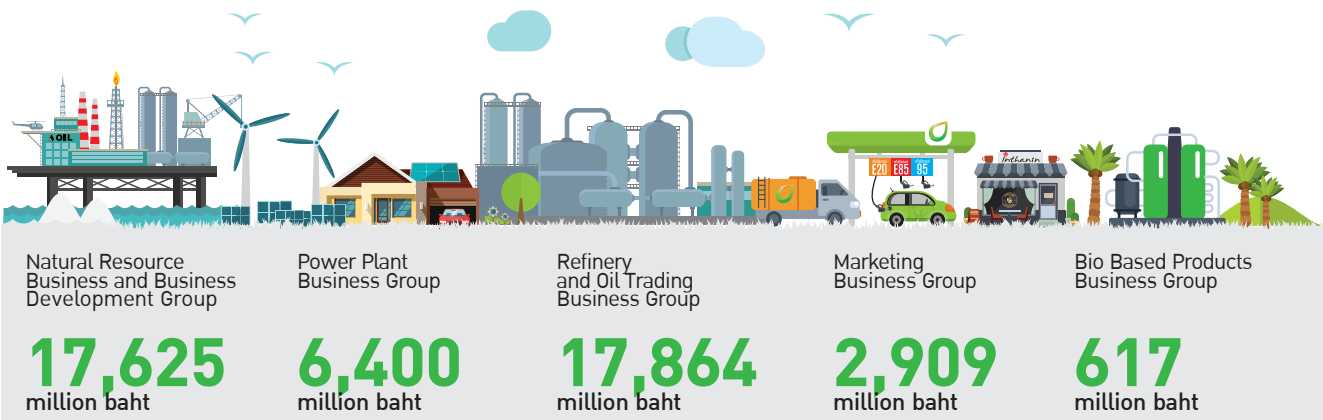
Revenue from sale of goods and rendering of services **312,202** million baht

Stock dividend paid to shareholders **2.25** baht per share

Net profit of the parent company **12,575** million baht

EBITDA **44,724** million baht

## EBITDA by business group



## Corporate Governance

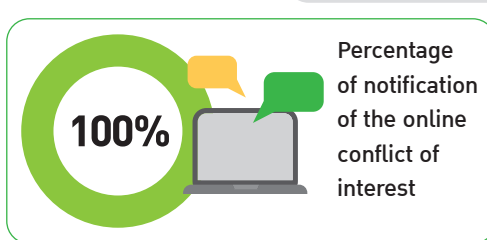
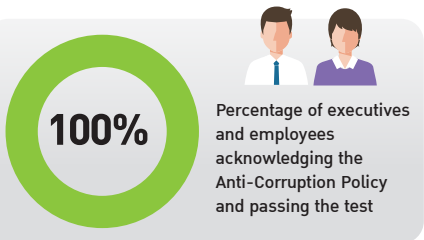


**CGR**

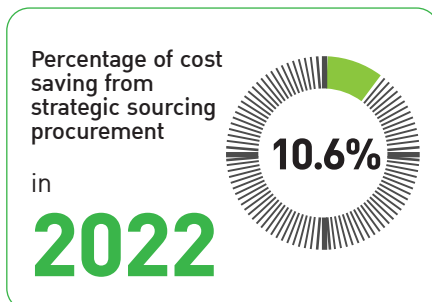
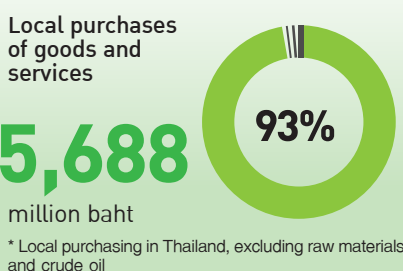
The excellent ranking (five emblems) under the 2022 CGR (Corporate Governance Report) survey of listed companies, organized by IOD and SET. Bangchak was among those in Thailand with high scores.

Suppliers had been certified by the CAC

**126** companies



## Supply chain management



**Greenovative Destination**

Bangchak service station

**1,343** stations



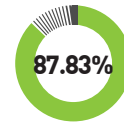
**724** Standard service stations



**619** Community stations



Inthanin coffee shop  
**1,002** branches



NPS Score 1st [joint]  
**1**  
The return of services  
**98%**

**In Harmony with the Environment**

Total GHG emissions (Equity share approach)

**0.94** MtCO<sub>2</sub>eq

Percentage of GHG emissions (equity share approach)



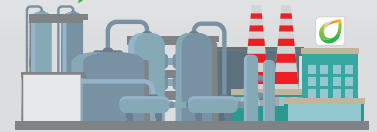
Refinery and Oil Trading Business **99%**



Marketing Business **1%**

Net energy consumption within the organization

**13,753** Terajules



Total water withdrawal

**2.38** Million m<sup>3</sup>

(\*Surface water, groundwater, produced water from crude oil extraction/processing, and third-party water of the refinery and the headquarter office)

Water recycled and reused of the refinery

**1.56** Million m<sup>3</sup>

Effluent

**0.9** Million m<sup>3</sup>

5Rs waste management

**99.99%** of total waste



Number of significant oil and chemicals spills (more than 100 barrels/time)

**0** Case

**Environmentally friendly products**

Low Carbon Product



Avoid emissions for third-parties

Numbers of accidents from product transportation (financial loss more than 1 million baht/accident)

**0** Case

**Creating Values for Society**

**Safety**

Loss-time Injury Frequency Rate: (LTIFR)



Employees

Male 0 Female 0



Contractors

Male 2 Female 0

(High-Consequence Work-Related Injuries)

- Employees 0 case
- Contractors 1 case



**Society**

Costs in Business Activities and Processes to Support Society (Money, hours of volunteer employees, Organization items/products, Management)

**235.75** million baht

The BCG Economy Model covering over

**15,000** person

youths from nearly **200** schools in **52** provinces

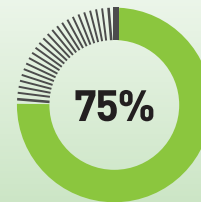
Carbon Markets Club

**53** organizations and **150** people are members of the Carbon Markets Club contribute to GHG reductions more than **400,000** tCO<sub>2</sub>eq



**Employees**

Employee engagement scores



Average training hours of employees

**29.08** hours/person/year

No significant violation or discrimination complaints.

# Bangchak and Sustainability

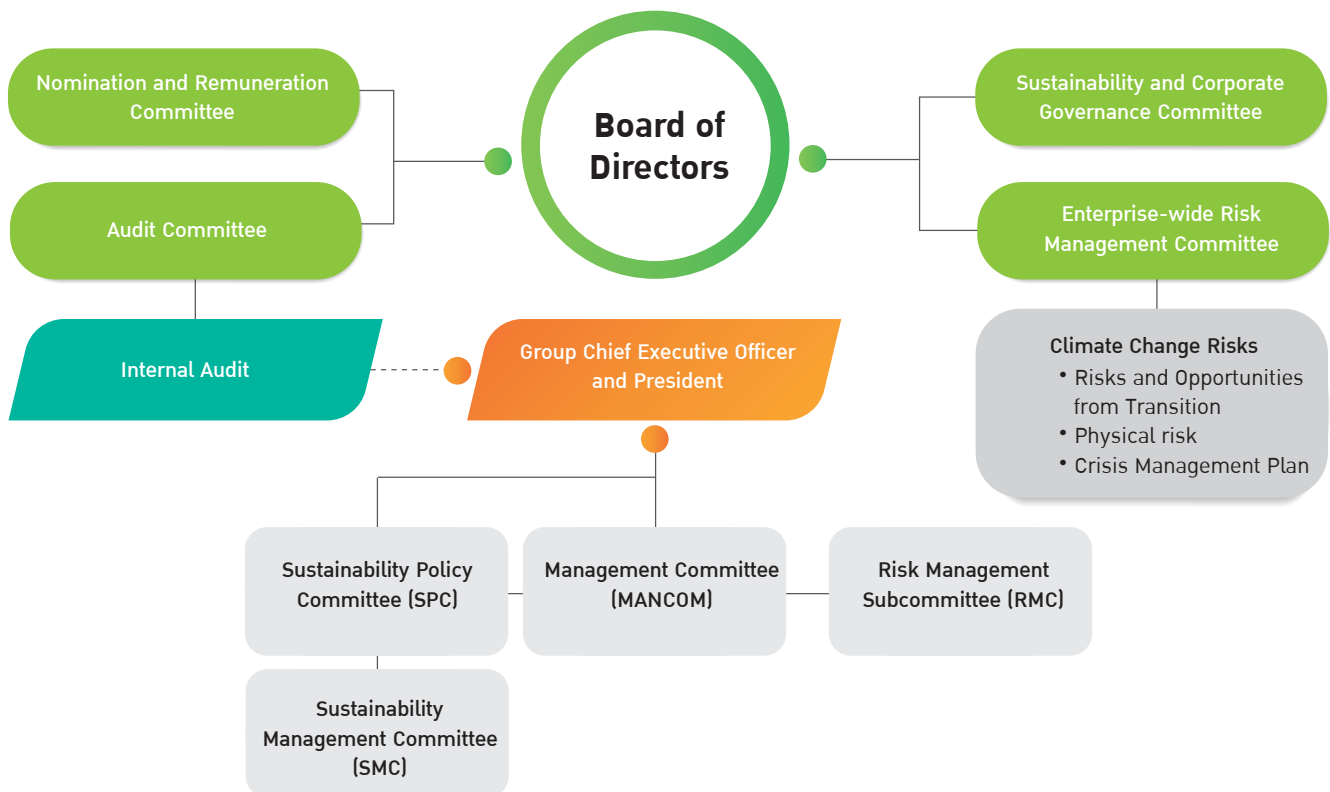
Bangchak is committed to responding to the needs and expectations of all stakeholders and sustainable development goals (SDGs). The Company also considers corporate sustainability assessments at national and international levels, which include sustainability topics in the areas of corporate governance and economic dimension, environmental dimension, and social dimension, to mitigate risks and their impacts on business and to seek opportunities for improvement of business operations in all aspects of sustainability in accordance with targets and guidelines of international standards of sustainable development. As a result, the company is able to conduct proactive business operations and cope with global changes and emerging risks.

The company operates in the aspect of sustainability through the Sustainability Policy Committee (SPC), chaired by Bangchak Group’s chief executive officer and president with the executives of business groups and functions working as the committee members (Disclosure 2–9, 2–13).

The Sustainability Policy Committee sets goals, directions, policies and strategies for sustainability development in Bangchak Group by considering SDGs, key materiality topics from corporate sustainability assessments, and the needs and expectations of stakeholders. Accordingly, the committee consequently meets 3 times annually.

The Sustainability Management Committee (SMC) acts as a main coordinator to monitor, collect, evaluate and report on progress and performance outcomes to the Sustainability Policy Committee 3 times a year. The Sustainability Policy Committee will report sustainability performance to the Risk Management sub-committee, Enterprise-wide Risk Management Committee and the Sustainability and Corporate Governance Committee twice a year, respectively.

The Sustainability Policy Committee consists of executives of the Bangchak Group, which in 2022 focused on creating climate change strategies under the BCP316NET framework in order to achieve Net Zero GHG emissions by 2050.



## Sustainability Principles and Framework (Disclosure 2-23)

Bangchak’s Sustainability Policy is derived from the integration of various guidelines, criteria, and international standards on sustainability and corporate social responsibility, namely the UN Global Compact (UNGC), the S&P Global Corporate Sustainability Assessment (S&P Global CSA), Sustainable Development Goals (SDGs), International Organization for Standardization (ISO) as well as the needs and expectations of stakeholders in line with company’s vision, direction and business strategy that serve as a corporate sustainability framework. In order to reflect the commitment to sustainable business growth throughout the value chain, the sustainability performance is monitored and reported in accordance with the Global Reporting Initiative’s (GRI) guidelines.

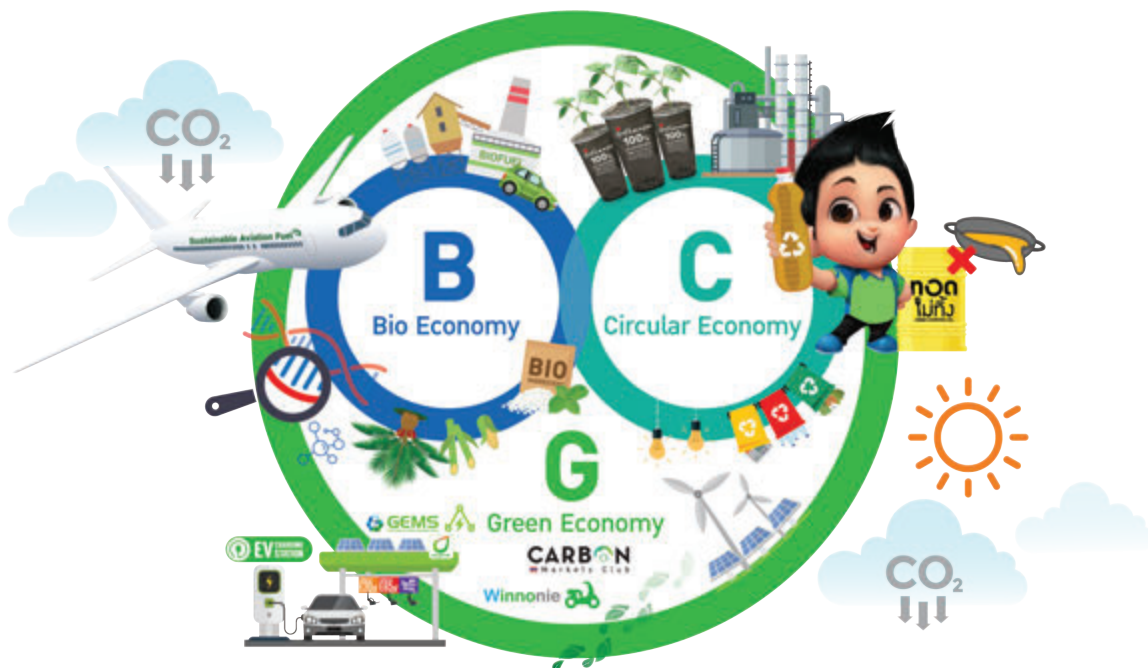
The Bangchak Group’s current business operations and any new businesses that are launched both locally and abroad, as well as emerging risks and global sustainability trends, will all be taken into account in the sustainability policy to cover present and future sustainability issues in all aspects. This policy addresses the following 8 sustainability issues:

1. Good Corporate Governance
2. Fair Business Conduct
3. Responsible Production and Services and Promoting Sustainable Society
4. Sustainability Due-Diligence Assessment for New Businesses
5. New Innovative Business Investment for Sustainability
6. Worthwhile Resources and Environmental Management
7. Human Rights Support for Sustainable Economic Prosperity
8. Sustainable Social Development

For further details of 8 sustainability issues of Sustainability Policy, please refer to [www.bangchak.co.th/th/sustainability/sustainability-policy-framework](http://www.bangchak.co.th/th/sustainability/sustainability-policy-framework)



Furthermore, Bangchak has adopted the “BCG Economy Model” which comprises 3 key economies: Bio-Economy focusing on the productive use of biological resource through the use of technology and innovation to transform agricultural products to high-valued biological products, Circular Economy emphasizing the worthwhile use of resources, raw materials, and products, and Green Economy focusing on overcoming environmental issues and mitigating their impacts sustainably. The model has been adopted to create profits, values, and sustainability for the company and stakeholders.



# Bangchak and Stakeholders

## Approach to Stakeholder Engagement (Disclosure 2-29)

Bangchak committed to accelerating sustainable energy transition, while balancing energy security. We are energizing lives through greenovative solutions and promoting ESG for all to the vision, “Crafting a Sustainable World Evolving Greenovation.” Therefore, a crucial area that the business has continuously improved for effectiveness is working to satisfy the needs and expectations of stakeholders. In order to prevent or mitigate sustainability impacts on stakeholders and promote a balance between value and worth from business operations, the company uses these data to support strategic planning. It also aims to increase stakeholder trust in its collective efforts. The company's stakeholders are classified into 10 categories, including employees, suppliers and contractors, customers, service station operators (dealers, BGN, agricultural cooperatives), business competitors, creditors, shareholders, Bangchak’s neighbors, the mass media, and government agencies.



## Processes for Stakeholder Engagement

- 1

Identifies stakeholders and ranks them by considering 3 criteria as follows:

  - Stakeholders’ involvement in business operations.
  - Whether or not the company can impact stakeholders in the sustainability issues.
  - Whether the stakeholders have the influence to impact the company’s sustainability issues.
- 2

Approach to Stakeholder Engagements are involved as follows:

  - Specify the divisions that take responsibility for stakeholders.
  - Determine methods for surveying the needs and expectations of stakeholders systematically and frequency operation.
  - Gather information on the needs and expectations of stakeholders.
- 3



Specification of Materiality issues:




  - Identify the causes and actual and potential impacts, both positive and negative, in relation to sustainability issues (economy, environment, and society, including human rights issues), and rank importance based on severity and likelihood of occurrence.
- 4

Implementation



  - Propose outcomes to the Sustainability Policy Committee (SPC) to specify the sustainability direction , strategies and plans to prevent and minimize sustainability impacts on different stakeholder groups.







Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
<p>1. Employees</p> 	<p>1. Perception of needs and expectations through engagement surveys as follows:</p> <p>1.1 Conducting 2 surveys/year.</p> <p>1.2 Specifying 3 survey question types.</p> <p>1.2.1 Engagement questions (Say, Stay, Strive).</p> <p>1.2.2 Based on current situation questions (Satisfaction).</p> <p>1.2.3 Open-ended questions for expressing opinions according to factors that impact engagement.</p> <p>1.3 Survey outcome processing, divided into 2 reports as follows:</p> <ul style="list-style-type: none"> <li>- Corporate</li> <li>- Business Group &amp; Business Unit</li> </ul> <p>2. Focus Group</p> <p>3. HR Visit</p> <p>4. Leadership Activities</p> <p>5. Develop an engagement dashboard for supervisory employees to be able to view scores themselves.</p>	<p>1. Remunerations and benefits.</p> <p>2. Performance evaluations.</p> <p>3. Career opportunities and development.</p> <p>4. Work processes.</p> <p>5. Quality of life and work environment.</p>	<p>The company cared for employees through the 100XHappiness strategy consistently with employees' needs as follows:</p> <p>1. Remunerations and benefits: The company reviewed 2 benefits policies; Expanded medical reimbursement coverage for parents to be able to obtain reimbursements for clinical treatments. For employees with spouses and children to be able to obtain medical treatment reimbursements for OPD treatments for children and for both parents. Additionally, An employee self-service system was developed to improve employee convenience and to communicate remuneration criteria.</p> <p>2. Performance evaluations: The company developed a new performance evaluation system. Employees at level 5 and above have tested it to get feedback on their performance.</p> <p>3. Career opportunities and development: The company communicated and informed about promotion criteria to employees, organized congratulation days to praise employees and communicated about their career opportunities, whereby in 2022, a total of 15% of employees experienced growth. Additionally, the company provided online training and various projects to support employee development such as design thinking, mini-MBA and work rotations.</p> <p>4. Work processes: The company developed the work improvement through a BPR or business process redesign system.</p> <p>5. Quality of life and work environment: The company provided continuous care in regard to COVID-19, such as booster vaccinations, ATK vending machines, ATK result logging system, sending of medications to employees at home, Seasonal Flu Vaccines, improvement of the work environment through the "12 activities in 12 months" project e.g., Khru Nai Duang Chai Project, etc.</p>	<p>1. Engagement Score &gt; 67%</p> <p>2. Average Turnover Rate &lt; 5%</p> <p>3. Talent Turnover Rate &lt; 3%</p> <p>4. Job Rotation for Development &gt; 15%</p>	<p>1. Engagement Score 75%</p> <p>2. Average Turnover Rate = 5.05%</p> <p>3. Talent Turnover Rate = 2.17%</p> <p>4. Job Rotation for Development = 12.67%</p>	<p>Development of EE through:</p> <ul style="list-style-type: none"> <li>• 100XHappiness</li> <li>• Promotion of engagement through culture.</li> <li>• Recognition</li> </ul>
<p>2. Suppliers and contractors</p> <p>2.1 General suppliers and contractors</p> 	<p>1. Annual suppliers seminars</p> <p>2. Surveys of satisfaction, needs, and expectations of suppliers and contractors.</p> <p>3. Suppliers and contractor site visits.</p>	<p>1. Speed of procurement (with a focus on transparency to ensure business confidence).</p> <p>2. Digital transformation.</p> <p>3. Convenient and easy-to-use procurement system for making quotations.</p> <p>4. Various channels for offering supplier products and services.</p>	<p>1. Specified a policy on the use of electronic systems (DocuSign) in contract-making processes in parts of the contract signing and developed an E-Guarantee through the blockchain system.</p> <p>2. Provided online meetings suppliers to prevent the spread of COVID-19.</p> <p>3. Acknowledged a revised SCOC (Supplier Code of Conduct) to new and existing suppliers.</p> <p>4. Created channels for getting suppliers' feedback through annual seminars, the company's website, and procurement officers.</p> <p>5. Created supplier knowledge-sharing sessions to share new technological products and services with the procurement team and related users.</p> <p>6. Developed a new procurement system for suppliers to convenient and fast access bidding information and improved the existing procurement system for easy use.</p>	<p>1. Set 95% target for transitioning from paper contracts to electronic contracts (DocuSign).</p> <p>2. Change all bank guarantees in the contract guarantee system to e-guarantees by blockchain (BG).</p> <p>3. Acknowledged a revised SCOC (Supplier Code of Conduct) to new and existing suppliers.</p> <p>4. Receive feedback from suppliers through annual seminars.</p> <p>5. Specify KPIs of supplier knowledge-sharing sessions to facilitate studies or distribute implementation.</p> <p>6. Formulate a new work plan for improving the procurement system.</p> <p>7. Create a manual and channel for procurement system accessing through Azure Virtual Desktop for virtual access similar to the internal accessing system.</p>	<p>1. All paper contracts were transformed into electronic contracts and bank guarantees were changed to E-Guarantee (blockchain BG) for all related work projects.</p> <p>2. A supplier seminar was planned to be held in Q4.</p> <p>3. Suppliers signed to acknowledge the revised SCOC (Supplier Code of Conduct), whereby all new suppliers acknowledged, and 83% of all existing suppliers (who received awards within 3 years) signed in acknowledgement.</p> <p>4. New technologies from supplier knowledge-sharing sessions were implemented in 2 projects, namely, synthetic fiber concrete and modular building at service stations.</p> <p>5. The scope of work and the developer selection of the new procurement system were specified.</p>	<p>1. Implementation of the new procurement system.</p> <p>2. Planning for improvement of the work inspection process to meet standards.</p> <p>3. Organizing procurement exhibitions for suppliers to share new products and technologies.</p> <p>4. Supplier site visits according to the S&amp;P global criteria.</p> <p>5. Annual supplier seminars.</p> <p>6. Surveys of the satisfaction, needs and expectations of suppliers.</p>


Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
2.2 Truck transportation suppliers 	<ol style="list-style-type: none"> <li>Offline and online communication as appropriate.</li> <li>Sharing of news and information about various COVID-19 preventive measures.</li> <li>Survey of satisfaction in receiving oil process and customer satisfaction.</li> </ol>	<ol style="list-style-type: none"> <li>Organize schedule at times when delivery volumes decrease in line with oil sales.</li> <li>Enables suppliers to temporarily collaborate with other businesses when delivery quantities are low.</li> <li>Post-meeting communication.</li> <li>Work improvement and communication.</li> </ol>	<ol style="list-style-type: none"> <li>Coordinated with customers to follow the oil loading procedures</li> <li>Reduced delivery cost during the economic downturn by not reserving vehicles and extending the life of vehicles in the southern region.</li> <li>Establish a fair work schedule based on effectiveness and monitoring results in KPI meeting.</li> <li>Enables suppliers to temporarily collaborate with other businesses when delivery quantities are low.</li> <li>Increased backhaul trucking</li> </ol>	<ol style="list-style-type: none"> <li>Greater cooperation between customers and suppliers.</li> <li>Reduced costs for suppliers.</li> <li>Delegate work fairly and efficiently.</li> </ol>	<ol style="list-style-type: none"> <li>Smooth transportation during COVID-19 as a result of customers and suppliers understanding and cooperating with COVID-19 preventive measures.</li> <li>Suppliers had additional job (Transfer depot) and got income to replace oil transportation income during COVID-19.</li> <li>Fair allocation of work schedule.</li> </ol>	<ol style="list-style-type: none"> <li>Expand semi-trailer transport usage to 45% and increase backhaul trucking.</li> <li>Increase work effectiveness and monitor KPI meeting</li> <li>Joint seminars about services and work safety with suppliers.</li> </ol>
2.3 Vessel transportation suppliers 	<ol style="list-style-type: none"> <li>Offline and online communication</li> <li>KPI meetings with suppliers every 3 months and regular discussions for work guidelines.</li> </ol>	<ol style="list-style-type: none"> <li>Long-term contracts.</li> <li>Appropriate and competitive transportation fees.</li> <li>Oil loss control during transportation according to targets.</li> <li>No accidents and oil spills during oil transportation.</li> <li>Joint improvement of oil transportation safety and effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>Developed an oil transportation management system through the Smart Logistics &amp; Inventory Management (SLIM) project to reduce time in oil load/unloading processes.</li> <li>Assessed performance with suppliers according to the Tanker Management and Self-Assessment (TMSA) system.</li> <li>Held meetings to monitor KPI every 3 months.</li> </ol>	<ol style="list-style-type: none"> <li>Oil loss control according to targets as follows:               <ul style="list-style-type: none"> <li>Intransit Loss :                   <ul style="list-style-type: none"> <li>Product &lt; 0.14% on B/L</li> <li>Crude &lt; 0.13% on B/L</li> </ul> </li> </ul> </li> <li>Number of oil spills: 0.</li> <li>In-transit number of accidents: 0.</li> </ol>	<ol style="list-style-type: none"> <li>Oil loss control according to targets as follows:               <ul style="list-style-type: none"> <li>Intransit Loss :                   <ul style="list-style-type: none"> <li>Product – 0.11%</li> <li>Crude – 0.13%</li> </ul> </li> </ul> </li> <li>Number of oil spills: 0.</li> <li>In-transit number of accidents: 0.</li> </ol>	<ol style="list-style-type: none"> <li>Performance assessments and KPI meetings with suppliers every 3 months.</li> <li>Continuous inspection, monitoring and control of oil transportation.</li> <li>Joint seminars about shipping transportation services, safety and work operations with suppliers.</li> </ol>
2.4 Raw Materials Suppliers (crude oil/biofuel) 	<ol style="list-style-type: none"> <li>Satisfaction survey</li> <li>Monthly meetings with suppliers.</li> <li>Visits and having conversations regularly.</li> </ol>	<ol style="list-style-type: none"> <li>Regularity of raw material procurement.</li> <li>Fair and transparent procurement.</li> <li>Providing beneficial information related to oil procurement.</li> <li>Flexibility and smoothness in load/unloading crude oil/refined oil processes</li> <li>Timely payment of goods/ services and delivery of documents.</li> <li>Oil supply distribution and management completely per schedules, plans, and specifications.</li> </ol>	<ol style="list-style-type: none"> <li>Regularly procured raw materials by using transparent processes.</li> <li>Continuous communication and shared beneficial information.</li> <li>Performed flexible operations and jointly resolved issues.</li> <li>Ensured that payments took place on schedule.</li> <li>Ensured that oil supply was completed in accordance with schedule.</li> </ol>	Supplier satisfaction evaluation score of 3 out of 5 total.	Supplier satisfaction evaluation score of 4.9 out of 5 total.	Monthly meetings with suppliers.





Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
3. Customers 3.1 Customers: End Users 	1. Customer research. 2. Marketing research. 3. Customer behavior data from the POS and CRM systems. 4. Data from the Department of Energy. 5. Customer service work section. 6. Post-service questionnaire via mobile application.	1. Convenient location. 2. Speed of service. 3. Polite and enthusiastic service. 4. Sale of high-quality products. 5. Clean and sufficient number of restrooms. 6. Convenient access to service stations and sufficient parking spaces. 7. Emergency plans and measures for various situations and post-incident assistance and compensation measures. 8. Support for customer assistance measures during emergencies.	1. Expanded service stations with unique designs and a variety of non-oil services. 2. Improved service standards for faster service. 3. Implement technologies to improve services, such as expanding payment channels through Bangchak digital payments to reduce service time and expanding membership and point exchanges with partners such as SCB funds. 4. Provided service procedures training for service station employees through the Bangchak Online Academy system. 5. Continuously delivered high-quality and environmentally-friendly oil products. Bangchak was the only Thailand service station offering 2 types of Euro 5-standard, namely, E20 S EVO and Hi-Premium Diesel S. 6. Improved service stations to offer more than only oil, such as restaurants, Inthanin coffee shops, minimarts, store-type restaurants, food stalls, food trucks and other lifestyle businesses such as pet food stores and parcel delivery outlets. 7. Expanded EV charging stations and battery swapping stations 8. Using customer insight to develop strategies for personalized offerings, such as special promotional offers to disappearing card members to motivate them to return for service. 9. Strictly adhering to the personal data protection policy and improved security system while exchanging Bangchak member points by entering PIN numbers 10. Launched a variety of campaigns to reduce the cost of living, such as the “One Baht per Liter” campaign offering discount coupons for Gasohol products through the Daily News newspaper, the “Payback on the Day of Gasoline Price Hike” campaign which members receive special points when they refuel on the first day when prices increase by paying in full according to the raised prices and receive the difference in oil price increase as special points to collect. The company also raised oil prices more slowly than competitors and returned a profit to customers when members refueled with any type of Bangchak oil, by which customers were able to receive a discount in the form of extra points by a maximum of 1.50 baht per liter (as of 3 December 2022).	1. The second largest market share of oil products in service stations. 2. Rated as number 1 on the Net Promoter Score (NPS).	1. The second-largest market share of oil products in service stations. 2. Rated as number 1 on the Net Promoter Score (NPS) in 2022 (by market 911). 3. Customers’ overall service satisfaction score via the mobile application of 4.73/5.0 (as of December 2022). 4. Developed +72 service stations nationwide including unique designs increasing to 26 stations (as of December 2022). 5. Inthanin stores were developed inside and outside of service stations cumulatively by a total of 1,002 stores (as of December 2022). 6. Increased the number of stations installed with EV chargers to 179 stations nationwide (as of December 2022). 7. Developed non-oil services at service stations for a total of 3,652 accumulated touchpoints (as of December 2022).	1. Expand service stations with standard and unique designs to support customer needs. 2. Partially renovate existing service stations to have greater readiness. 3. Adopt digital technology to improve customer experiences. 4. Develop and expand upon new non-oil business models along with partners to meet customer needs.
3.2 Customers: Industrial 	1. Market representatives. 2. Technical service engineers. 3. Exhibition booths in collaboration with the government and various associations. 4. Satisfaction survey. 5. Customer complaints.	1. Rapid responses by market representatives. 2. Payment time extensions. 3. Timely deliveries (delivery standards). 4. Reasonable price and good quality products according to standards.	1. Extend payment or credit terms specifically for customers who have made 100% of their purchases from Bangchak and who have a good payment history and no outstanding debts. 2. Granted special credit for customers without financial statements for the latest year or highly rated minor customers. 3. Encouraged the use of an e-Tax Invoice system to conveniently access information via the online system. 4. Held meetings with suppliers to summarize the needs and complaints from deliveries. 5. Evaluate customers’ satisfaction after receiving services such as technical service and transportation services. 6. Considered increasing the number of transportation vehicles during the sugarcane harvest season to sufficiently meet customers’ needs. 7. Improved and developed solvents under the name BCP White Spirit-3040 for use in the paints, thinner and resin industries. 8. Improved and expanded terminals to distribute more extensively and quickly. 9. Improved lubrication database at www.bangchaklubricants.com.	1. Extend payment or credit terms to customers specifically and continuously. 2. Customer satisfaction level of 85%. 3. Release of new products according to customer needs.	1. Extended payment or credit terms to customers specifically and continuously. 2. Customer satisfaction of 91%. 3. Developed a new solvent product under the name BCP White Spirit-3040 for use in the paints industry.	1. Product Development consistently with customer needs. 2. Improved delivery management. 3. Developed technical consultation services to address usage issues.



Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
<p>3.3 Customers: Wholesale</p> 	<ol style="list-style-type: none"> <li>1. Market representatives.</li> <li>2. Technical service engineers.</li> <li>3. Exhibition booths in collaboration with the government and various associations.</li> <li>4. Satisfaction survey.</li> <li>5. Customer complaints.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rapid responses by market representatives.</li> <li>2. Payment time extensions.</li> <li>3. Timely deliveries.</li> <li>4. Promotional offers and competitive prices.</li> <li>5. Flexibility in terms of payment and transfers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Approved additional credit limits for the credit guaranteed.</li> <li>2. Organized promotional programs and quarterly/annual discounts to encourage customers to purchase continuously.</li> </ol>	<ol style="list-style-type: none"> <li>1. Growth in sales of lubricant through wholesale.</li> <li>2. Continuous growth in market share.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sales of lubricant through wholesale grew according to targets.</li> <li>2. Market share increased from 2021.</li> </ol>	<ol style="list-style-type: none"> <li>1. Holding small seminars with the customers to boost confidence in the quality and standards of products.</li> <li>2. Offer monthly discounts.</li> </ol>
<p>4. Service station operators (dealers, BGN, agricultural cooperatives)</p> 	<ol style="list-style-type: none"> <li>1. Market representatives.</li> <li>2. Monthly/quarterly/annual meetings.</li> <li>3. BCP Link system.</li> <li>4. Mystery shoppers.</li> <li>5. Call center system.</li> <li>6. Data from the Department of Energy.</li> <li>7. Bangchak Online Academy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Improved business returns (business operations to generate greater profits and revenues).</li> <li>2. Support and supervise by Market representatives.</li> <li>3. Support to ensure standards and competitive readiness of service stations (modernization of station management systems).</li> <li>4. Effective equipment repair.</li> <li>5. Effective sales promotions and advertisement.</li> <li>6. Development of high-quality products.</li> <li>7. On-time and complete product delivery services without any losses.</li> <li>8. Business continuity plans and measures for various crisis situations.</li> <li>9. Ability to provide normal services during the crisis.</li> <li>10. The remedial measures after the crisis.</li> <li>11. Focus on cooperation-building strategies.</li> </ol>	<p>Bangchak developed the capabilities of service station operators to improve capability as follows:</p> <ol style="list-style-type: none"> <li>1. Maintained the quality of products to be competitive and pushed for the sale of products that satisfied market demand.</li> <li>2. Supported and cared to ensure that service station standards were prepared for competition.</li> <li>3. Supported improving the appearance of service stations through renovation, bright and clean and refresh activities.</li> <li>4. Continuously launched sales promotion programs to boost sales in each customer group, such as “Get free 1 bottle of 1.5L water when fuel up” and redeeming membership points for gold.</li> <li>5. Provided financial assistance to incentivize service station operators to maintain their image and service standards.</li> <li>6. Developed the oil transportation tracking system to allow service station operators to track and prevent corruption during transportation.</li> <li>7. Continuously pushed for training in service management at service stations for service station operators during COVID-19 through the e-training system (BOA: Bangchak Online Academy).</li> <li>8. Organized sales promotion programs to aid service station operators when demand was declining.</li> </ol>	<ol style="list-style-type: none"> <li>1. The second largest-place market share of oil products in service stations.</li> <li>2. Rated as number 1 on the Net Promoter Score (NPS).</li> <li>3. Mystery shopper score for service stations that meet targets (90% for BGN, 75% for dealers).</li> </ol>	<ol style="list-style-type: none"> <li>1. The second largest-place market share of oil products in service stations.</li> <li>2. +13.4% increase in retail sales from the previous year (as of December 2022).</li> <li>3. First-place NPS Score in 2022 by market 911.</li> <li>4. Inthanin stores were developed inside and outside of gas service stations cumulatively by a total of 1,002 stores (as of December 2022).</li> <li>5. Increased the number of stations installed with EV chargers to 179 stations nationwide (as of December 2022).</li> <li>6. Development of non-oil services in various forms at service stations for a total of 3,652 accumulated (as of December 2022).</li> </ol>	<ol style="list-style-type: none"> <li>1. Development and expansion of new non-oil businesses alongside partners to increase revenues and make maximum use of leased spaces.</li> <li>2. Support for improvements to the image of service stations to attract customers.</li> <li>3. Continuously create sales promotion programs.</li> <li>4. Organize activities to promote sales with service station operators, such as through prizes and incentives.</li> <li>5. Add courses and increase the frequency of training in the e-training system.</li> </ol>

Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
5. Business competitors (Service Stations) 	<ol style="list-style-type: none"> <li>Monitoring performance and market conditions based on data from the Department of Energy.</li> <li>Studying competitors' information through financial reports and related parties' presentations.</li> <li>Monitoring news and marketing activities from various media, including social media.</li> <li>Collaborate and coordinate with competitors on matters of cooperation requested by the government.</li> <li>Provide marketing information without impacting competitors.</li> </ol>	<ol style="list-style-type: none"> <li>Operating business transparently under fair trade conditions and competition.</li> <li>Aiding competitors during emergencies that affect the competitors.</li> </ol>	<p>Bangchak followed all applicable laws, rules, and specifications pertaining to conducting business correctly, transparently, and free from collusion or market dominance. It also worked competitively in accordance with free-market mechanisms.</p>	<ol style="list-style-type: none"> <li>No negative complaints or news in business dealings with competitors.</li> <li>No complaints from competitors about unfair business practices.</li> </ol>	<ol style="list-style-type: none"> <li>No negative complaints or news in business dealings with competitors.</li> <li>No complaints from competitors about unfair business practices.</li> </ol>	<p>Operating business competitively according to free-market mechanisms and complying with various laws, regulations and requirements related to operating business properly and transparently.</p>
6. Creditors (loans, debentures, bank loans) 	<ol style="list-style-type: none"> <li>Feedback from telephones.</li> <li>Feedback from completing questionnaires.</li> <li>Feedback from email communications.</li> <li>Feedback from meetings, conference calls and roadshows.</li> </ol>	<ol style="list-style-type: none"> <li>Business stability during abnormal situations, business continuity plans and risk prevention plans.</li> <li>Good business returns, increasing capital gains and continuous and stable growth.</li> <li>Clear business objectives and direction for future growth and investment in businesses that offer suitable returns.</li> <li>Satisfactory and regular dividend payments.</li> <li>Project progress according to work plans.</li> <li>Operating business according to sustainable development plans and good corporate governance principles.</li> <li>Imparting knowledge and understanding about important factors impacting business operations by increasing information disclosures</li> <li>Participating in business visit activities.</li> </ol>	<ol style="list-style-type: none"> <li>Strictly complied with financial loan and debenture contracts.</li> <li>Strictly complied with the regulations of financial institutes that are supervised by the government.</li> <li>Responded/provided information to bank loan analysts accurately and swiftly according to inquiries.</li> <li>Coordinated and cooperation with financial institutes if they wanted to offer a wider range of financial services.</li> <li>Welcome new institutions that offer financial services.</li> </ol>	<ol style="list-style-type: none"> <li>Financial ratios complying with financial loan/debenture contracts without exceeding specifications.</li> <li>Completely providing information/ answering questions to financial institutes.</li> </ol>	<ol style="list-style-type: none"> <li>Financial ratios complied with loan/ debenture contracts without exceeding contract specifications.</li> <li>Completely provided information/ responded to questions to financial institutes.</li> </ol>	<ol style="list-style-type: none"> <li>Holding meetings to visit and update and share information about the company and banks to ensure up-to-date numerical data to enable creditors to continuously see the direction of business growth.</li> <li>Participate in seminars or training sessions with financial institutes.</li> <li>Providing feedback to creditors by telephone, questionnaires, and others.</li> </ol>

Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
<p>7. Shareholders (institution investors, minor investors, analysts and ESG rating agencies)</p> 	<ol style="list-style-type: none"> <li>Feedback from meetings/ participation in activities such as analyst meetings, Opportunity Day, Thailand Focus, conference calls, roadshows and events held by securities companies/ the Stock Exchange of Thailand.</li> <li>Feedback from telephones.</li> <li>Feedback from email communication.</li> <li>Feedback from completing questionnaires.</li> <li>Completing ESG evaluation forms.</li> </ol>	<ol style="list-style-type: none"> <li>Business stability and plans to deal with rapid changes in business environments and economic contexts, including risk prevention plans.</li> <li>Good business returns, increasing capital gains and continuous and stable growth.</li> <li>Clear business objectives and direction for future growth and investment in businesses that offer suitable returns.</li> <li>Satisfactory and regular dividend payments.</li> <li>Opportunities for increasing capital gains.</li> <li>Project progress according to work plans.</li> <li>Sustainable business operation according to good corporate governance principles (giving importance to disclosing information according to ESG rating criteria to accompany investment decisions).</li> <li>Imparting knowledge and understanding about important factors impacting business operations by increasing important information disclosures.</li> <li>Participating in business visit activities.</li> <li>Participating in completing ESG evaluation forms for analysts, funds, etc.</li> </ol>	<ol style="list-style-type: none"> <li>Determined to pay dividends to shareholders appropriately with performance and policies and has a dividend payment rate that is consistent with the direction of other companies in the industry.</li> <li>Changed communication channels with shareholders, investors and analysts to more appropriately suit the COVID-19 situation by increasing the use of online meetings/video conferences.</li> <li>Participated in the Opportunity Day and Thailand Focus activities organized by the Stock Exchange of Thailand for executives to meet with minor investors.</li> <li>Modernized investor relations website with rapid performance data validation and availability in a user-friendly format.</li> <li>Prepared MD&amp;A/factsheet/company profile to provide information to shareholders and investors about the company along with investment plans and progress in various projects and performance in each quarter.</li> <li>Prepared reports summarizing questions and opinions from shareholders, investors and analysts and regularly reported to executives for acknowledgement.</li> <li>Completed the ESG evaluation form as requested by investors or shareholders.</li> </ol>	<ol style="list-style-type: none"> <li>Receiving roadshow invitations.</li> <li>Receiving conference call contacts.</li> <li>Receiving IR awards.</li> <li>Maintaining the ESG scores for THSI, S&amp;PGlobal CSA and MSCI.</li> </ol>	<ol style="list-style-type: none"> <li>The investor relations division attended roadshow activities and conference call activities with securities companies, the Stock Exchange of Thailand and domestic and foreign investors through online and on-site activities.</li> <li>Received IR awards such as Asia's Best CEO (Investor Relations), Asia's Best CFO (Investor Relations), Asia's Best CSR, Best Environmental Responsibility, and Best Investor Relations Company</li> </ol>	<ol style="list-style-type: none"> <li>Holding quarterly analyst meetings to announce company performance and upload results in Thai/English versions on the investor relations website to support the data access rights of all investors without discrimination.</li> <li>Organizing/participating in activities to help investors have more access to the company's information and business (when the COVID-19 situation resolves).</li> <li>Continuously attending roadshows and conferences online and on-site (when the situation is supportive) with investors.</li> <li>Attending Opportunity Day activities organized by the Stock Exchange of Thailand for executives to have the opportunity to meet with minor investors.</li> <li>Improving the investor relations website to ensure modernity, data completeness and user-friendliness with faster performance and content updates.</li> <li>Preparing MD&amp;A/factsheet/company profile for shareholders and investors to provide information about the company's business and performance in each quarterly, along with project progress in the company's group.</li> <li>Preparing reports summarizing questions and opinions from shareholders, investors and analysts and reporting to executives for acknowledgement.</li> </ol>

Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
<p>8. Bangchak's neighbors</p> <p>8.1 Communities (8 communities within a 1.5-kilometer radius in Phra Khanong District and 2 communities in Bang Na District and 1 community in Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Prakan Province (11 villages))</p> 	<ol style="list-style-type: none"> <li>Community relations employees/local visits.</li> <li>Community relations activities and target group outreach.</li> <li>Channels for communication/complaints.                             <ol style="list-style-type: none"> <li>Direct telephone lines/ 24-hour call center.</li> <li>Public announcement boards.</li> <li>Loudspeakers.</li> <li>Community LINE groups.</li> <li>Leaflets/pamphlets/ banners.</li> </ol> </li> <li>Community relations activity performance evaluations.</li> <li>Third-party evaluation of community needs.</li> </ol>	<ol style="list-style-type: none"> <li>Having business strategies and operations for safety focusing on the environment and potential community effects that could have an impact on the company's image and acceptance, in order to inspire communities' trust and secure the license to operate.</li> <li>Advance notification to communities before taking any actions that might impact or cause misunderstandings in communities.</li> <li>Participation in community relations activities.                             <ol style="list-style-type: none"> <li>Education Development.</li> <li>Quality of life Development.</li> <li>Environment Development.</li> <li>Safety Development.</li> </ol> </li> <li>Assistance and relief for problems during COVID-19 regarding health and the economy.</li> <li>Assistance and relief for problems during Covid-19 regarding health and the economy.</li> </ol>	<ol style="list-style-type: none"> <li>Organized activities continuously to inspect equipment and support safety preparations for communities, such as rehearsing community evacuation plans for emergencies/disasters, performing safety patrols and donating fire extinguishers to communities, etc.</li> <li>Communicated work plans to communities in advance through various communication channels such as announcement boards, loudspeakers, LINE messages, Leaflets, pamphlets and banners.</li> <li>Modified activities consistently and appropriately to the current situations, environments and needs of the communities.                             <ul style="list-style-type: none"> <li>The Bangchak Huang Yai Su Phai COVID-19 donated medical face masks, ATK kits, hand-sanitizing alcohol gels, learning supplies for youths in communities, medical supplies, drinking water to community, garbage bags for infected wastes (red-colored).</li> <li>Activities aimed at generating income for communities during COVID-19 included the Dontri Pan Suk Project to support musicians in communities with jobs and income.</li> <li>Increased budget and number of scholarships for youths to ease the burden of parents/communities from inflation and economic recession.</li> <li>GAT (Online) to prepare for university entrance exams as part of the Yaowachon Khon Di Project for community youths.</li> <li>Environmental and biodiversity promotion projects such as the "Phuet Phan Pan Suk Ruam Pluk Ton Mai Project"(in Phra Khanong District and Bang Nam Phueng) and support for firefly conservation and stingless bee growing.</li> </ul> </li> <li>Supported, cared for, and participated in activities in communities such as sponsoring activities on important occasions (New Year, Children's Day, Songkran, Mother's Day), volunteer activities to clean Bangchak Canal, happy family activities to prevent depression, lighting repair and tree trimming activities, etc.</li> </ol>	<ol style="list-style-type: none"> <li>≥90% activity participation satisfaction questionnaire score.</li> <li>≥86% engagement evaluation score.</li> </ol>	<ol style="list-style-type: none"> <li>97.8% activity participation satisfaction evaluation score.</li> <li>88.2% engagement evaluation score.</li> </ol>	<p>Development of activity plans consistently with community needs in 7 areas as follows:</p> <ul style="list-style-type: none"> <li>Quality of life</li> <li>Education</li> <li>Environment</li> <li>Safety</li> <li>Economy</li> <li>Engagement</li> <li>Public benefits</li> </ul>
<p>8.2 Schools</p> 	<ol style="list-style-type: none"> <li>Community relations employees/ local visits</li> <li>Community relations activities and target group outreach.</li> <li>Channels for communication/complaints.                             <ol style="list-style-type: none"> <li>Direct telephone lines/ 24-hour call center</li> <li>Public announcement boards</li> <li>Loudspeakers.</li> <li>Community LINE groups</li> <li>Leaflets/pamphlets/ banners</li> </ol> </li> <li>Community relations activity performance evaluations</li> <li>Third-party evaluation of community needs</li> </ol>	<ol style="list-style-type: none"> <li>Having business strategies and operations for safety with importance given to the environment.</li> <li>Improvement of education in various areas, such as the potential of personnel/students in schools and support through providing technologies/ learning media, etc.</li> <li>Supporting safety by educating on how to be prepared for emergencies/disasters and donating fire extinguishers.</li> <li>Improving the environment/ surroundings inside and outside schools and providing environmental knowledge to teachers and students.</li> <li>Assistance and relief for problems during COVID-19 regarding health and the economy.</li> </ol>	<ol style="list-style-type: none"> <li>Operated environmental projects, school of environmental education projects for sustainable development (eco-schools), online school environmental education courses, the Rak Pan Suk Junior Project, waste banks in schools, and the Phuet Phan Pan Suk Ruam Pluk Ton Mai Project (in Phra Khanong District).</li> <li>Operated the "Bangchak Huang Yai Plot Phai Nai Rong Rian" Project (fire-extinguishing and fire-evacuation drills with schools on-site, online, and hybrid format and donated fire extinguishers to schools.</li> <li>Organized a project to develop the potential of teachers by using online training and BCP Knowledge Tube (YouTube).</li> <li>Modified activities consistently and appropriately to the present situations, environments and needs of schools.                             <ul style="list-style-type: none"> <li>The Bangchak Huang Yai Su Phai COVID-19 donated medical face masks, ATK kits, hand-sanitizing/cleaning alcohol gels, Bangchak happiness bags (stationery, learning supplies, face masks, and Vitamin C) and kits (face masks and alcohol) for students and teachers along with garbage bags (red-colored) for infected wastes.</li> <li>Increased budget and number of scholarships for youths to ease the burden of parents/communities from inflation and economic recession.</li> <li>Sponsored on-site activities such as donating shirts and hats for school sporting events in Bangkok, providing financial support for mini marathon activities, and various other school activities.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>&gt;90% activity participation satisfaction questionnaire score.</li> <li>&gt;86% engagement evaluation score.</li> </ol>	<ol style="list-style-type: none"> <li>95.6% activity participation satisfaction questionnaire score.</li> <li>93.60% engagement evaluation score.</li> </ol>	<p>Development of activity plans consistently with school needs in 7 areas as follows:</p> <ul style="list-style-type: none"> <li>Quality of life</li> <li>Education</li> <li>Environment</li> <li>Safety</li> <li>Economy</li> <li>Engagement</li> <li>Public benefits</li> </ul>

Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
8.3 Families (single-home residents) 	<ol style="list-style-type: none"> <li>Community relations employees/ local visits.</li> <li>Community relations activities and target group outreach.</li> <li>Channels for communication/ complaints.               <ol style="list-style-type: none"> <li>Direct telephone lines/ 24-hour call center</li> <li>Public announcement boards</li> <li>Loudspeakers</li> <li>Community LINE groups</li> <li>Leaflets/pamphlets/ banners</li> </ol> </li> <li>Community relations activity performance evaluations.</li> <li>Third-party evaluation of community needs.</li> </ol>	<ol style="list-style-type: none"> <li>Having business strategies and operations for safety with importance given to the environment.</li> <li>Support environmental activities by providing knowledge about the environmental with neighbors, conservation activities, environmental awareness activities, etc.</li> <li>Support for quality-of-life projects such as support for education about physical health and emotional health, assistance and relief during COVID-19 regarding health and the economy, etc.</li> </ol>	<ol style="list-style-type: none"> <li>Continuously organized activities consistent with the current situations and needs of target groups such as the Khrop Khrua Diao Kan Project, Bangchak Huang Yai Su Phai COVID-19 Project, and donations of ATK kits, anti-COVID-19 kits (face masks, alcohol sprays, facemask storage boxes), medical face masks, alcohol hand sanitizers, etc.</li> <li>Communicated continuously with target groups through the Khrop Khrua Bai Mai pamphlet and Khrop Khrua Bai Mai Facebook page.</li> </ol>	<ol style="list-style-type: none"> <li>≥90% activity participation satisfaction questionnaire score.</li> <li>≥ 86% engagement evaluation score.</li> </ol>	<ol style="list-style-type: none"> <li>96.8% activity participation satisfaction questionnaire score.</li> <li>94% engagement evaluation score.</li> </ol>	Development of activity plans consistently with family needs in 7 areas as follows: <ul style="list-style-type: none"> <li>Quality of life</li> <li>Education</li> <li>Environment</li> <li>Safety</li> <li>Economy</li> <li>Engagement</li> <li>Public benefits</li> </ul>
8.4 Condominiums 	<ol style="list-style-type: none"> <li>Community relations employees/ local visits</li> <li>Community relations activities and target group outreach.</li> <li>Channels for communication/ complaints.               <ol style="list-style-type: none"> <li>Direct telephone lines/ 24-hour call center</li> <li>Public announcement boards</li> <li>Loudspeakers</li> <li>Community LINE groups</li> <li>Leaflets/pamphlets/ banners</li> </ol> </li> <li>Community relations activity performance evaluations.</li> <li>Third-party evaluation of community needs.</li> </ol>	<ol style="list-style-type: none"> <li>Having business strategies and operations for safety with importance given to the environment.</li> <li>Providing knowledge and understanding about the prevention measures for environmental impacts and safety of Bangchak.</li> <li>Organizing activities appropriately and continuously.</li> <li>Developing the formats for public relations activities with greater coverage over target groups.</li> <li>Assistance and relief for problems during COVID-19 regarding health and the economy.</li> </ol>	<ol style="list-style-type: none"> <li>Modified activities consistently and appropriately to the current situations, environments and needs of the target group.               <ul style="list-style-type: none"> <li>Bangchak Huang Yai Sai Chai Phuean Ban Condo Project.</li> <li>Bangchak Huang Yai Su Phai COVID-19 Project to donate medical face masks, ATK kits and hand-sanitizing alcohol, and anti-COVID-19 kits (face masks, alcohol sprays and face mask boxes).</li> <li>Training/drills on fire-extinguishing, emergency plans and fire evacuation drills.</li> <li>Support for condominium activities such as annual general meetings.</li> <li>Phuet Phan Pan Suk Ruam Pluk Ton Mai Project (Phra Khanong District).</li> </ul> </li> <li>Communicated news/activities through channels that were convenient for and regularly accessed by the target group as appropriate and continuously, such as the following:               <ul style="list-style-type: none"> <li>Phuean Ban Condo Bangchak LINE group</li> <li>Khrop Khrua Bai Mai pamphlet</li> <li>Posters</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>≥90% activity participation satisfaction questionnaire score.</li> <li>≥86% engagement evaluation score.</li> </ol>	<ol style="list-style-type: none"> <li>93.40% activity participation satisfaction questionnaire score.</li> <li>86.20% engagement evaluation score.</li> </ol>	Development of activity plans consistently with condominium needs in 7 areas as follows: <ul style="list-style-type: none"> <li>Quality of life</li> <li>Education</li> <li>Environment</li> <li>Safety</li> <li>Economy</li> <li>Engagement</li> <li>Public benefits</li> </ul>

Stakeholder	Engagement Approach in 2022t	Needs/Expectations of Stakeholders in 2022	Company Responses in 2022	2022 Targets	Results in 2022	Next Year Plan
<p>9. The Mass Media (newspapers, magazines, television, radio, online media).</p> 	<ol style="list-style-type: none"> <li>discussions with the media.</li> <li>Media visits on special occasions and quarterly.</li> <li>Special interviews of high-ranking executives on various occasions.</li> <li>Adding appropriate content to meet online media needs and expand to new audiences.</li> </ol>	<ol style="list-style-type: none"> <li>Providing information about business progress, overall business information and plans for growth and expansion of related businesses.</li> <li>Holding special interviews with high-ranking executives to cover specific topics for special news scoops and unique news.</li> <li>Expect high-ranking executives to provide information and demonstrate the vision of the energy and related businesses to create credibility and motivate people to follow the news.</li> <li>Interesting imagery to match the news.</li> <li>Responding quickly and accurately during information and interview requests.</li> </ol>	<ol style="list-style-type: none"> <li>Responded to the media requests on every issue beneficial to the company and the collective.</li> <li>Held press releases and media interviews, especially, online channels, and regularly provided press releases.</li> <li>Supported the media's activities and sponsored the media on their anniversary dates.</li> <li>Visited the media in the energy and related businesses regularly and attended events on various occasions.</li> </ol>	<ol style="list-style-type: none"> <li>Value from news published via printed and online media.</li> <li>Number of media outlets participating in a press release.</li> <li>Number of news topics published.</li> </ol>	<ol style="list-style-type: none"> <li>Regularly receives news publications by media organizations, thus demonstrating the company's appropriate and close engagement with the media.</li> <li>The media value from news publications through printed media and online media outlets was according to target.</li> <li>News information was published correctly.</li> </ol>	<ol style="list-style-type: none"> <li>Organizing engagement activities with the media to strengthen relations.</li> <li>Addition to the database of new and foreign media outlets in Thailand and Asia and create press releases in English alongside Thai press releases to communicate and inform interested foreigners.</li> </ol>
<p>10. Government Agencies 10.1 Local Government 10.2 Central Government</p> 	<ol style="list-style-type: none"> <li>Meetings, explanations, discussions and participation in projects with government agencies.</li> <li>Cooperating upon receiving site visit requests.</li> <li>Providing information requested by government agencies.</li> <li>Expressing care to government agencies that make contact about the COVID-19 situation, such as by distributing alcohol gels and face masks among various government agencies.</li> <li>Requesting for government agencies to complete survey forms on the needs/expectations of government agencies.</li> </ol>	<ol style="list-style-type: none"> <li>Complying with the law or exceeding legal specifications such as air pollution emissions, waste management and release of wastewater.</li> <li>Exhibiting corporate social and environmental responsibility and sustainably coexisting with communities.</li> <li>Having measures in place to care for employees and nearby communities regarding COVID-19.</li> <li>Having good factory safety and environmental management systems.</li> <li>Providing information accurately and swiftly and supporting government projects.</li> <li>Giving opportunities to stakeholders to participate in expressing opinions.</li> <li>Reducing energy consumption.</li> <li>Water consumption and water recycling.</li> </ol>	<ol style="list-style-type: none"> <li>Complied with the laws, regulations and requirements related to business operations in a correct and transparent manner.</li> <li>Assessed the company's operation to ensure legal compliance and transparency through the Legal Assessment and SHEE Audit.</li> <li>Managed COVID-19 tests and distributed test kits to employees to reassure government agencies that the company cares about stakeholders in all situations and is prepared to closely follow the law and disease control measures.</li> <li>Controlled environmental quality to surpass the standards set by the law.</li> <li>Provided correct explanations or information to government agencies in a timely manner, as well as immediately provided accurate information in case of emergency.</li> <li>Cooperated with the government in promoting the operation of environmentally friendly projects.</li> </ol>	<ol style="list-style-type: none"> <li>Government agencies grant approval for new projects, including approval of permits for continued operation.</li> <li>Control the quality of air emission and water discharge regarding with law.</li> </ol>	<ol style="list-style-type: none"> <li>Fully complied with the laws and regulations related to business operations.</li> <li>Operated projects better than the standards set by the law.</li> </ol>	<ol style="list-style-type: none"> <li>Gathering and sharing of knowledge through site visits.</li> <li>Collaboration with government agencies in environmental projects and work effectiveness improvements, such as in the Khlong Suai Nam Sai Project, etc.</li> </ol>

## Materiality Topics on Sustainability

The company operates in a participatory and sustainable way by responding to the needs and expectations of stakeholders while creating values for society and the environment. Therefore, important sustainability issues are reviewed and developed annually to be consistent with the global sustainability direction and perspectives from related industries through a process of selecting key issues from each group of stakeholders, including external experts. The company refers to the international standards of the sustainability reporting framework (GRI Standards 2021) as follows:

### Materiality Determination Process (Disclosure 3-1)

#### 1. Understand the Organization's Context

The company considers identifying corporate sustainability issues from internal and external information, which may impact long-term business value creation and stakeholders in economic, environment, and social aspects, including human rights. The information from internal and external factors are considered as follows:

- Internal Information, including goals and directions of the organization, value chain, business plan, as well as key points from the executive brainstorming workshop in strategies and managing risks that may affect the organization's sustainability in the short and long term.
- External information such as sustainability trends, directions and global risks, consisting of Sustainable Development Goals (SDGs), standards for corporate sustainability reporting from The Sustainability Accounting Standards Board (SASB), Sustainability Reporting Framework (GRI Standards 2021), criteria for global sustainability assessments, including corporate sustainability assessment (S&P Global), Morgan Stanley Capital International (MSCI) benchmark, SET Sustainability Index (SETTHSI) and industry comparisons as well as the needs and expectations of stakeholders perceiving from stakeholder engagement activities.





## 2. Identify Impacts and Prioritize the Most Significant Topics

The company groups information from identifying significant sustainability issues based on the organizational context and combines with indicators according to the GRI Standards 2021 Reporting Guidelines, resulting in all key sustainability topics with the following consideration principles:

- 2.1 Identify causes and impacts that have occurred (actual) and are expected to occur (potential), whether positive or negative, as they relate to sustainability issues (economic, environmental, and social, including human rights issues)
- 2.2 Consider priorities according to the level of severity and the likelihood of each issue and integrate with corporate risk management as shown in the table.

Criteria	Severity			Likelihood
	Scale	Scope	Irremediable	
3	Impact on the entire organization/stakeholders/experts with the opinion that the organization needs to take responsibility more rigorously/more than required by law.	An impact that global stakeholders are interested in/have expectations about.	Low likelihood or more than 5 years spent in recovering from impact.	Impacts happened in the past or is happening to current work.
2	An impact that the entire organization/stakeholders/experts sees that the organization needs to carry out as its normal responsibilities.	An impact that key stakeholders of the organization are interested in/have expectations about.	Takes more than 3-5 years to recover from the impact.	An unprecedented impact. But it happens to organizations in the industry.
1	No significant impact/minor impact.	An impact that few stakeholders are interested in.	Takes more than 1-3 years to recover from the impact.	An unprecedented impact in the industry.
0	No impact.	Not important.	Takes less than a year to recover from the impact.	Very unlikely to happen.

- 2.3 A summary of key sustainability issues will be compared with opinions from internal/external stakeholders, experts and considered against GRI 11: Oil and Gas Sector 2021 to ensure that the company’s sustainability issues are addressed, comprehensive, reasonable and exhibit little data variance.

### 3. Implementation

Sustainability issues from the analysis are prioritized and grouped into topics appropriate to the application. Then they are considered and approved by the Sustainability Policy Committee (SPC), which is chaired by the highest-ranking executive and the Sustainability and Corporate Governance Committee (board level), respectively. In addition, indicators are set to assess results at the organizational level with ties to the performance of the Bangchak Group chief executive officer and the president, executives and relevant employees in an appropriate proportion to encourage a culture of sustainability.

#### List of Materiality Topics (Disclosure 3-2)



#### Governance & Economic

- 1 Good Corporate Governance and Data Security
- 2 Innovation and Digitalization
- 3 Enterprise Risk Management and Cyber Security
- 4 Products and Services Development
- 5 Customer Relationship Management
- 6 Supply Chain Management



#### Environment

- 1 Environmental Management (EMS) (air pollution, water, waste)
- 2 Eco-efficiency
- 3 Climate Change Adaptation and Energy Management
- 4 Circular Economy
- 5 Biodiversity



#### Society

- 1 Occupational Health and Safety and Oil Spill Management
- 2 Community Development
- 3 Talent Attraction, Retention and Development
- 4 Human Rights
- 5 Gender Equality

Note:

1. The sustainability materiality and material development process were certified by a third party.
2. In 2022, there have been significant changes in sustainability issues, with new additions to the topic, namely, biodiversity and gender equality. These align with the global sustainability direction, S&P Global CSA, and the GRI Sector Standards that the company should focus on and have positive and negative impacts on company and stakeholders.
3. On page 59, the consistency of key sustainability challenges to business and the Sustainable Development Goals (SDGs) is discussed.

## Strategies for Business Sustainability

Bangchak is committed to developing sustainable business innovations in conjunction with the environment and society with the 4S Strategies for the corporation to achieve both short-term and long-term goals as follows:



### S1 : Security: Create energy security by focusing on the source of energy

Focus on joint business strategies in the refinery and oil trading business, marketing businesses, natural resources businesses, including biofuel businesses, to supply, produce and distribute refined products and biofuels to meet the demand of the business sector and the public in line with the overall trend of energy demand.

Though EVs command a healthy growth outlook, today Bangchak still considers our businesses as a necessity to cope with rising national energy demand.

### S2: Synergy: Create collaboration to transform and create products and services covering all business groups.

Bangchak focuses on engaging in businesses that align with Group proficiency as well as its core business (S1), including the fuel transport and logistics business, public utility and energy infrastructure, food and drinks, and mining. All these provide revenue and shared values of Bangchak's portfolio. In 2022, we formed Bangkok Fuel Pipeline and Logistics Co., Ltd., to engage in and grow businesses to accommodate comprehensive fuel transport.

### S3 : Sustainability: Develop and extend core businesses to achieve growth and sustainability.

To cope with the dynamic work environment and modern technologies and to accommodate challenges posed by global climate change, Bangchak continuously develops and leverages its core business toward sustainable growth. Bangchak accelerates its investment growth in clean and green businesses that aim for Carbon Neutrality/Net Zero GHG Emissions. Examples include investment and development of the lithium battery business in preparation for EVs and development of high-value bio-based specialties with our investment in Manus Bio Inc., a reputed global company with leading bio-innovative technology on advanced bio-fermentation. BiiC is a dedicated institute under Bangchak in charge of promoting innovations for the environment and society through investment in startups and partnering with external R&D organizations to relentlessly advance Bangchak's green businesses and development of bio-based specialties for domestic and international markets.

In 2022, Bangchak established BSGF, a joint venture with BBGI and Thanachok Oil Light Co., Ltd., to engage in the procurement of raw materials/feedstock, production, and distribution of SAF, derived from used cooking oil.

### S4: Scalability: Build flexibility and focus on seeking opportunities and driving new business in the future (new S-curves) to support long-term growth.

To sustain long-term growth, Bangchak focuses on reforming its revenue stream that leverages New S-Curve businesses that produce extensive benefit for the corporation. At the same time, Bangchak is poised to deal with technological transformation, emerging risks, and market volatility. Bangchak continues to implement the "4 Green Sustainability Strategy" which is in line with the 4S corporate strategy, especially S3:

Sustainability, sustainable business development alongside environmental and social development policy (Sustainability Policy) and the Sustainable Development Goals (SDGs) as a framework for business and investment.

## 4 Green Sustainability Strategy



### 1. Green Business

Bangchak focuses on investment in businesses that foster sustainable values. Besides growing revenue from new undertakings, this strategy represents green initiatives applied to businesses, including high-value bio-based products derived from agricultural produce via biotechnological innovation extended from biofuel production and sales. The company also values green power businesses and energy management, among others, involving BiiC, which incubates startups to further Bangchak's businesses in the future.

### 2. Green Production

Bangchak focuses on environmentally friendly and safe operations with optimal utilization efficiency of water and energy resources. To achieve these goals, Bangchak has adopted the operating systems certified by ISO 14001, ISO 50001, and Green Industry (Green Network) Level 5 of the Ministry of Industry standards in addition to Eco Factory from the Federation of Thai Industries, the occupational health and safety standard of ISO 45001, and advanced operating systems under Process Safety Management (PSM).

### 3. Your Greenovative Destination

Bangchak strives to be a creative and sustainable destination for all age groups, focusing on leadership in developing green innovations through assorted goods and services and non-oil businesses at its service stations, which serve as a

destination that fulfills customers' needs while pursuing sustainable business development. To this end, we leverage our core competencies: fulfilling customers' and stakeholders' needs and expectations; procuring, developing, and creating innovations in oil and non-oil products as well as services to enable us to promptly respond to changes; and operating businesses in conjunction with exercising sustainable stewardship of the environment and society. Below are our key strategies:

- **Greenovative Products** Bangchak strives for leadership in offering premium fuels in response to customers' demand and benefiting the environment through meeting Euro 5 standards. We currently produce and distribute Euro 4 quality fuels as required by the public sector plus three types of Euro 5 low-sulfur fuels (E20 S EVO Gasohol, Hi-Premium Diesel S, and Hi-Premium E10 Gasohol).
- **Network Management** We strive to grow and develop service station formats to meet customers' needs with a focus on areas of booming fuel demand and establish lucrative returns for partners' investment through innovative service stations, surroundings, non-oil businesses, and unique design service stations—to meet the various requirements of consumers. Our six designs are called Modern, Innovation, Eastern, Western, Fantasy and Thai-inspired. We also advocate standard improvement and service station image—both station structure and services—to be ready for competition. In short, catering to customers' needs and expectations is another key goal of the Marketing Business Group.
- **Non-Oil Offering** Expand non-oil businesses such as "Inthanin" coffee shop, "Dakasi" pearl milk tea, and join with various partners such as leading food franchise brands to open in service stations in the form of franchises, convenience store business partners, car care business, laundromats, product shipping businesses and vending machines, etc., to increase convenience and enrich customers' experiences.
- **Digital Experience** Apply technology to improve service and enhance customer experience while connecting to ecosystems in line with the requirements of today's lifestyles such as digital payment systems, digital card

system allows customers to collect points by telephone number, and point redemption via Bangchak application, and transferring points through cooperation with partners, etc.

- Green Sustainability** Fostering steady business growth along with society and the environment, Bangchak constantly drives projects supporting social development participation in conjunction with customers and stakeholders continuously, such as a refueling project where agricultural produce or farmers' and SME entrepreneurs' innovative goods, or both, are given to customers, a project where organic vegetables grown on service station premises are handed out to employees to lower their food bills and also given to customers. A byproduct is the know-how for growing garden vegetables, which is shared with communities and schools around our service stations. etc.

#### 4. Green Society

- This is one of the key strategies of the company that has continuously operated by caring for the environment and participating in improving the well-being of Thai

society through community and social development projects. The goal is to create positive changes in Thai society and develop the country including responding to stakeholders' needs and expectations, as well as achieving the Sustainable Development Goals (SDGs), such as providing career support to communities and medical personnel during the COVID-19 situation and educational support through Bai Mai Pan Suk Foundation, etc.



### Sustainable Development Goals Integration (SDGs Integration)

Bangchak integrates the Sustainable Development Goals (SDGs) with sustainability strategies relevant to business operations and the company's competencies, as well as global and national sustainability trends. Through the company's sustainability management structure, we have worked to achieve the SDGs goals specifically SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action) and SDG 16 (Peace Justice and Strong Institution), and the company has strategies and work plans to respond to each goal, including monitoring of progress in implementing the SDGs.



## Progress in Sustainable Business Development and Operation

**Green Business:** Focus on investing in energy and green innovation businesses to create value for the business sustainably and responsibly.



Work Plan	Performance	Goals for 2025
<p>1.1 Develop solar, wind, geothermal and hydropower businesses by expanding toward becoming a producer in Asia.</p>	<ul style="list-style-type: none"> <li>• Generation and distribution of electricity from renewable and clean energy both domestically and internationally by a total of 390.5 megawatts consisting of the following:               <ul style="list-style-type: none"> <li>– Solar power generation projects in Thailand with up to 173.5 megawatts already produced (including solar rooftop type and ongoing operation).</li> <li>– Solar power generation project in Japan with 79.7 megawatt production.</li> <li>– Wind power generation project in Nakhon Si Thammarat province with a capacity of 9.0 megawatts.</li> <li>– Wind power plant project in the Philippines with 14.4 megawatt production (according to shareholding proportion).</li> <li>– Hydropower plant project in Lao People's Democratic Republic with a capacity of 114 megawatts.</li> </ul> </li> </ul> <p>Remark: Generation capacity is based on the Power Purchase Agreement (PPA)</p>	<ul style="list-style-type: none"> <li>• Aggressive business growth, both in “organic” and “inorganic” businesses, by expanding the large-scale power plant business through acquisitions of already operating (brownfield) businesses or projects under construction (greenfield) with focus on expanding domestic investment and expanding into neighboring countries, while taking worthwhile returns, risks, and the balance of the investment portfolio into account.</li> <li>• Continuously optimize current projects with improvement strategies both in terms of technical engineering and finances with coverage to the assets currently owned and jointly invested by the company.</li> <li>• Strive towards more digital and innovative businesses to create new revenue channels under the digital energy and infrastructure businesses.</li> <li>• Manage capital and balance sheets efficiently and procure appropriate funding sources and financial ratios.</li> <li>• Develop employee competence and adapt the organizational structure aligned with the company's business growth toward future employee recruitment and development.</li> </ul>
<p>1.2 Develop biofuel businesses and expand the businesses of high-value bio-based products.</p>	<ul style="list-style-type: none"> <li>• The company conducted business through BBGI Public Company Limited with a total production capacity of over 1,600,000 liters per day, consisting of the following:               <ul style="list-style-type: none"> <li>– BBGI Biodiesel Co., Ltd. – BBGI-BI, which produces biodiesel with a capacity of 1,000,000 liters per day and has a refined glycerin refinery with an average production capacity of 80 tons per day.</li> <li>– BBGI Bioethanol (Chachoengsao) Co., Ltd. – BBGI-PS, which produces ethanol from cassava and molasses with a production capacity of 150,000 liters per day.</li> <li>– BBGI Bioethanol Co., Ltd. – BBGI-NP/BP, which produces ethanol from molasses with a total capacity of 450,000 liters per day.</li> </ul> </li> <li>– The company engaged in the business of selling, importing, exporting high-value bio-based products through investment in Manus Bio Inc., a global leader in high-value bio-based products and co-investment to establish a joint venture company, WIN Ingredients, to operate a business related to biotechnology.</li> <li>– Distribution of dietary supplements under the brand B Nature Plus, the first product being sold being ASTA-IMMU, an antioxidant that nourishes skin, extracted from red algae (Astaxanthin).</li> <li>• The company engaged in the business of experimental research and development in biotechnology, particularly research on biological products by using synthetic biology technology (synthetic biology) in collaboration with Biom Company Limited.               <ul style="list-style-type: none"> <li>– The company established BSGF Co., Ltd. (BSGF), a joint venture with BBGI and Thanachok Oil Light Co., Ltd., to operate the business of sourcing raw materials and producing and distributing sustainable aviation fuel (SAF) from used oil.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Develop biofuel businesses into high-value-added bio-products through investment in startups or leading businesses with technology and knowledge both in Thailand and abroad consistently with the Bio-Circular-Green Economy (BCG) model.</li> </ul>

Work Plan	Performance	Goals for 2025
<p>1.3 Develop innovative businesses to add value and create business opportunities.</p>	<ul style="list-style-type: none"> <li>The Bangchak Initiative and Innovation Center (BiiC) launched a startup business under the name "Winnonie" (Motorcycle Taxi No Debt) by bringing in innovative green energy electric motorcycles with a battery-swapping feature as the first in Thailand for motorcycle taxi riders to try out to drive and pick up passengers in the area around the head office and Bangchak refineries to reduce greenhouse gas emissions, air pollution, and the cost of motorcycle taxi riders. This reinforces our total leadership in green energy innovation.</li> <li>Development of the "Krathing" coin-operated gas stations to bring innovations to communities located far away from gas service stations, with other services in addition to fuel including phone top-up, electrical bill and water bill payment services, and in the future more financial services will also be added.</li> <li>Building academic cooperation and development of projects jointly with institutions, agencies and universities.</li> </ul>	<ul style="list-style-type: none"> <li>Invest in innovative business incubators and startups while focusing on green energy, including energy storage and bio-based innovations that are beneficial to society and the environment. ★</li> </ul>

**Green Production:** Focus on upgrading environmental and safety management work.



Work Plan	Performance	Goals for 2025
<p>2.1 Focus on reducing greenhouse gas emissions under the BCP 316 NET plan, namely B = Breakthrough Performance, emphasizing highly efficient production processes and enhanced and improved efficiency in the processes; C = Conserving Nature and Society by supporting ecological balance through natural carbon absorption; P = Proactive Business Growth and Transition by transforming businesses toward clean energy and increasing the proportion of income from green businesses NET = Net Zero Ecosystem via building an ecosystem to support achieving the Net Zero goal.</p> <p>2.2 Make improvements to increase efficiency and stability in production energy use.</p>	<ul style="list-style-type: none"> <li>Indicators have been set for the organization's success in reducing greenhouse gas emissions from related projects and carbon offset of the company and companies in the group. These are also indicators of the performance of high-ranking executives. ★</li> <li>The Company's energy consumption and greenhouse gas emissions Scope 1 and 2 have been verified and given a reasonable level of assurance from third parties. Accordingly, refinery businesses performed verification according to the Carbon Footprint Organization assessment guideline and in 2022, the results were extended to the marketing business group, which has been certified to the scope of Bangchak Green Net Co., Ltd. (BGN) and Bangchak Retail Co., Ltd. (BCR) from Thailand Greenhouse Gas Management Organization (Public Organization).</li> <li>The company implemented the YES-R+ project to develop yield, energy, efficiency, safety and reliability for security and sustainability and to reduce productivity loss.</li> <li>The company continued to use the CCRU unit in conjunction with energy efficiency improvement projects. As a result, energy consumption in a production unit was 4.83% of fuel oil equivalent barrels (%FOEB) in 2022, which exceeded the target of 4.99% of fuel oil equivalent barrels (%FOEB).</li> </ul>	<ul style="list-style-type: none"> <li>Aiming to become a carbon-neutral company by 2030 and emit zero greenhouse gases (zero GHG emission) by 2050.</li> <li>Implement the YES-R+ project to develop yield, energy, efficiency, safety and reliability for security and sustainability and to reduce productivity loss successfully.</li> <li>Continuously implement projects to improve energy efficiency from refinery development projects.</li> <li>Project to deactivate the 2<sup>nd</sup> distillation unit's catalyst reforming unit.</li> <li>Gas engine generator installation project to replace gas turbine generators.</li> </ul>

Work Plan	Performance	Goals for 2025
<p>2.3 Increase the efficiency of water consumption in production by water reduction, reusing and recycling.</p>	<ul style="list-style-type: none"> <li>Reduction of cumulative water consumption by 35% (compared to the base year of 2015).</li> <li>Controlling water consumption per production process at 53 cubic meters per thousand barrels of oil equivalent, which exceeded the target set at 55 cubic meters per thousand barrels of oil equivalent.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of cumulative water consumption by 30% (compared to the base year of 2015).</li> <li>Increase efficiency in water consumption per production unit by 54 cubic meters/ thousand barrels of oil equivalent.</li> </ul>
<p>2.4 Establish a water footprint path to manage water throughout the product life cycle.</p>	<ul style="list-style-type: none"> <li>The company managed water in the refinery continuously with a process to prepare the water footprint of products for the management of water per product for maximum efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>Continuing to study water management in the refinery by the water footprint of products.</li> </ul>
<p>2.5 Online air quality monitoring at the stack, working areas and around refineries to be better than what is required by law and regulation</p>	<ul style="list-style-type: none"> <li>No air pollution complaints.</li> <li>Air quality measured by a third party was 100% within standard values.★</li> </ul>	<ul style="list-style-type: none"> <li>No air pollution complaints each year. ★</li> </ul>
<p>2.6 Manage wastes according to the 3Rs principle (Reduce, Reuse &amp; Recycle).</p>	<ul style="list-style-type: none"> <li>Implemented waste management according to the 3Rs principle of refineries for 99.99% of the total waste.</li> <li>Amount of industrial waste disposed of by incineration that is not energy recovery (excluding recycling, reuse or incineration for energy recovery) at 0.11 tons.</li> </ul>	<ul style="list-style-type: none"> <li>Amount of waste disposed of by incineration that is not energy recovery (excluding recycling, reuse or incineration for energy recovery) at 0 tons.</li> </ul>
<p>2.7 Establish a foundation for process safety management (PSM) in the workplace and expand the scope of promotion of safety, occupational health and the environment to cover the surrounding communities.</p>	<ul style="list-style-type: none"> <li>Assessment results for safety management in the production process achieved a level of 4.0 points.</li> <li>Organized evacuation drills and training on the use of basic fire-fighting equipment for 8 communities, 7 schools, and 22 condominiums around the refineries in the Phra Khanong-Bang Na area.</li> <li>88.6% community confidence in safety assessment, a continuous increase from the previous year. ★</li> </ul>	<ul style="list-style-type: none"> <li>Develop safety activities to continuously build trust and engagement among the stakeholders of the organization.</li> <li>Continue to develop the PSM system to complete all 14 issues.</li> <li>Provide continuous evacuation drills with schools, condominiums and communities.</li> <li>Receive 0 complaints from communities at large. ★</li> </ul>





**Your Greenovative Destination:** Strive to create experiences and new greenovative products through products and services at service stations.



Work Plan	Performance	Goals for 2025
<p>3.1 Develop service stations that meet customer needs (customer-centric) by improving concepts/images, developing services ancillary business to deliver new experiences to customers.</p>	<ul style="list-style-type: none"> <li>Maintained number 1 in Net Promoter Score (NPS) through key strategies and key operations, i.e. ★</li> </ul> <p><b>Greenovative Products</b></p> <ul style="list-style-type: none"> <li>Released the latest product, Hi Premium 97, the only one in the premium gasohol group that meets Euro 5 international standard.</li> <li>Enhanced the sale of biofuel products that reduce greenhouse gas emissions, namely, Gasohol E20 S EVO sold through 955 stations and E85 sold through 376 stations with continual increases in the E20 and E85 market shares as 2<sup>nd</sup> place in the market.</li> <li>Developed lubricant products with certification according to ISO 9001 and ISO/TS16949 Quality Management System for the Automotive Industry and according to an international quality management system. In 2022, the company increased the market share for lubrication oil to 10.1% from 9.9% in the previous year.</li> </ul> <p><b>Network Management</b></p> <ul style="list-style-type: none"> <li>Improved the image of service stations by delivering service experience through the design and development of non-oil business partners with 74 unique-design service stations in 5 styles: Modern, Innovation, Eastern, Western, and Fantasy.</li> <li>Collaborated with partners to install 179 EV chargers in Bangchak service stations, the highest number of service stations that offer EV chargers in Thailand.</li> <li>Supported improvements in the standards and image of 140 service stations to be ready to compete in terms of structure and service.</li> </ul> <p><b>Non-Oil Offerings</b></p> <ul style="list-style-type: none"> <li>“Bangchak Food Truck” business, in collaboration with leading brands, that opened for service at service stations in the form of grab-and-go to meet urban lifestyle needs during the New Normal, with coverage totaling 25 branches in 2022.</li> <li>Expanded non-oil businesses in additional gas stations such as “Inthanin” coffee shops by 1,002 branches, DAKASI bubble milk tea shops (Dakasi) by 51 branches, and convenience store allies like “Tops Daily”, “Family Mart”, “Mini Big C” and “Lawson” by 15 branches, 17 branches, 133 branches and 1 branch, respectively.</li> <li>Developed new businesses to complete the full range of services such as car care business under the brands “Wash Pro”, “FURiO Care”, “Green Wash” and “Trye Care” and expanded branches with partners such as B-Quick, including restaurant businesses, laundromats, shipping services and vending machines, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain the number 1 service station brand in minds indicated by Net Promoter Score (NPS). ★</li> <li>Push sales through service stations continually and 2<sup>nd</sup> rank in market share. ★</li> <li>Develop services, service stations and non-oil businesses under the concept of “Your Greenovative Destination”; develop green innovations through products, services and non-oil businesses in “Bangchak” stations to become destinations that will fulfill customer needs for sustainable business development.</li> <li>Use of non-single-use plastic for the cold drink menu in Inthanin.</li> </ul>

Work Plan	Performance	Goals for 2025
	<p><b>Digital Experience</b></p> <ul style="list-style-type: none"> <li>Expanded the network of fleet card and pre-paid card customers to increase sales.</li> <li>Implemented a digital payment system for payment with readiness for member point collection at Inthanin stores and convenience stores in gas service stations by scanning QR Codes to make payments through any bank application with support covering 760 branches.</li> <li>Developed 72 more service stations according to the Inno-Green station design criteria developed in collaboration with the Thailand Environment Institute (TEI), with 200 service stations presently meeting the aforementioned criteria.</li> <li>Developed the Bangchak card membership benefits in the “Payback on the Day of Gasoline Price Hike” campaign and a system to support members' care of the environment, such as the “Ton Mai Khong Khun”. “Ta Kra Bun” Project, where members can donate points to various charities at any time, and developed additional projects such as transferring Bangchak points to AIS points, exchanging for 'Bangchak PointPay' discounts, using points to help pay at Thung Ngoen shops, transferring Bangchak points to MAAI points and converting points into funds.</li> <li>The BCP Link application system facilitated dealers in accessing important information.</li> <li>An online training system for on-site service staff and dealers to enable access to critical process information at anytime, anywhere.</li> </ul> <p><b>Green Sustainability</b></p> <ul style="list-style-type: none"> <li>“Toem Nam Man Pan Nam Chai” Project to buy agricultural products to give to customers who come to refuel.</li> <li>Employment project for the disabled and elderly to support the value and quality of life of people in society by employing and providing opportunities for 146 elderly people and 26 disabled to work in service stations. 2 elderly persons (at the head office and Inthanin) and 3 disabled persons. (at the head office and 2 persons at Inthanin).</li> <li>An organic kitchen vegetable project to create kitchen gardens in areas behind service stations to reduce employee cost of living.</li> <li>The Inthanin coffee shop business, as a leader of the coffee business that is "environmentally friendly" campaigned for plastic usage reduction through the "Nam Kaeo Ma Eng" project. Currently, Inthanin is the leader of coffee shops that use BIO packaging type PLA (polylactic acid) with both lids and coffee cups made from plants and completely naturally biodegradable and this includes using a ready-to-drink lid that does not require a straw to reduce the problem of plastic waste and pollution from waste disposal until becoming the number 1 coffee shop that uses bioplastic the most in ASEAN. Furthermore, the company collaborated with the Royal Forest Department in the “Cups for Saplings” project to turn used Inthanin beverage cups into containers for cultivating saplings instead of using black plastic bags, to reduce waste and contribute to revitalizing forest land.</li> <li>Project to study the feasibility of using solar air conditioners in Inthanin and Dakasi stores by starting installation in 16 Inthanin and Dakasi stores and expanding more installations in the following year.</li> </ul>	

Work Plan	Performance	Goals for 2025
	<ul style="list-style-type: none"> <li>• Thai tradition promotion project to create experiences and campaign for customers to see the importance of Thai traditions, such as by organizing promotional programs during important festivals, giving away give Krathongs to customers on Loi Krathong Day and arranging areas for pouring water over Buddha images.</li> <li>• Khong Hai Khuen Dai Project at Bangchak stations to instill a sense of honesty among service workers to take care of and return the property forgotten by service users at service stations.</li> <li>• Roadside assistance project to provide assistance to ordinary motorists who require basic assistance such as in changing tires and jump-starting batteries, etc.</li> <li>• Bangchak Ruam Pan Nam Chai project for members to endlessly give by promoting the participation of Bangchak members in helping society through donating accumulated points from refueling and purchases of products in Bangchak Group.</li> </ul>	

**Green Society:** Develop businesses/activities that contribute to caring for the environment and participate in improving the quality of life of Thai society.

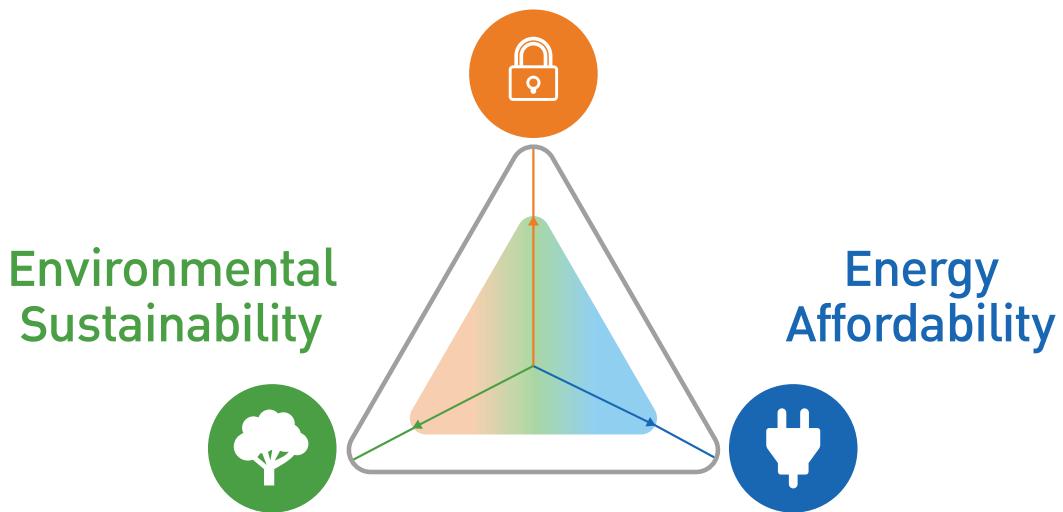


Work Plan	Performance	Goals for 2025
<p>4.1 Participate in the Corporate Governance Survey of Listed Companies (CGR score) and renew the Thailand Private Sector’s Collective Action Coalition Against Corruption (CAC Recertification) for the 3<sup>rd</sup> time.</p>	<ul style="list-style-type: none"> <li>• 97% or Excellent CGR evaluation score.</li> <li>• Renewal of membership in Thailand Private Sector’s Collective Action Coalition Against Corruption (CAC re-certification).</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain an Excellent CGR rating (90% and up).</li> </ul>
<p>4.2 Develop social activities models and businesses that create benefits for society and the environment concurrently.</p>	<ul style="list-style-type: none"> <li>• Improved community quality of life to create healthy, inviting and sustainable communities in 8 aspects in the areas surrounding the Bangchak refineries, namely safety, education, sports, quality of life, environment, strengthening relationships and preserving culture and traditions, economy and public benefits through organizing activities with community groups, families, schools and condominiums, by which the company was able to share benefits to over 106,407 participants with a community engagement score of 89.2%.</li> <li>• Supported the community economy through activities such as supporting the establishment of community enterprises, supporting products/services from community entrepreneurs, etc.</li> <li>• Created employment opportunities for disabled persons by at least 1% of total employees.</li> </ul>	<ul style="list-style-type: none"> <li>• 87% community engagement score with the company. ★</li> <li>• Continuously expand businesses that benefit the public.</li> <li>• Support the hiring of disabled persons according to the law.</li> </ul>

Work Plan	Performance	Goals for 2025
<p>4.3 Develop activities for society to respond to the country’s problems.</p>	<p><b>Bangchak Huang Yai Su Phai COVID-19</b>                      Focused on mitigating impacts and preparing for a return to normalcy after the COVID-19 situation. through activities such as the following:</p> <ul style="list-style-type: none"> <li>• <b>Dontri Pan Suk Project:</b> The company supported a group of musicians and singers in performing at Bangchak service stations located in appropriate areas in Bangkok, its vicinity, and nationwide.</li> <li>• The company donated essential items to affected groups, such as the following:                             <ul style="list-style-type: none"> <li>- Donation of masks, ATK kits, alcohol and hazardous waste bags to residents in communities, condominiums, families, and school personnel/students, government agencies around refineries.</li> <li>- <b>Pan Suk Bag Project and Pan Suk Backpack Project:</b> Donation of school supplies, cloth masks for children and waterproof backpack sets along with COVID-19 prevention supplies to teachers and school personnel.</li> </ul> </li> </ul> <p><b>Education</b>                      There were 3 major projects as follows: “An Khian Rian Sanuk Pan Dek Chio Pen Dek Chaeo” project, “Rak Pan Suk Junior” project and “Solar Pan Suk” project to build the foundation of sustainability, that is, to develop youths in education and the environment in line with the United Nations Sustainable Development Goals or UN Sustainable Development Goals in Goal 4 Quality Education, which is the main goal and drive towards Goal 13 Climate Action by instilling awareness and good environmental behavior in line with the country’s policy according to the BCG Economy model covering more than 15,000 youths from nearly 200 educational institutions in 52 provinces nationwide.</p> <p><b>Taking care of climate change</b></p> <ul style="list-style-type: none"> <li>• <b>Koh Mak on the path to becoming a low-carbon destination:</b>                      The Bangchak Group became interested in and extended sustainable development work to make Koh Mak a low-carbon destination together through 5 agencies, namely Koh Mak Sub-district Administrative Organization, Ban Ao Nit Mixed Agriculture Community Enterprise, Designated Areas for Sustainable Tourism Administration (DASTA), Kasetsart University and Thailand Greenhouse Gas Management Organization (Public Organization), with a 3-5-year work plan set to cover education to reduce greenhouse gas emissions from key activities along the guidelines for reducing greenhouse gas emissions in daily life (waste management, use of clean energy, transportation, etc.) and restoration-conservation of land and marine ecosystems to absorb carbon. In 2022, Koh Mak became listed as one of The Green Destination TOP 100 of the World).</li> <li>• <b>Carbon Markets Club:</b> To encourage the exchange of knowledge on managing carbon credits and trading carbon credits in Thailand. The Bangchak Group and 11 founding partners expanded work and are accepting members from both organizations and individuals to join the network. Currently, there are 53 member organizations and 150 individual members supporting the trading of carbon credits and certificate of the right to become a digital renewable power producer to reduce greenhouse gas emissions by more than 400,000 tons of carbon dioxide equivalent.</li> </ul>	<ul style="list-style-type: none"> <li>• Continuously operate the Bangchak Pan Nam Chai Su Phai COVID-19.</li> <li>• Develop literacy and writing skills for at least 800 youths/year.</li> <li>• Continue to expand the activities of partnership schools.</li> <li>• Implement social projects that focus on activities to reduce emissions and capture more greenhouse gases, including the process of measuring, evaluating and certifying carbon credit according to various related procedures.</li> <li>• Organize environmental seminars once a year with at least 300 attendees.</li> <li>• Conduct biodiversity risk assessments and mitigation projects in case of high-risk exposures in key business areas.</li> </ul>

Work Plan	Performance	Goals for 2025
	<p><b>Annual Environmental Seminar 2022</b></p> <ul style="list-style-type: none"> <li>Environmental seminar on the topic of “Energy Security and Carbon Sequestration” with emphasis on the transition period from fossil energy to clean energy that requires time and money, including appropriate technologies, with taxonomy mechanisms, or classification of investment businesses that reduce carbon and are environmentally friendly, serving as an important factor to speed up the energy transition, including creating value for investments that help reduce carbon, promote more investment through various privileges in line with the new vision of the Bangchak Group, which focuses on creating a balance between 3 energy challenges, namely, Energy Security, Energy Affordability and Environmental Sustainability to create a balance between using the world’s energy, which contributes to the release of carbon dioxide into the atmosphere, and protecting the environment and taking care of the planet in a sustainable way.</li> </ul>	

## Energy Security



Work Plan	Performance	Goals for 2025
	<p><b>Taking care of biodiversity</b></p> <ul style="list-style-type: none"> <li>• <b>Biodiversity Risk Assessment:</b> At the site of the refineries, it was found that there are no conservation areas according to the IUCN within a 5-kilometer radius of the refinery areas, and the company assesses environmental impacts and biodiversity according to the guidelines of ISO14001: 2015, by which the company produced low impacts on biodiversity. Thus, the company focused on continuously monitoring for impacts on biodiversity, such as waste release control, i.e., wastes, trash, air pollution from actions to prevent spills in the environment and to comply with the law.</li> <li>• <b>Biodiversity Promotion Projects:</b> <ul style="list-style-type: none"> <li>- <b>Firefly Pathway of Conservation Project:</b> Working with neighboring communities of refineries in 6 sub-districts in the Khung Bang Ka Chao area, the company focused on taking care of the firefly population living in the area, which currently is unstable and increases or decreases according to the environment.</li> <li>- <b>Project to support large farmer plots in growing stingless bees at Bang Nam Phueng Sub-district:</b> The company worked with stingless bee farmers with large plots and the stingless bee farmers' group at Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Prakan, since stingless bees are insects that indicate the abundance of the environment and local biodiversity in addition to being economically beneficial to communities.</li> <li>- <b>Phuet Phan Pan Suk Project:</b> The company added green spaces by distributing trees to customers and the public through Bangchak gas service stations and 9 Inthanin coffee shops and Phra Khanong District Office and assigned employees to plant trees in the green spaces near them and organized tree-planting activities in areas near to Bangchak's oil refineries.</li> <li>- <b>Project of Cooperation to Restore the Lam Pra Thao Water Source Forests:</b> The company worked to restore and support the conservation of water source forests to remain abundant and to serve as food sources for animals and natural learning by the local population through collaboration and care by locals (monks, villages, teachers, instructors, students and local agency representatives) through the Lam Pra Thao water source restoration collaboration project and sapling cultivation project for reforestation at Phu Long and Thot Pha Pa and tree-planting to conserve the Lam Pra Thao water source forest in Phu Long, Chaiya Phum Province. The projects were meant to promote learning and conscience in employees and neighbors around Bangchak's oil refineries in Bangkok along with their families and schools through helping each other to grow saplings and to make trips to actually plant trees at water source forests.</li> </ul> </li> </ul>	

Remark: ★ 1) This is an organization-level sustainability performance that was consistent with the performance of the president and chief executive officer in 2022.

Creating Value from Work to Achieve Sustainable Development Goals (SDGs)	Enterprise Value Creation	The Environment and Stakeholders Value Creation
 <p>Material Topic E1 - Environmental Management</p>	<ul style="list-style-type: none"> <li>Increased water management effectiveness in production processes and reduced cost and expenses from water use.</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholders receive no impacts from the use of the company's water resources.</li> <li>Sustainable mitigation of water-drought problems.</li> </ul>
 <p>Material Topic E3 - Climate Change Adaptation G2 - Innovation and Digitalization G3 - Enterprise Risk Management</p>	<ul style="list-style-type: none"> <li>Increased stability of income in businesses related to green energy and energy projects.</li> <li>Increased energy utilization effectiveness, reduced cost and reduced energy expenses.</li> </ul>	<ul style="list-style-type: none"> <li>Increased share of renewable energy in the country.</li> <li>Reduced greenhouse gas emissions in the country.</li> <li>Promotion of balance and energy security in the country.</li> </ul>
 <p>Material Topic E1 - Environmental Management E3 - Climate Change Adaptation E4 - Circular Economy</p>	<ul style="list-style-type: none"> <li>Reduced waste management expenses.</li> <li>Increased benefits and value from waste.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced wastage and greenhouse gas emissions as a result of waste management.</li> <li>Promotion and support for adherence to the BCG Economy Model concept.</li> </ul>
 <p>Material Topic E2 - Eco-efficiency E3 - Climate Change Adaptation E5 - Biodiversity G2 - Innovation and Digitalization G3 - Enterprise Risk Management</p>	<ul style="list-style-type: none"> <li>Reduced risk and business impacts from climate change in terms of physical risks and transition risks in areas related to policies, laws and technologies.</li> <li>Enhancement of business opportunities through greenhouse gas reduction mechanisms, green energy businesses and bio-based product businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced risks and impacts from climate change.</li> <li>Promotion and prevention of global temperatures from rising by more than 1.5 degrees Celsius.</li> <li>Support for goals to reduce national greenhouse gas emissions of Thailand to conform to the NDC roadmap.</li> </ul>
 <p>Material Topic S1 - Occupational Health and Safety S2 - Community Development S3 - Talent Attraction S4 - Human Rights S5 - Gender Equality</p>	<ul style="list-style-type: none"> <li>Support for government policies to hire disabled persons according to Section 33.</li> <li>Prevent inappropriate losses to life, property and environment in the workplace.</li> </ul>	<ul style="list-style-type: none"> <li>Promote professional equality for society.</li> <li>Prevent impacts on the health and benefits of stakeholders from accidents arising out of the company's business activities.</li> </ul>
 <p>Material Topic S1 - Occupational Health and Safety S2 - Community Development</p>	<ul style="list-style-type: none"> <li>Build good relationships and confidence in the company's activities for communities.</li> </ul>	<ul style="list-style-type: none"> <li>Develop the well-being of communities and society for improved existence in terms of occupation, environment and safety.</li> </ul>
 <p>Material Topic G2 - Innovation and Digitalization G4 - Products and Services Development G5 - Customer Relationship G6 - Supply Chain Management</p>	<ul style="list-style-type: none"> <li>Build upon businesses by using innovations to add value and create business opportunities.</li> <li>Create a culture of innovation in employees.</li> <li>Promote collaboration with other organizations in research.</li> </ul>	<ul style="list-style-type: none"> <li>Promote research and development in sciences, technologies and innovations for the development of the country.</li> <li>Promote the use of innovations to improve the quality of life of members of society.</li> </ul>
 <p>Material Topic G1 - Good Corporate Governance G6 - Supply Chain Management</p>	<ul style="list-style-type: none"> <li>Promote positive image and transparency.</li> <li>Build good relations with anti-corruption networks.</li> <li>Prevent risks from failure to comply with laws and regulations, including corruption.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced problems associated with corruption in society.</li> <li>Establishment of a strong anti-corruption business network.</li> </ul>

## Economic, Environmental and Social Situation

The global economy in 2022 experienced a downturn from early in the year. The new Omicron COVID-19 strain caused many countries to increase measures to prevent its spread. In particular, China had been implementing anti-COVID-19 measures continuously throughout the entire year. Moreover, the conflict between Russia and Ukraine caused a major disruption in the global supply chain with increasing escalation through trade restrictions and rising energy and consumer goods prices. Inflation is high in many countries, especially in the major economies. Additionally, the uncertainty in the relationship between the United States and China continues to be a cause for stress. Other geopolitical factors and concerns for a potential economic recession caused the International Monetary Fund (IMF) in 2022 to project the average growth rate to just 3.2%, a decline from the growth rate in 2021 of 6.0%. Accordingly, to respond to the problem of above-expectations inflation, the central banks of many countries issued strict fiscal policies. The US Federal Reserve System (FED) increased its policy interest from 0.25% to 4.5%, with up to 7 interest adjustments in the entire year. Similarly, the European Central Bank (ECB) maintained a strict fiscal policy and also increased interest rates, although asset purchases continued under the Pandemic Emergency Purchase Program (PEPP). In contrast, the Chinese central bank (PBOC) consistently released fiscal measures to boost the economy.

For the year 2023, with rising uncertainty and consistently rising inflation above target levels, despite a trend indicating a slower rate of inflation, with the inflation rate of major economies beginning to slow down due to strict fiscal measures, the International Monetary Fund (IMF) projects that the economy will experience a slower growth of 2.7%, with supporting factors the management and tourism sectors and new private sector investments, which are inclined to recover, along with China's gradual economic recovery in line with the easing of Zero-COVID restrictions. Nevertheless, negative factors continue to come from the prolonged conflict between Russia and Ukraine, high energy prices, high public debt levels worldwide and risk for economic recessions in the Eurozone countries, and the United States due to strict fiscal measures.

As for the economic condition of the Asia Pacific Region in 2022, growth was expected to reach 4.0%, down from the previous year's growth of 6.5%, due to uncertainties in the global economy and high inflation. However, the Asia Pacific Region has shown signs of growth and economic recovery after many countries, except for China, reclassified Coronavirus 2019 (COVID-19) as an endemic disease. Thus, in 2023, the IMF projected the economic growth in the Asia Pacific Region to be continuous at 4.3%.

Climate change remained a major concern in 2022, with increasingly severe impacts from global warming. The 27<sup>th</sup> United Nations Climate Change Conference (COP 27) from 6–18 November 2022 at Sharm El Sheikh, Egypt, continued to emphasize controlling global temperatures to rise by no more than 1.5 degrees Celsius while promoting the use of clean energy and gathering funds from developed countries to sponsor the climate actions of developing countries with a focus on the agreement for the establishment of a “loss and damage” compensation fund for nations impacted by climate change to produce nature-based solutions, all of which were issues discussed, to allow various countries to consider the guidelines and build cooperation in solving the problem of climate change, and to increase funding for conservation, protection and restoration of forests and to seek ways to stop the rapid decline in biodiversity.

Thailand has shown its stance in dealing with climate change in terms of adjusting its long-term strategies regarding national greenhouse gas emissions and goals toward achieving carbon neutrality by the year 2050 and achieving net zero carbon emissions by the year 2065 in every field, with a target to increase production of zero-emissions vehicles to 30% of all vehicle production by the year 2030 and has renewable energy account for up to 50% of all electricity generation by the year 2050 and to support for the use of technologies to commercially reabsorb carbon dioxide before the year 2040.





In the areas of social and governance, research by the MSCI found that having a board-level sustainability committee with at least one member who has experience in climate change can help ensure consistency with future global temperature regulation. Additionally, the company continues to give importance to having women hold at least 30%, and for employee care, the organization continues to consider the risk of air pollution from rising levels of PM 2.5 and seek guidelines to reduce health impacts on employees due to economic changes caused by COVID-19, which have led to inflation, rising living costs, and increased return expectations.

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SDG Move, “Summary of COP27 What issues are worth looking at? Focus on “loss and damage” from global warming”, [online], <https://www.sdgmovement.com/2022/11/29/cop27-climate-change-conference-2022/>

Thairath Online, “Thailand declares its stance at “COP 27” to strive for zero greenhouse gas emissions.”, [online], <https://www.thairath.co.th/news/local/2556180>


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BUSINESS  
- NETWORKING  
- SOCIAL NETWORK  
- TECHNOLOGY  
- MEDIA  
- CREATIVE  
- FINANCE  
- INVESTMENT  
- CULTURE  
- ECONOMY

# Governance and Economic Dimension

Sales and Services Revenue   
**312,202** Million baht

Dividend payment per share   
**2.25** THB/share

Profit (loss) for the year   
**12,575** Million baht

EBITDA   
**44,724** Million baht  
NPS Score 1<sup>st</sup> rank (share)



## Revenues (Disclosure 201-1)

In 2022, Bangchak and its subsidiaries (“company group”) has sales and services revenue from various business groups which consists of: Refinery and Trading Businesses, Marketing Business, Power Business, Bio-based Business, and Natural Resources Business totaling 312,202 million baht, an increase of by 57% from the previous year. Most of the revenues were generated from oil-related businesses, with the average unit price increased in line with the prices of crude oil and refined oil in the global market. The company’s total oil product sales also increased by 16% YoY. Primarily due to recovery in consumption and increased BCPT sales revenues, largely because of the rising average unit price and sales to parties outside the company’s group.

## Expenses

The company Group’s operating expenses in 2022 when compared to 2021 increased by 113,360 million baht. This was largely due to increasing cost due to oil prices and sales volumes in line with increased revenues from sales and services. Other expenses of the company are social care expense to support schools and communities, including in-kind donations and monetary donations of approximately 25.68 million baht. In 2022, wages and expenses related to employee welfare and benefits increased from 2021 by approximately 1,730 million baht due to the merger of OKEA ASA. During the year interest expenses on loans and debentures increasing by approximately 580 million baht from the previous year. As for the payment of taxes to the government and local authorities in 2022 was approximately 1,230 million, in line with the company’s operating results in areas related to oil and natural resources. Additionally, in 2022, the company and its affiliated companies paid 4,261 million baht in dividends.

## Tax Management (Disclosure 207-1, 207-2, 207-3)

Taxes are a crucial resource for a country’s administration and development. To ensure the maximum value for shareholders, our company places great importance on proper tax management in accordance with the law. Company have established guidelines for tax planning and compliance that are consistent across our domestic and international operations, and adhere to principles of transparency and fairness for all stakeholders, in line with our commitment to corporate governance. Our tax policy is reviewed and updated annually by the Executive Committee to address direct and indirect tax-related risks.



Tax Policy

Accordingly, to ensure that tax-related work is complete and correct according to the standards that have always been adhered to, the following practices have been specified for consistency with the policy:

1. Prepare for risks related to taking actions are not fully in compliance with the law and arrange for lessons learned to be used to set work indicators and monitor, and gather tax benefits. Additionally, integrate tax-related risks based on the policies of each country in which the company invests to accompany investment decisions in new projects.
2. Examine related laws, criteria and announcements through multiple channels such as the Thai Royal Government Gazette’s website and websites of relate government agencies.
3. Consider the impact of changes in tax laws and review and improve practice guidelines for conducting transactions related to the company. This will ensure compliance with the law and enable the company to obtain tax benefits.
4. The company has established channels for expressing opinions and recommendations about the company’s tax-related activities, such as the Whistleblower Channel and the 1651 Hotline. The company participates in activities organized by government agencies which are the primary stakeholder, to receive knowledge about taxes and recommendation on tax-related matters.
5. The company discloses tax information and licensed auditor’s in the company’s annual report, in accordance with relevant laws. Details on corporate income tax can be found in the “Sustainability Statistics” table on page 182 of this report summarizing economic performance.

## Good Corporate Governance

The board of directors intends to support the company in becoming an organization that operates business according to the principles of good corporate governance with a good system of management that is up to standard with focus on maximizing benefits for shareholders with consideration to all stakeholders and exhibiting business ethics along with transparency and verifiability. As such, the company has created a good corporate governance policy in writing (Disclosure 2–23) since 2003, partly from the operational meeting in which every employee participated in brainstorming and specifying operational guidelines. Recently, the company has been striving to build knowledge and understanding about good corporate governance principles and instilled a conscience about how to apply them in daily life, thus creating an organizational culture. The company has improved the good corporate governance principles by studying good corporate governance practice both in the country and abroad.

## Board of Directors

- The board of directors is diverse in term of skillsets, education background, and experience, which align with the business strategies as demonstrated through the creation of a board skill matrix. There is no discrimination based on any differences.
- The number of directors should be between 5 and 15 people, with no sexual discrimination. As of 31 December 2022, there were 15 directors, including 2 women and 1 executive director.
- Independent directors should make up more than one-third of all directors. Currently, there are 10 independent directors, which is more than one-third but greater than one-half of all directors, and is still considered in line with good corporate governance principles.

**The chairman of the board must not hold any position in a sub-committee and must not be the same person as the president and chief executive officer. Performance Evaluation of the Board of Directors.**

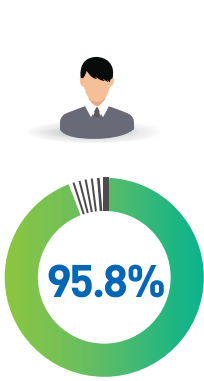
### Board Skills Matrix

Name/Specific Expertise	Knowledge of company business	International business	Accounting and finance	Management	Compliance	Organization development and innovation	Information and digital technology	Society, environment, and safety	Risk and crisis management
1. Mr. Pichai Chunhavajira	x	x	x	x		x		x	x
2. Mr. Suthep Wongvorazathe	x	x	x	x					x
3. Gen. Songwit Noonpackdee	x			x		x		x	x
4. Pol.Lt.Gen. Chaiwat Chotima	x			x				x	x
5. Pol.Lt.Gen. Samran Nualma	x			x	x			x	x
6. Dr. Porameteer Vimolsiri	x	x	x	x		x		x	x
7. Mr. Prasong Poontaneat	x	x	x	x	x	x			x
8. Mrs. Prisana Praharnkhasuk	x	x	x	x		x	x		x
9. Mr. Narin Kalayanamit	x	x	x	x		x			x
10. Mr. Achporn Charuchinda	x	x		x	x	x			x
11. Mr. Chaovalit Ekabut	x	x	x	x	x				x
12. Mr. Chamroen Phothiyod	x	x	x	x	x				x
13. Dr. Kulaya Tantitemit	x	x	x	x			x		x
14. Mr. Boonchob Suthamanuswong	x			x	x	x		x	x
15. Mr. Chaiwat Kovavisarach	x	x	x	x		x	x	x	x
<b>Total</b>	<b>15</b>	<b>11</b>	<b>10</b>	<b>15</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>7</b>	<b>15</b>

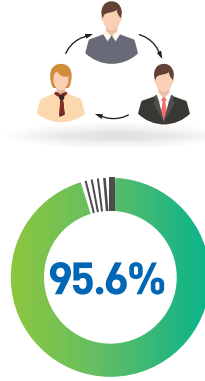
## Performance Evaluation of the Board of Directors

To ensure effective governance of the board of directors, the board of directors completes a performance self-evaluation form for the board of directors at least once annually to jointly consider performance and make improvements, with evaluations covering 3 types as follows:

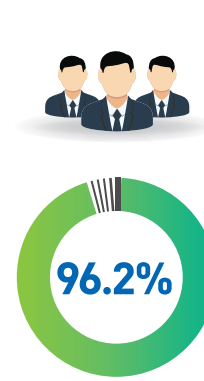
### 1. Individual evaluations      2. Individual evaluations      3. Evaluation of the entire board



**by the self**  
Excellent.

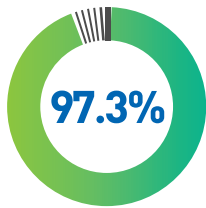


**by group cross evaluations**  
(3-4 anonymous directors evaluating  
1 director)  
Excellent.

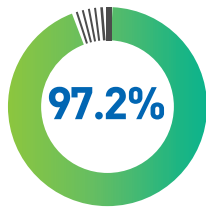


**by which the average score**  
Excellent

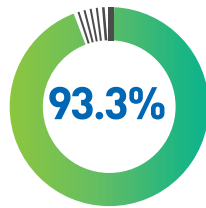
### 4. Sub-committee Evaluations



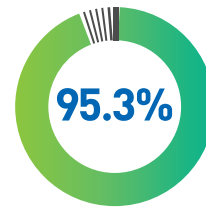
**The average score of the Audit Committee**  
Excellent.



**The average score of the Nomination and Remuneration Committee**  
Excellent



**The average score of the Sustainability and Governance Committee**  
Excellent



**The average score of the Organization Risk Management Committee**  
Excellent

# Significant Changes and Developments in Policies, Practices and Governance in the Past Year



## 1. Corporate Governance Policy Review

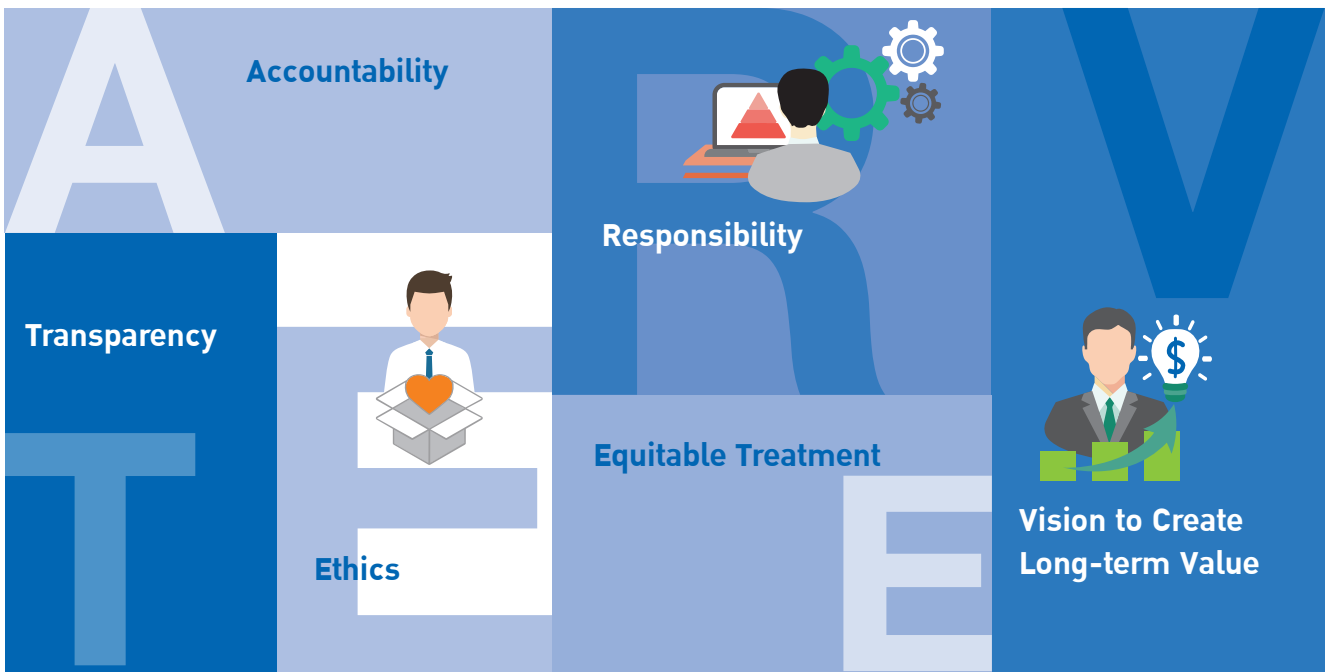
The board of directors stipulates that the company’s corporate governance policy to be reviewed regularly every year to ensure consistency with the criteria and structure of corporate governance reports (CGR), the criteria of Thailand Private Sector’s Collective Action Coalition Against Corruption (CAC), the criteria for evaluating indicators of success of a sustainable organization (The S&P Global Corporate Sustainability Assessment: S&P Global CSA), the good corporate governance standards of leading companies, and suitability with current business operations. In 2022, the company reviewed and evaluated various pieces of information and found that the essence of the good corporate governance policy continues to be appropriate and consistent with the principles of good corporate governance for listed companies and current best practices, without any significant changes.

## 2. Development of the Corporate Governance System

- In 2022, the Corporate Governance Committee was renamed the Sustainability and Corporate Governance Committee with additional duties and responsibilities related to sustainability activities aligned with the company’s vision, missions, and goals.
- The Sustainability and Corporate Governance Committee provided guidance and support for improving the company’s guidelines and measures against corruption to align with the 4<sup>th</sup> version of Thailand Private Sector’s Collective Action Coalition Against Corruption (CAC) self-assessment form. As a result, the company received its third CAC membership recertification.

With determination and resolute intention to operate on the foundation of good corporate governance, the company continuously received rankings and awards in good corporate governance such as the following:

- Excellent or 5–symbol rating in the Corporate Governance Report (CGR) project for 2022, and listed among the companies with the highest scores in Thailand. The project was organized by the IOD and the Stock Exchange of Thailand.
- Evaluation results on corporate governance in the ASEAN CG Scorecard project on the ASEAN Asset Class and ASEAN Top 20, both organized by the IOD and the Securities and Exchange Commission of Thailand.



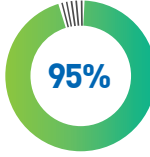


# Anti-Corruption

Bangchak anti-corruption policy applies to the board of directors, executives, and all employee of the company and its affiliated including the implementation of related measures to operate with subsidiaries, associated companies, and other companies that the company has power to control and have business representative of the company.

The company is a party of the UN Global Compact against corruption. In 2013 the company became 1 of the first 22 companies to be certified as a member of the Thai Private Sector Collective Action Coalition Against Corruption (CAC). As a result of its continued transparency in business operation, in 2022, the company received CAC membership renewal for the third time after the first renewal in 2016 and the second renewal in 2019.

Furthermore, the company conducts risk assessments on corruption in all of the company’s main businesses, including investments in other businesses, according to the CAC project evaluation principles with consideration to “likelihood” and impacts. In 2022, 6 work processes with significant risks were identified through evaluation, and the company has specified prevention and risk impact reduction plans for them.

Anti-Corruption Goals	Anti-Corruption Performance												
<p>1. All executives and employees of the Bangchak Group acknowledges the anti-policy and use it as a framework for business operation,</p>	<p>Acknowledgement of the policy and pass learning. (Disclosure 205-2)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p><b>100%</b></p> <p>Policy Acknowledgement</p> </div> <div style="text-align: center;">  <p><b>100%</b></p> <p>Knowledge Assessment</p> </div> <div style="text-align: center;">  <p><b>95%</b></p> <p>Average Evaluation Score</p> </div> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Online notification of conflicts of interest through HR-Services (Disclosure 102-25)</p> <p style="text-align: center;"><b>100%</b></p> </td> <td style="width: 50%; vertical-align: top;"> <p>Complaints related to corruption (Disclosure 205-3)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">2018</th> <th style="text-align: left;">2019</th> <th style="text-align: left;">2020</th> <th style="text-align: left;">2021</th> <th style="text-align: left;"><b>2022</b></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;"><b>3</b></td> </tr> </tbody> </table> </td> </tr> </table> <p>In 2022, whistleblowers filed complaints through the Internal Audit Department via ICO@bangchak.co.th regarding corruption or misconduct by subsidiaries on a total of 3 topics. The company took actions to supervise actions according to the complaint handling process and announced the conclusions of the complaints to the persons involved, covering the following:</p> <ol style="list-style-type: none"> <li>1) On the customer’s side, it was found that wrongdoing occurred on 2 issues. Penalties were administered according to procedure and prevention measures were set in place to prevent recurrence.</li> <li>2) For work processes, 1 corruption complaint was found, which was caused by the working process for an oil warehouse returned from the Fuel Pipeline Transportation Company Co., Ltd. in January 2022. Hence, the complaint audit results were used to improve work processes for greater effectiveness.</li> </ol>	<p>Online notification of conflicts of interest through HR-Services (Disclosure 102-25)</p> <p style="text-align: center;"><b>100%</b></p>	<p>Complaints related to corruption (Disclosure 205-3)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">2018</th> <th style="text-align: left;">2019</th> <th style="text-align: left;">2020</th> <th style="text-align: left;">2021</th> <th style="text-align: left;"><b>2022</b></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;"><b>3</b></td> </tr> </tbody> </table>	2018	2019	2020	2021	<b>2022</b>	0	0	1	1	<b>3</b>
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2018	2019	2020	2021	<b>2022</b>									
0	0	1	1	<b>3</b>									
<p>2. Encourages business partners to follow the Supplier Code of Conduct and become a certified member of the CAC.</p>	<ul style="list-style-type: none"> <li>• The company communicated its policies according to the Supplier Code of Conduct through annual trade partner seminars and new trade partner registrations. All trade partner acknowledges the adoption of the policy for practice (100%).</li> <li>• The company encourages trade partners to become certified members of CAC. This year, the company announced and communicated with trade partners to participate in CAC lecture sessions every quarter by holding online seminars through WebEx. As a result of continuously encouraging trade partners since 2013, 126 partners have declared their intention to become members.</li> </ul>												

## Communication about Anti-Corruption Policies and Procedures

The company promote anti-corruption as follows:

- Developed communicate of good deeds, morality and ethics, and anti-corruption, as well as guidelines of corporate governance policies through tone from the Top, prepared as executive's CG motto, on the company's intranet.
- Developed the Good Corporate Governance Policy, or CG Policy (Booklet) in the form of E-Book so that readers can easily learn and can apply them more accurately.
- Prepared a CG lessons learned about Good Corporate Governance Policy to present the relevant case studies concretely in the BCP KMS system for employees to acknowledge.
- Prepared a CG e-learning about the good corporate governance policy to demonstrate related case studies in a structured manner for employees to study on their own.
- The company held a seminar with the title "The Role of Executives and Employees in Anti-Corruption" to build a strong foundation for operating business transparently with good governance while combatting corruption through the correct actions of directors, executives and every employee. The seminar was led by the director of the CAC project.
- Chief executive officer and President gave an interviews for the CAC project on the topic of CAC Change Agent Success Story. The contents were created to disseminate to CAC project participants and other public channels. The aims was to publicize the company's success as a change agent in the CAC and for importance given in support of business organizations to combat corruption in a structured way with measures in place to prevent bribery of government officials.
- The company participated in Anti-Corruption Date activities in 2022. The event was hosted by the Anti-Corruption Organization of Thailand (ACT) online.
- On 19 December 2022, the company held the CG Day activity (17<sup>th</sup>) along with affiliated companies to raise awareness about the importance of complying with good corporate governance principles in the current environment. In 2022, BBGI Public Company Limited hosted the event under the title "Digital Transformation and Good Corporate Governance" The event was honored by a special lecture by Associate Professor Tophat Yommanak, Director of the Political Economics Study Center, Faculty of Economy, Chulalongkorn University. Moreover, Bangchak employees were invited to participate in a contest to creat mottos and images to raise awareness about employee potential development and to communicate knowledge and understanding about good corporate governance.





## Anti-corruption Measures

The company has promoted anti-corruption as follows:

- Communicated the “no-give policy” to its employees, subsidiaries and related persons during festivities and other occasions to reaffirm the company’s commitment to establishing good standards for fair business operation for all parties involved.
- Decline to receive all gifts at any opportunities, and do not take or provide any entertainment and any expenses which are not necessary or not proper to government officers or business partners. If gifts received are highly valuable, employees must refuse to take them and report their supervisors.
- Charitable contributions must be used for public charities only. This applies to all other financial assistance provided by the company, which must not be used as an excuse for corruption. Clear and consistent evidence documents, in accordance with the company’s regulations, must be submitted to support such contributions or assistance.
- Maintain political neutrality and have no guideline for providing political aids for any political parties directly and indirectly. No acceptance of transfer or changes in the condition of assets, or support any transfer or changes related to wrongdoing, to prevent individuals from using the company as a channel or tool to transfer, conceal or hide unlawfully acquired assets. This includes careful verification and recording of all transactions, financial facts and assets in compliance with the law.
- Government employees and officials are prohibited from becoming hired for work in a manner that creates a conflict of interest. The company has criteria in place for selecting personnel who previously were government employees to avoid such actions becoming provision of any remunerations for the acquisition of any gains and to disclose information for transparency and verifiability.
- The company has implemented internal control over finances, accounting, data recording and other processes in the company that are related to anti-corruption measures. It also conducts control self-assessments to evaluate the outcomes of internal controls with operating personnel.



- The company provides risk management to prevent and mitigate corruption and misconduct by analyzing business risks, specifying risk levels, identifying appropriate measures for assessed risks and regularly monitoring the progress of risk management plans.
- The company arranges for internal audits to ensure confidence that the company’s internal control and risk management system in achieving the company’s objectives. This includes inspecting the work operations of every agency according to specifications and regulations and identification of weak points and provision of recommendations for improving work systems to enhance effectiveness and efficiency accordance with good corporate governance principles.

## Idea Sharing

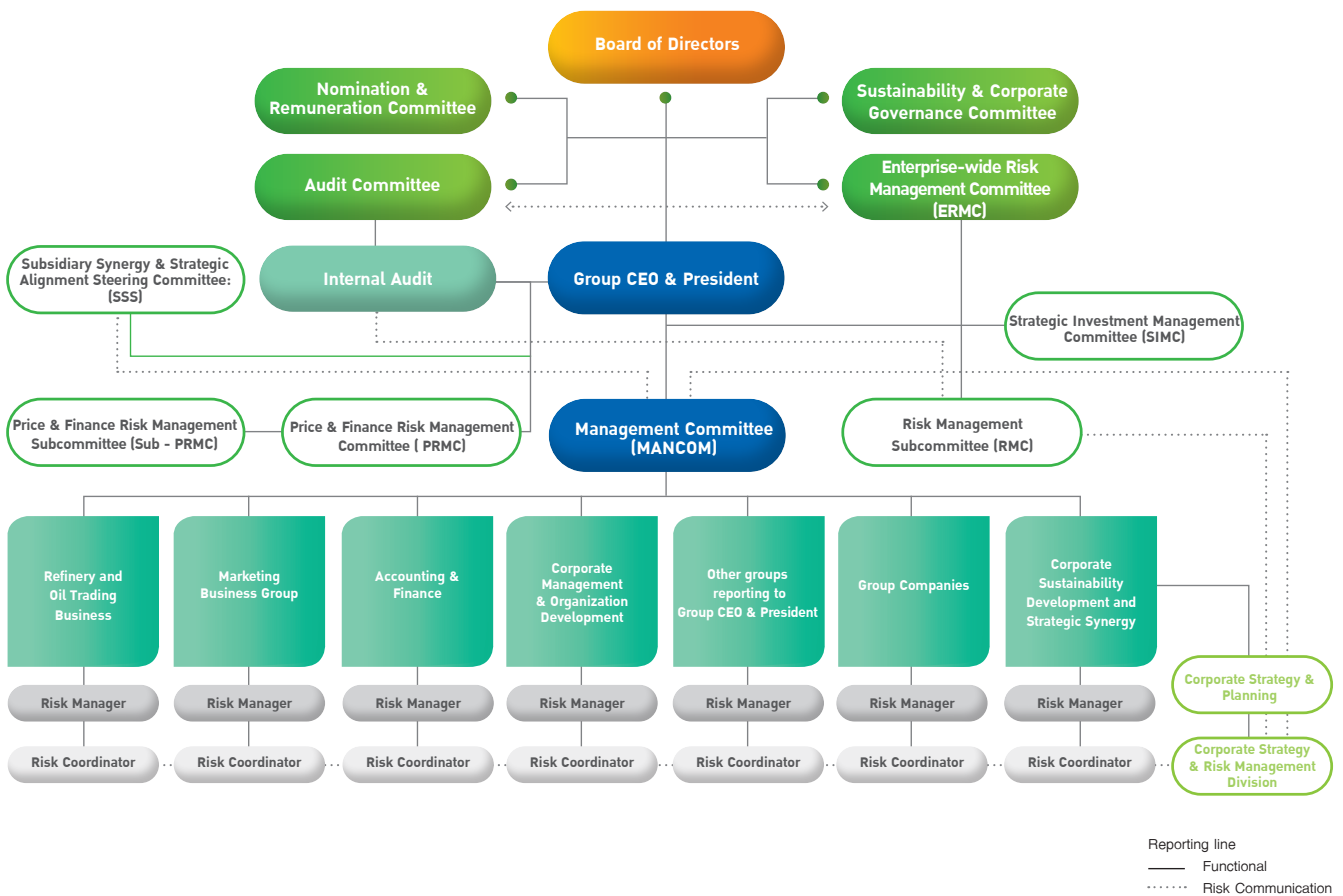
The company provides continuous support to its trade partners by offering recommendations and guidance on the preparation of anti-corruption manuals and policies, as well as other related best practices. This is done to serve as a role model and to assist trade partner in becoming certified members of Thailand Private Sectors’ Collective Action Coalition Against Corruption (CAC) via online channels. Since 2018, the company has been providing CAC-certified member, as follows:

- Earning plus 1–2% technical points.
- If multiple have the same lowest prices, vendor with CAC-certified is selection.

# Risk Management

## Risk Management Policy and Plan

Bangchak has adopted an international integrated enterprise-wide risk management system based on COSO ERM and ISO 31000 for more than 19 years to define management directions and measures to prevent and minimize impacts from a variety of risks preventing it from achieving goals. The risk management system has provided not only the capability for Bangchak to operate all businesses successfully under a relentlessly changing environment but has also warranted confidence among all stakeholders. All executives and staff, as well as joint ventures, fully participate in this international risk management system aligned with the corporate strategy and planning, as well as the sustainability development policy involving environmental, social and governance (ESG), under the supervision and monitoring of an Enterprise-wide Risk Management Committee (ERMC), with reporting lines and organizational network illustrated below.



Remark:

Risk Manager – Vice President / Designated person

Risk Coordinator – assigned by Senior Executive Vice President / Executive Vice President

## Risk Management Outcomes

In 2022, many countries around the world, including Thailand, faced economic uncertainties, slower-than-expected economic recovery due to various factors such as the outbreak of COVID-19 at the beginning of the year, the escalation of geopolitical violence, Russian sanctions after the start of the Russo-Ukrainian War, continuously high inflation and energy prices, and disruptions in the supply chain leading to high price of consumer goods. Furthermore, the depreciation of the baht and global climate change added to the challenges faced by Thailand, which also experienced flooding in many areas. However, Bangchak, including joint-venture companies, had prepared an enterprise-wide risk management plan to mitigate the impact on the business. It monitored and tracked the overall effect to keep risk levels acceptable and prepare for a volatile future business landscape. Bangchak developed a risk management plan in parallel with the operating strategy. It planned 2 scenarios in response to potential situations to ensure adaptability to changing circumstances.

In addition, for business continuity and sustainability, Bangchak reviewed trends and business factors that are expected to change and impact business (Mega Trends and Global Risks) to manage them in the medium term and long term, including competition in the business and industry, economic situation, consumers' behavior, the surroundings and climate change due to global warming, energy transition, energy security and technological and innovation growth, including alternative & renewable energy, energy storage, electric vehicle, biological technology, and policies of the public sector. These studies have been integrated with primary data of stakeholders' expectations and needs for further analyses of future impacts and directions of risk management in parallel with integrated corporate strategy to strive for mutual sustainability.



## Risk Factors in the Company's Business Operations

Bangchak has grouped its risk management framework into 1) corporate risk management, 2) project investment risks, and 3) business continuity management. This framework helps formulate appropriate risk management system and assessment. Below is a progress report in these three areas.

### Organization Risk Management

Corporate risk management includes management of all internal and external risks incorporated with an assessment of future trends which could affect the organization in the short, medium, and long terms. The system incorporates risks in strategy, operation, finance, and reputation. The system is managed with specific key risk indicators (KRIs) to monitor and track the likelihoods and severity of all identified risks and provides treatment plans to mitigate and minimize the risks and drive operations to succeed as planned. In 2022, Bangchak assessed and managed corporate risks aligned with the corporate strategy and sustainability development involving the environment, society and governance as follows:

### Strategies

#### Risk from Economic Uncertainties and High Energy Prices (Emerging Risk)

Due to the supply chain bottleneck and ongoing war between Russia and Ukraine, the prices of energy and consumer products are high, with inflation exceeding the target levels of many countries around the world. Moreover, many central banks have implemented tight monetary policies to stabilize the retail prices of oil in their countries. Accordingly, the company has developed a risk management plan as follows:

- Oil refineries and oil trading businesses will closely monitor oil price fluctuations and partially prevent oil price risks and procure funds sufficiently to support the procurement of oil for the oil trading business through BCP Trading Pte., Ltd. (BCPT).
- To respond to uncertainties, oil refinery and oil trading businesses will move toward the development niche refinery products by transforming unconverted oil from hydrocracking units into the starting substances for the production of lube base oil and paraffin wax for the candle, paper wax, and adhesive industries by changing the molecular breakdown unit to increase

the production capacity of UO to 75 million liters per month. Additionally, the company has changed the control values of production processes in the production of solvents under the BCP White Spirit 3040 brand, with low aromatics value, to use as starting substances for the products for the paints, thinners and resin industries. Also considering procuring crude oil from multiple production sources at appropriate times, with consideration for appropriate quality with production to ensure good refinery values and add value to the business.

- Marketing Business Group successfully maintained its status as the 2<sup>nd</sup> market share leader (according to the Department of Energy Business) by achieving the goal of unique design for each station in combination with the Bangchak brand identity. Bangchak had 1,343 service stations saw upgrades to their work standards to achieve maximum customer satisfaction and retain the number one ranking in the Net Promoter Score (NPS) through customer empathy, customer relationship management, and development of services, as well as through the use of digitalization to deliver positive experiences to service users under the Your Greenovative Destination concept. They are also focusing on continuously expanding non-oil businesses with business partners. For this year, Inthanin coffee shops had a goal to expand branches inside and outside of service stations. As a result, by the end of 2022, they had a total of 1,002 branches.
- BBGI Public Company Limited has consistently adjusted its biodiesel production capacity to meet changing market needs, in alignment with the government's changes in the diesel mixture requirements.

## Risks of energy innovation transformation

Transformation of energy innovation is an external factor shaping Bangchak's businesses. Bangchak has therefore developed risk assessment and converted advancement of energy innovation into business opportunities as follows:

- Established a green ecosystem to drive Bangchak Group's innovations with an emphasis on green energy and bio-based products through Bangchak Initiative and Innovation Center (BiiC)
- BBGI Public Company Limited has expanded and increased the production capacity of the ethanol biofuel production business. And also has a project to continuously improve the production effectiveness of biodiesel and ethanol. Currently, Bangchak producing pure glycerin with a production capacity of 80 tons per day. Additionally, producing other related products such as medical-grade hand-sanitizing alcohol to increase the value of the products. BBGI is a major biofuel business operator and distributor in Thailand.
- Expanded business into high-value bio-based products through BBGI Public Company Limited by investing in Manus Bio Inc., a leader in the production of high-value bio-based products by use of advanced bio-fermentation processes with food ingredient registration certificates for the sweetener Neotame to be distributed in Thailand and Asean. Furthermore, the company established WIN Ingredients Singapore Pte., Ltd. to operate business in the development of bio-based products, and to provide technical and commercial support. Also signed a joint venture contract with Biom Co., Ltd, which is the first biotechnology research and development company of Chulalongkorn University. The joint venture aims to create research value for the high-value bio-based supply chain and to sell dietary supplements under the brand B Nature Plus.
- Promote the initiation of business opportunities from energy innovation through regular campaigns among staff and subsidiaries, through introduction of Design Thinking to help develop new products and services to cope with future changes. To this end, BiiC can act like a business incubator and eventually commercialize selected initiatives.
- Continued to expand the startup service "Winnonie". Bangchak introduced and rented out electric motorcycles to motorcycle taxi riders and riders who delivered food or parcels. They can swap batteries at swapping stations located in Bangchak service stations. This effort scaled up green energy innovation and improved the riders' quality of life.
- "Smart Digital Fuel Dispenser Project: Krathing". Bangchak, in collaboration with Micro Oil and Retail Co., Ltd. and DTAC TriNet Co., Ltd., installed and managed digital fuel dispensers. It also established a communication system for the installation of Krathing dispensers nationwide. As a result, Krathing, serving as a platform providing quality fuel, could reach small communities. This project aimed to promote their access to quality energy that met the required standard. In the future, Bangchak would scale up services other than oil services to improve local people's quality of life in all aspects.
- BSGF Co., Ltd. ("BSGF") was established. This company is a joint venture with BBGI (a subsidiary of the company) and Thanachok Oil Lite Co., Ltd. The company was established to procure raw materials, produce, and sell sustainable aviation fuel (SAF) from used oil. The subsidiary has a starting registered capital of 1.0 million baht, which will be increased in the future. Bangchak, BBGI, and Thanachok Oil Lite hold 51%, 20%, and 29% shares in BSGF, respectively.

## Risks of managing human resources for future growth

To support additional investments for security and sustainability of income, Bangchak needs to satisfy higher demand for diversified and highly skilled human resources for each business and to maintain a proper generation gap within the organization to drive future businesses. Managing risks of human resources for future growth to align with business strategies is defined and treated with consistent programs and sessions of lessons learned and knowledge exchange among staff of Bangchak Group. These sessions hone skills, identify career advancement, and sustain business continuity as well as strengthening ties among staff workers and Bangchak. Activities in these sessions are organized and analyzed jointly by the management through the Subsidiary Synergy and Strategic Alignment Steering Committee.

## Operation

### Risks of managing feedstock and supply chain

Management of risks associated with supply chains and suppliers on delivery of feedstock, raw materials, machines, equipment and related services for the production and distribution is critical to uninterrupted operations, fostering confidence among all stakeholders and giving a competitive.

- Select crude oil from various sources at suitable periods with due regard for appropriate quality for processes that yield healthy refining margins to add business value.
- Develop long-term crude sales agreements with domestic and international suppliers to secure consistent supply for the refinery.
- Stock and procure feedstock for biofuel production from competitive sources with appropriate prices.
- To deal with demand uncertainties in the market, the oil refinery business has turned to developing niche refinery products by increasing the production of UO (unconverted oil) to 75 million liters per month. The company assesses risks related to the adequacy of suppliers by ranking raw material suppliers and providers of high-value services. Also conducts assessments of risks that might cause economic, social and environmental impacts on the organization as a result of suppliers, in order to ensure business continuity across the entire supply chain.

### Risks of digital technology transformation and cybersecurity

Risks of digital technology transformation and cybersecurity are external risks that have rapidly evolved, driven by strong business competition, reliance on competitive technologies, and connectivity of hardware and software through Internet technology to raise business efficiency and create good experience for customers, with due regard for the safety of the corporate IT system. Bangchak took action to cater to such technological development and change along with reviewing technological risk issues concerning current business disruption as follows:

- Establish a digital technology unit in charge of planning, monitoring, and procuring proper digital technologies for Bangchak to cope with changes in consumer behavior, work process improvement toward increasing competitive advantages, and adding value and efficiency to its services. The following additional technologies were applied in 2022.
  - The Digital Payment Project, in which digital payment is made in the Mobile EDC (electronic data capture) form to avoid physical contact at service stations by scanning the QR Code to pay through all banks' applications and PromptPay or simply touch and pay with contactless credit cards while accruing Bangchak membership points.
  - Develop personalized marketing by applying data analytics to examine individual consumer behavior to develop tailor-made service patterns specific to each consumer and hence increase customer satisfaction.
  - Promoted the digitalization of working processes to increase efficiency and reduce work time. Bangchak chose digital tools, including Robotic Process Automation (RPA), Power BI or Power App, in work improvement.

- Set up a cybersecurity function, responsible for planning, monitoring, surveillance, testing, and procuring tools to prevent cyber threats, which tended to keep increasing each year. In 2022 the Enterprise-wide Risk Management Committee focused on surveillance and provided risk management in case cyber-attacks disrupted the business process support system. It provided tools to enhance the security of the computer center. Moreover, it designed more secure information infrastructure systems and conducted vulnerability assessments to promptly close gaps. Bangchak kept monitoring key risk indicators through the Security System Alert System. Furthermore, it formulated an incident response plan, created awareness of cyber threats among employees, and regularly conducted testing. Finally, it implemented a secure work system that received ISO 27001 certification for data security management, ISO 27032 for cybersecurity management, and ISO 27018 for personal data security management.

In addition, Bangchak develop a refinery cybersecurity system program to safeguard work systems from cyber-attacks or interruptions which might affect refining processes. Since 2020, Bangchak has won ISO/IEC 27001 certification (Information Security Management), covering the refinery's Distributed Control System, thus ensuring that its refining processes will continue uninterrupted despite cyberattacks.

### **Risks to reputation from social media**

With the transformation of the social media platform, where news and information of Bangchak's products and services are exchanged among consumers, moved to online, lightning response rates have become crucial. More importantly, online negative news and distortions could go viral, thus tarnishing Bangchak's reputation. Managing reputation risk therefore demands a dedicated team to relentlessly monitor movements of online social media. These tasks increase communication efficiency under normal circumstance and crises and reduce negative impacts. The system also calls for regular drills to ensure crisis preparedness.



## Finances

### Risks of volatile prices of oil and feedstock

The risks of volatile prices of oil and feedstock directly affect the revenue stream of Bangchak's core petroleum and petroleum-related businesses. With this in mind, Bangchak manages these risks with short-term and long-term plans as follows.

- Put in place a mechanism to track the movement of the crude oil price, spreads between crude and refined product prices, and regular development of new risk management tools for members of the subcommittee and risk management committee on prices and finance to consider and decide suitable options to manage, and report directly to the executive management committee.
- Diversify risks arising from price fluctuation of agricultural produce through investment in bio-based businesses operated by BBGI to upgrade business competitive edge in biofuels, biodiesel and ethanol, a steppingstone to high-value bio-based product development and value additions to the company.

### Risks of volatility of exchange rates and interest rates

Throughout 2022, exchange rates experienced a high level of volatility, and the value of THB relative to USD grew successively weaker since early in the year. This occurred primarily due to strengthening of the US dollar in line with the United States' central bank implementing stricter fiscal measures. In addition, the Bank of Thailand increased policy interest rate 3 times in 2022, from 0.5% to 1.25% at the end of the year. The volatility in exchange rates cause uncertainty in the company's revenues, especially in petroleum related businesses and international joint ventures. However, the company has plans to continuously manage risks from currency exchange rates and interest rates as follows:

- Adopt natural hedges on transactions with international currencies on both income and expenses.
- Manage major costs of capital toward fixed and consistent interest rates.
- Closely monitor movement and trends of international monetary markets to execute proper hedging on exchange rates and interest rates decided by the Risk Management Committee on pricing and finance to ensure successful businesses as planned.

## Regulations

### Risks from enforcement of the Personal Data Protection Act B.E. 2562 (2019)

The Personal Data Protection Act B.E. 2562 was announced in the Government Gazette on May 27, 2019 and was postponed taking effect on June 1, 2022. In compliance with the "Personal Data Protection Act B.E. 2562", the company considered the appointment of a data protection officer (DPO) and a working committee to support the data protection officer (DPO office) composed of representatives from related work sections to work in providing consultation and recommendations about personal data protection and to verify activities related to the processing of personal data and to coordinate and collaborate with the Personal Data Protection Office and personal data owners.

## Environmental Social and Governance risk

### Risks of impacts on communities and society (Emerging Risk)

Bangchak is fully committed to operating its businesses in a friendly way with communities, the public and the environment in a sustainable way. Work processes have therefore been continuously upgraded to ensure safety and zero impact on communities and the public under the following risk management plan.

- Constantly developed a system for occupational health and safety of international standard to upgrade health and safety in the workplace while systematizing work processes with due regard for risks, opportunities, and legal requirements. Bangchak was certified with ISO 45001, ISO 14001, and ISO 50001.
- Routinely conduct risk management with systems of Safety Integrity Level, Reliability Centered Maintenance, and Risk-Based Inspection to ensure the efficiency of all equipment and work processes for accurate preventive maintenance programs.
- Perform hazard and operability study assessment and install the process safety management system at all procedural levels of refining processes in conjunction with leading engineering consulting firms to ensure international work standards and practices.



- Install an online air quality metering system with automatic display on all monitors in the refinery and its vicinity for the communities surrounding the facilities to get real-time air quality information, leading to higher public confidence in Bangchak's operation.
- The company organizes activities to provide knowledge and understanding, and to instill safety consciousness in the surrounding communities of refineries, especially in schools and condominiums. This is achieved through lectures on evacuations, fire-extinguishing, and basic first-aid, and the company has also extensively installed communications and warning systems in communities.

Furthermore, in governing businesses operated by joint venture companies, the company monitors and surveils the risks that might occur and impact communities in each area. This is done to prevent communities and society from suffering from any trouble or negative impacts from production processes or work. For example, the company monitors risks with wastewater management and organizes CSR activities with surrounding communities continually, with the organization risk management committee responsible for monitoring the outcomes of these activities throughout the year.

## Risks of climate change and environmental change leading to GHG reduction measure (Emerging Risk)

Because business operations potentially cause global warming, Bangchak took action to focus on reducing energy consumption and GHG and carbon dioxide emissions as follows:

- Showed commitment to conducting a low-carbon business and leading energy transition. Bangchak has been increasing the proportion of green companies to lower carbon emissions. It also founded the Carbon Markets Club to promote carbon credit trading.
- The company has set a goal to become carbon neutral by the year 2030 and achieve net zero GHG emissions by 2050, according to the NCP 316 NET concept, which covers 4 important guidelines. These guidelines include B = breakthrough performance, emphasis on highly effective and environmentally friendly processes to reduce carbon emissions; C = conserving nature and society to support the creation of ecological balance through natural carbon absorption techniques; P = proactive business growth and transition to clean energy, using technologies to achieve sustainable growth. Accordingly, Bangchak has received a low-carbon and sustainability business award for the second consecutive year from the evaluation of the Thailand Greenhouse Gas Management Organization, which decided to grant the award based on governance, sustainability report and business size, according to indicators of the economic, environmental and social dimensions, in line with the national sustainable development goals.
- Replace fuel oil with natural gas to generate power and steam in the combined-cycle plant and deploy it as a primary energy source for the distillation units, resulting in higher energy efficiency and reduction of carbon dioxide emissions.
- Bangchak took part in easing pollution in the form of PM 2.5 particulates and smog by selling diesel containing five times less sulfur (lower than 10 ppm), as less sulfur can lower dust problems resulting from combustion along with sulfur dioxide. Such diesel was sold in Bangkok Metropolis during such critical periods.
- Remodel resource consumption with the 3Rs strategy of Reduce, Reuse and Recycle to achieve sustainable and environmentally friendly business success. This includes collection of plastic bottles from customers voluntarily to produce recycled products for society, collection of depleted plastic lubricant containers for recycling to produce polymers and eventually reproduce such containers. These programs are aimed to reduce public waste and sustain the values of resources through reuse and recycling to optimize their values to the environment, society and communities in a sustainable way.
- Lowered plastics in non-oil activities as well as plastic containers by designing lids of cold beverages that eliminates straws. Moreover, the company continuously





adopts biodegradable plastic cups (bio-cups) and invites customers to collect used cups to trade for discounts and delivers biodegradable cups to the Royal Forestry Department through the “Kaeo Pho Kla” project with a number exceeding 1 million cups.

- In the “Khaya Kamphra Sanchon” project, the company is committed to caring for the environment and promoting sustainability by supporting waste management according to the circular economy approach, and reducing waste from the source to minimize the social impacts of land-filled wastes. Furthermore, the company supports proper waste management and reduce air pollution from land-filling by partnering with gas stations that accept orphan wastes to support environmental care. In 2022, over 65 tons of orphan wastes were received through donations at gas service stations in Bangkok. Bangchak continues to be one of the 14 partner members in the “Kep Klong Sang Ban” project to accept donations of beverage packaging to recycle them by into materials for construction various eco-friendly homes such as eco-roofs, eco-door, eco-wood and eco bricks. The Friends in Need (of “PA”) Volunteers Foundation and the Thai Red Cross Society donate these home to people suffering from problems caused by natural disasters, underprivileged people and homeless people.

### Water Shortage Risk

Water shortage has been identified as an imminent global crisis. Global warming and a booming population are the main causes of uncertainty on available water for consumption. Bangchak has paid its full attention to water management to conserve water in production processes as follows:

- Monitor risks from climate change such as droughts by monitoring and staying vigilant over daily water

situations of the Metropolitan Waterworks Authority to assess water shortage risks affecting refining processes, to ensure emergency water supply available for supplementary use in production processes during times of water shortages. Additionally, the company has put measures in place to monitor and deal with risks from drops in the water levels of the Chao Phraya River, which could impact ship navigation and other area. Accordingly, the company takes care to avoid causing impacts on stakeholders from every group that may be similarly impacted by water shortages. It also monitors flood situations such as by arranging for the monitoring and surveilling of water levels in the main rivers during the rainy season. The company inspects the readiness of flood prevention equipment in risky areas and has created risk management plans to support opportunities for growth while ensuring confidence that the business will be able to operate without interruption.

- In 2022 it reduced water consumption by improving tap water quality with a micro-filtration system and a reverse osmosis system, To reuse approximately 1,290,335 cubic meters of condensate water and water stripped of sulfur for production purposes, and to treat an additional 203,167 cubic meters of wastewater using the reverse osmosis system for recycling purposes, the 3Rs initiatives were able to save water equivalent to the consumption of 4,120 households.

In addition, in 2022, the company conducted an assessment of water stress through the AQUEDUCT and ThinkHazard projects, and found that Bangchak’s oil refineries are located in a medium-high area (20–40%). According to this definition, the area is not experiencing any significant water stress.

- The company has enhanced its refinery cooling system to improve work efficiency and minimize water losses from the system, resulting in a decrease in the consumption of water from the Metropolitan Waterworks Authority.
- Promote the reduction of water consumption in all production processes with all affiliates and business units, led by the water recycling program by the Bio-based Product Business Group. Moreover, a project of drilling for groundwater was initiated for water storage and supply for the facilities.

## Promoting a Culture of Organization Risk Management

The company promotes a culture of risk management within the organization and expands it to affiliated companies to conform the Bangchak i am bcp values in the part of Agility & Mobility to always be ready for changes and to flexibly consider risk management and opportunities through a risk management policy and management structure. Accordingly, the Enterprise Risk Management Committee (ERMC) and Risk Management Committee (RMC) provide supervision to ensure the effectiveness of the risk management system in addition to monitoring and assessment of risks on the enterprise level, business group level and division level. In doing so, division-level risk coordinators have been designated to coordinate work and monitor and summarize progress reports according to division risk management plans to push every division of Bangchak Group to conduct risk assessment and prepare a risk management plan every year, and this has been specified as part of the key performance indicators contributing to annual employee remuneration considerations with a goal set for each section to prepare a risk management plan that is approved by a supervisor within the first quarter of each year.

The company also provides training to develop knowledge in risk management and business continuity plan management every year to new and existing employees such as in BCM, Risk Management with Key Risk Indicators (KRI), Risk and Opportunity Management and Compliance Risk, including enhancing knowledge and understanding in managing risks through the BCP-KMS system (internal knowledge platform), and in 2022, we provided knowledge training in cyber security to directors and executives.

Furthermore, in 2022 the company revised the crisis management plan and enterprise business continuity management plan. In addition to specifying indicators for and reviewing management resources, which is what we do regularly each year, and we also drilled our emergency plans with actual practice and table-top practice as follows:

**Time 1:**

On 23 March 2022, we held a meeting to prepare to hold a drill for the Tier 2 emergency plan for the scenario of an oil spill and fire at the refinery molecular separation plant 4.

**Time 2:**

On 5 May 2022, we drilled the Tier 2 emergency plan for the scenario of a natural gas leak at Steam Boiler No. 2 that led to a fire.

**Time 3:**

On 27 July 2022, we drilled the Tier 2 emergency plan for the scenario of a fire at Pump Slop Drum No. 1 at the refinery, which caused a lot of smoke.

**Time 4:**

On 29 August 2022, we drilled the Tier 2 emergency plan for the scenario of a fire at the P-914 B fuel oil tank that led to a lot of sparks and smoke.

**Time 5:**

On 4 October 2022, we drilled the Tier 3 emergency plan for the scenario of an oil spill in the naphtha oil restructuring unit of plant 3, which led to a fire. The company invited external agencies such as PTT Oil and Retail Public Company Limited, Phra Khanong Fire and Rescue Station and Sikarin Hospital to participate in the drill.



## Investment Project Risks

In addition to strategic directions and returns on investment, project investment risk management is another crucial component of business success. All investment projects must therefore be reviewed for risk management with risk treatment at various stages as follows.

- Development phase risk.
- Construction phase risk.
- Operation phase risk, including operation risk, financial risks and tax risks according to the tax policies of investment countries; along with business and reputation.
- Natural disaster risk.

For all investment projects significant to the Company's operations, the Enterprise-wide Risk Management Committee must approve their risk management plans to ensure that the business managed risks properly, impacted neither the community nor the environment, and could achieve Bangchak's goals. In 2022, the corporate risk management committee authorized and gave recommendations and opinions regarding the risk plan management issues and joint venture project for the establishment of BSGF Co., Ltd. to operate the sustainable aviation fuel business.

## Business Continuity Management: BCM

To ensure the ability to continue its businesses even during crises, Bangchak has developed and installed a Business Continuity Management (BCM) system. Bangchak has been accredited for ISO22301, covering Headquarters, Bangchak refinery and Bangchak Oil Distribution Center, Central Region Business Office and Bang Pa-in Oil Distribution Center since 2013. The ISO22301 certificate is a guarantee of Bangchak's preparedness to continue its businesses with maximum efficiency under international standards even during crises, to build confidence of all stakeholders on the ability of Bangchak to fully operate during crises and constantly deliver products to its clients.

In 2022, the world remains challenging in many areas, especially in terms of the economy, which still requires time to stabilize and is subject to a high level of volatility due to the ongoing Russia-Ukraine war. Accordingly, the company has added oil products to increase procurement flexibility in order to support the strained demand for oil and natural gas. Additionally, the company has prepared adequate credit limits to handle potential increases in oil prices and has issued debentures to ensure financial liquidity. Moreover, to address potential flooding, the company is closely monitoring water levels and is prepared to provide assistance to overcome any flood disasters at work sites and gas service stations. Donate equipment to Prevent the spread of COVID-19 to neighbors around the refinery, including 20,000 boxes of surgical masks.





# Change Management

The company is determined to continuously work on change management in line with the organization’s vision by giving importance to management to ensure that the organization is flexible, has a modern structure, and is ready to respond to changes. The Change Management Department is responsible for planning, coordinating, advising, and monitoring performance outcomes while developing potential and new knowledge to support changes and ensure that the organization achieves its objectives while reporting progress, opportunities and work obstacles to high-ranking executives.



## 2022 Performance

The company developed and improved its business processes with an emphasis on achieving maximum work effectiveness, cutting cost, and better meeting the needs of customers. In 2022, the company enhanced work in 3 major areas as follows:

 <p><b>1</b> The oil refinery and oil trading businesses</p> <p>The company added the Junior Columbus Program and The Next Creator Program to encourage all employees to participate in improvement projects. The project scope expanded to include opportunities for developing new businesses connected to the company’s production processes and products.</p>	 <p><b>2</b> The marketing businesses</p> <p>The company created opportunities for employees at every level to participate in promoting and developing activities to increase customers and develop marketing business opportunities. The MK BPR Clinic was also established to screen and provide recommendations for new initiatives to achieve real business benefits.</p>	 <p><b>3</b> Development of 10 Six Sigma Green Belt projects</p> <p>The company utilized the Six Sigma tool to analyze for guidelines for improving and designing process control methods that enable the analysis of complicated production problems. This has led to the development of new projects with the potential to generate added value, reduce operating costs, and increase work effectiveness, with an estimated value of at least 1,300 million baht over the 12-month period of these projects.</p>
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Furthermore, the company has set a digital transformation strategy as part of its 5-year strategic plans to drive its strategy in business, personnel, and organizational culture to generate added value and develop new business models and strategies that prioritize customers to increase work effectiveness.

# Supply Chain Management

Good supply chain management can help develop an organization’s business operation and promote across a variety of issues. For example, reduce the impacts of corruption involving non-transparent suppliers, minimize environmental impact, and safeguard human rights in the supply chain by implementing sustainable policies and enforcing compliance with the policy. In addition, it can have positive impacts, such as promoting supplier engagement in sustainability activities and enhancing the organization’s reputation.

In 2022, the company adapted to respond to situations that impacted the cost and availability of product, such as the ongoing conflict and war. Accordingly, the company collaboration with internal and external stakeholders to manage and improve work processes, allowing for smoothly operations and the procurement of quality goods and services. The company also prioritized environmental friendliness, consumer needs, and good corporate governance principles, in order to operate in a participatory and sustainable manner.

The company has a plan to hold seminars with suppliers to listen to their opinions, recommendations, and problems encountered in the development of joint work processes. The purpose of these seminars is to explain the company’s operational guidelines and provide knowledge about the company’s procurement regulations and operating procedures to ensure that suppliers gain a better understanding of the company’s missions. Furthermore, during such seminars, the company will also provide knowledge and understanding to suppliers on sustainable business operation, including environmental, social, and good governance dimensions, as well as human rights through the Supplier Code of Conduct. Details about the company’s sustainability work in the supply chain can be found under the topic “Sustainable Supply Chain Management” in this report.

## 5-Year Targets



Reduce procurement spending through cost management by 10% of annual budget per year.



Enhance green procurement for products and services.



Develop and manage supplier and business partner relationships.



Improve work by adopting technologies (digital transformation).

## Strategies for 2022



Utilize technology to enhance employee workflow processes.



Enhance knowledge and know how of Bangchak Group’s procurement process to pursue international standard for procurement.



Maximize company’s benefit in terms of quality and spending through process improvement.



Develop suppliers’ capability through Supplier Code of Conduct.



Improve processes for creating strategies with emphasis on operating and developing alongside suppliers.

## Activities in 2022

### Development relationships with suppliers for Sustainable Operation

This year, the global economic situation remains challenging, even though the COVID-19 situation worldwide is beginning to ease. However, there are ongoing conflicts between Russia and Ukraine and the economic war between China and the United States, resulting in high prices of oil, raw materials, and transportation costs due to the shortage of raw material. As a result, the company is focusing on adjusting its processes to procure goods and services within the specified budgets. By adjusting these process, the procurement may take slightly longer than before.

#### Improvement of Procurement Processes alongside Suppliers and Users

The conflicts that arose during the past year caused global impacts and led to the prices of various products increasing due to variable costs, including impacts on production and logistics. As a result, the Procurement Department collaborated with suppliers and users to analyze problems and implement various strategies to ensure that the company receives quality goods and services at appropriate and fair prices for the company and suppliers through the use of effective processes such as the following:

- **Strategy Changes for the Procurement of Commodities that Experience a High Level of Fluctuations Step Pricing/Formula Pricing**

This is a solution to address challenges that arise from long-term employment or procurement contracts for goods or services that have uncertain or highly variable cost. The proposed strategy involves suggesting price for adjustments these costs, which helps suppliers avoid quoting price that increase risk factors due to cost adjustment. Additionally, this approach enables the company receive prices that align with the prevailing market condition. For example, in the transportation industry, fuel price is a significant cost that fluctuating frequently. Adjusting prices to account for these changes allows shipping companies to quote lower prices and confirm fixed prices. Similarly, for chemical purchases, prices can be calculated using a formula that includes variables representing fluctuations.

- **Vendor Knowledge Sharing**

The company organized supplier knowledge sharing sessions to provide a platform for suppliers to present new technology products and services to the procurement team and other relevant users. These also included inspections of the factory or headquarters of suppliers aimed at obtaining guidelines to improving procurement work for goods and equipment such as material improvements to the materials and processes for constructing gas service stations by changing from use of normal concrete to use of synthetic fiber concrete to eliminate the process of wire mesh installation while increasing load bearing capacity and improvements through use of prefabricated materials to cut construction time and produce fast-constructed modular buildings,

which enables contractors to better manage labor costs and prepare work sites while also controlling quality and being environmental friendly.

- **Inventory Improvements**

The Procurement Department together with users improved the process of storing equipment in equipment warehouses by analyzing prior usage data and appropriately adjusting the number of products stored in warehouses.

- **Work Scope Analysis and Total Cost of Ownership**

Total Cost of Ownership (TCO) is the planning of expenses consistently with procurement, implementation, use, and retirement or replacement of equipment parts. The Procurement Department has adopted this strategy in past work such as in vehicle purchases, improvements of systems requiring annual maintenance, and refinery equipment. For this year, the company has retrospectively analyzed the cost and logistics conditions for maximum benefits, and appropriately adjusted the scope of work to usage requirements and current situations. This has included changing the work site access cycle of preventative maintenance contracts as required to cut cost and reduce travel, and switching from foreign experts to local expert team for the installation and supervision of equipment.

#### Annual Supplier Seminar

Due to decreasing severity of the COVID-19 situation, the company resumed holding regular supplier seminars this year. These seminars aim to provide explanations about the company's work guidelines, knowledge about procurement regulations and the company's operating procedures. Suppliers are given the opportunity to ask questions, express opinions, and present recommendations regarding problems in procurement work and users. The Procurement Department served as the medium for receiving various issues, allowing for continual improvements in work process, which will be convenient for use both inside and outside the company. The department is also creating a manual to providing explanations to suppliers about signing problems and clarifications about the work plans, business direction, and policies. The manual will be published on the company website or online for easy access by suppliers.

At the seminar, knowledge was provided about global warming and greenhouse gases, along with projects

co-founded by Bangchak Group, such as the Carbon Market Club. This club is meant to promote carbon trading to reduce greenhouse gas emissions and is the first of its kind in Thailand. The company has plans to provide educational lectures about the Carbon Market Club to interested suppliers next year.

In term of sustainability management, the company collaboration with the procurement team and reiterated the “Supplier Code of Conduct”. This code has been updated to cover key issues such as human rights, anti corruption, and protection of individual rights.

Organizing seminars regularly basis has been found to help promote relations with suppliers as well as increase confidence in the quality of suppliers among users.

## Digital Transformation:

The company adopted new technologies to improve work processes continuously in collaboration with suppliers following the COVID-19 pandemic as follows:

### Bidding Platform

The company has continually improved the bidding system based on feedback from suppliers receive during the supplier seminar and through various other channels. The company has taken measure to reduce complexity and make the system easier to use, such as creating a manual and providing coordination whenever the system encounters a problem. Despite these improvement, the company has still received feedback, promoting the company to begin studying new solutions to replace the existing system.

**Results** – The average purchasing/procurement time was 33 days.

– Up to 10.6% reduction in procurement cost in the 2022 fiscal year.

**Results** – Excellent supplier satisfaction toward procurement personnel (91%).

– Good user satisfaction toward the work of suppliers (88.4%).

## Environmental Promotion

The company places great importance on procuring environmentally-friendly products and services. To this end, the company has been preparing a list of such products and services since 2016. The company has improved the product procurement framework to include products certified with Green Label Thailand and by expanding procurement to include service work such as construction work, repair work, service stations and offices by requiring products that are used to be environmentally-friendly.

Studies have shown that put of 24 categories of environmentally-friendly products and services, the company regularly uses 20 product categories and that these products on a yearly basis. Based on this information, the company developed a plan to improve the procurement framework for environmentally-friendly products and services by specifying the criteria for these products or services to be included in the work scope from the start of bidding projects.

**Results** – The company procured environmentally-friendly products by 20 out of 24 product categories or 83% (target: 80%).

## Human Rights Promotion

The company places great importance on adhering to human rights principles both within the country and with participating suppliers. To ensure compliance, the company includes these principles as part of the Supplier Code of Conduct, which is communicated to suppliers for their acknowledgement, This year, clear guidelines were established in the following topics:

- Specification of the severity of complaints and the complaint handling timeframes based on severity.
- Specification of the process for dispute settlements/resolutions and specification of responsible parties.
- Specification of the types of compensation for each severity level.

For sub-contract employment, the company stipulated compliance with labor laws and requires as a practice principle for workers to receive wages no less than the minimum wage. This year, the wages committee announce the minimum wage (Version 11), to be effective as of 1 October 2022, and the company complied by raising wages for workers with reference to the minimum wage. Additionally, the company continues to give importance to the Personal Data Protection Act by entering into data processing contracts or data sharing contracts for working requiring the collection of the personal data of suppliers and also evaluates suppliers regarding this topic.



## Sustainable Supply Chain

To reduce risk in supply chain and enhance business competitiveness, the company emphasizes on supplier group development by integrating UN Global Compact into our framework for working with suppliers and adhering to the Environmental, Social and Governance (ESG), which is a global guideline for sustainable business operations and increase opportunities, reduce risks and enhance the competitiveness of the business.

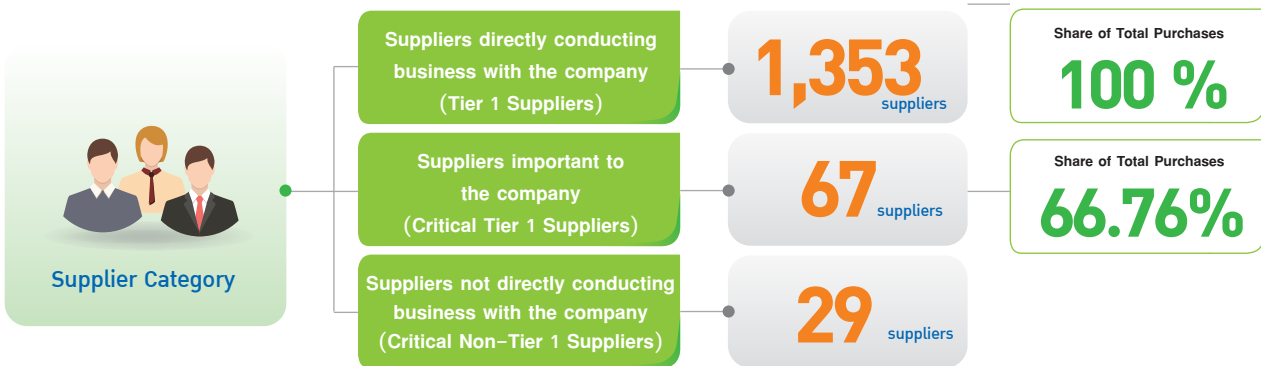
**The sustainable supply chain management process** is as follows:

**1. Developed BCP Supplier Code of Conduct (SCOC)** that integrates environment, social and governance (ESG). SCOC includes 5 aspects:

- Business Ethics.
- Labor Practices and Human Rights.
- Safety and Occupational Health.
- Environment.
- Community Engagement and Development.

**2. Classified and analyzed** critical tier 1 and non-tier 1 suppliers by using the following criteria:

- High spending supplier (classified by supplier groups)
- Suppliers of critical raw material, products, and services.
- Suppliers that cannot be easily replaced as there are few in the market.



**3. After partners performance assessment, Bangchak encourages the partners to comply with the Supplier Code of Conduct self-assessment using the Supplier Ethics Assessment System.** The objective is to encourage all major business partners of the Company (Critical Tier 1 Suppliers) to participate in completing the SCOC online Self-Assessment by early 2023. Additionally, the company communicated the Supplier Code of Conduct to persons and businesses intending to become the company’s suppliers, and the aforementioned persons and businesses are required to acknowledge and adhere to the Supplier Code of Conduct before becoming the company’s suppliers (GRI 414-1).

In 2022, the new round of critical supplier assessments arrived, with assessments conducted every 3 years. The company assessed a total of 67 important suppliers that were critical to the company (Critical Tier 1 Suppliers), all of which have acknowledged and participated in the SCOC Assessment, with the sustainability management division and procurement department providing training to give knowledge and explanations on how to complete the SCOC Online Self-Assessment and ESG risk assessments to the company’s critical suppliers (Critical Tier 1 Suppliers) and support the suppliers (tier 1) in applying the knowledge to assess their suppliers (non-tier 1) to reduce potential direct and indirect ESG risks that might impact business in the future.

For the most recent assessment (2019–2021), the company conducted on-site ESG visits to the critical tier 1 suppliers, covering 100% alignment with the criteria of completing on-site ESG visits to all critical suppliers during the assessment period.

#### 4. Conduct analysis and closing gaps related to economic, social, and environmental risks of raw material suppliers, logistics, and goods and services.

The company adjusted its goals in assessing the ESG risks of suppliers (Tier 1 Suppliers) as part of an annual round of assessments. Since 2019, the company has been assessing the economic, social, and environmental risks of Tier 1 Suppliers consistently up to the present. In 2022, the company assessed ESG risks in 1,353 suppliers (Tier 1 Suppliers), and it was found that Tier 1 Suppliers and important suppliers not directly conducting business with the company (Critical Non-Tier 1 Suppliers). The company have critically high level of operational risks in all aspects including: economic aspect (risk of delayed deliveries/deliveries, poor product quality that could cause business interruption), social aspect (risk of being complained by the community due to improper operation), and environment aspect (risks associated with chemical and oil spills). The company has jointly developed various risk mitigation measures with business partners (100%) who have been assessed for risks. In order to prevent the impact and the likelihood of that risk being and there is no termination of operations with the partner for which the risk was assessed (0%). (Disclosure 308–2, Disclosure 414–2)

#### Promotion of suppliers Development According to Corrective Guidelines and Work Plans

ESG Risk Assessments of Tier-1 Suppliers	Suppliers	%	Gaps Closed
Tier 1 Suppliers	1,353	100	
Number of Suppliers with Critical and High Risk Levels			
• Economic risk	12	0.9	12 suppliers (0.9%)
• Environmental risk	2	0.15	2 suppliers (0.15%)
• Social risk	3	0.2	3 suppliers (0.2%)
Critical Non-Tier 1 Suppliers	29	100	
Number of Critical Non-Tier 1 Suppliers with Critical and High Risk Levels			
• Economic risk			
• Environmental risk	5	17.24	
• Social risk	–	–	
	–	–	

## Sustainable Product and Service Development

The company is committed to develop sustainable and participatory product and service to enhance the well-being of Thai society. In 2022, as the country started recovering from the COVID-19 situation, there were ongoing supply strains in oil due to the prolonged conflict between Russia and Ukraine and OPEC+ failing to increase oil production as per the set targets. Consequently, the country is facing high oil prices, and in response, the company has fixed oil price to assist the public, resulting in lower prices compared to its competitors during certain period. Additionally, the company launched the “one baht per liter” project to offer refueling discount coupons for all gasoline categories, which was advertised in the Daily News newspaper to reduce the cost of living for the public. The company remains committed to develop non-oil businesses and expanding its capacity, and is urgently working to increase cooperation with leading restaurant allies and street food restaurants to support the lifestyle of the younger generation, allowing customers to feel full quickly and easily. Bangchak gas service station have opened additional networked restaurants and branches to support non-oil businesses in collaboration with various allies such as the “Subway” and “Gateaux House”. The company aims to expand customer base and provide new options for members by partnering with different allies such as in projects allowing conversion of Bangchak points into AIS points, discount exchanges through “Bangchak Point Pay”, and the use of points to pay at Thung Ngoen stores. The company continues to develop its gas service stations with a unique design tailored to meet customer needs and ensure that each gas station has its own unique characteristics base on its location. This approach allows Bangchak to deliver new experiences and greenovations to customers.

In line with its goal to be the number one gas station brand in the minds of consumers, Bangchak has given importance to listening to the needs and expectations of our stakeholders, especially customer and business partners which consists of consumers (end users), B2B customers (business-to-business), gas station operators (dealer) and agricultural co-op gas station operators (COOP). In 2022, product and service quality were important sustainability issues of focus. Therefore, Bangchak developed a business strategy to respond to the needs by using innovation and technology to develop high quality products and improving service quality at Bangchak gas stations that are environmentally and socially friendly to provide good experience under the concept of “Your Greenovative Destination.” In addition, the company uses Net Promoter Score (NPS) – an international standard – together with customer satisfaction surveys as tools to track performance and to control service quality in accordance with Standard Service Procedure which is a measure of product delivery efficiency and good quality service to customers and business partners. Service audits are randomly conducted and mystery shoppers are used to check the service delivery process from the maintenance of the service station including using cars to check the quality of service and mobile fuel quality at Bangchak service stations nationwide (Mobile Training & Lab). Further, a mobile application survey system has also been developed that allows members to assess their satisfaction immediately after using the service. By improving the question of speed, which is one of the service factors that customers focus on Bangchak ensure that the company delivers quality products and services to stakeholders.



## Goals for 2030



Maintain the 1<sup>st</sup> place in Service Station brand, as measured by Net Promoter Score.



Increase revenue from service stations with the second-largest market share.



Continue to develop services, service stations, and non-oil businesses through products and services that are sustainable and responsive to customers' needs.



Expand gas service stations by 60-80 stations throughout the country by increasing the number of stations with unique designs to 190 stations from 74 stations in the present (as of December 2022).



Develop and improve cooperative service stations to have the same quality and standards as Bangchak service stations.



Develop high quality fuel products that keep with the changing automotive technologies while ensuring that all products are environmentally friendly.



Develop brand and lubricant products.



Provide high quality service experiences to customers through exceptional service standards.



Develop Bangchak GreenMiles membership car toward The Best Loyalty Program that meet customers' expectations.

## Strategies

The company aims to become a leader in green innovations by developing products, services and experiences under the concept of “Your Greenovative Destination” at Bangchak gas service stations. These destinations will meet customers’ needs and achieve sustainable business development through three key performance areas: 1) meeting the needs and expectations of customers and stakeholders, 2) procuring, developing and creating new innovations for oil products and non-oil products and services to adapt to rapid changes, and 3) operating the business sustainably while caring for the environment and society. Therefore, the company has strategies as follows:

### Customer Empathy

#### Your Greenovative Destination

##### Greenovative Products



Become a leader in providing high-quality, environmentally-friendly oil products that meet the needs of customers. Our products are made with using Euro 5-standard oil.

##### Network Management



Expand gas service stations and designs to meet customers’ needs with a focus on areas with continuous increases in oil usage requirements and on creating worthwhile investment returns for business allies.

##### Non-Oil Offerings



Meet the needs of existing customers and future customers by developing non-oil stores in partnership with business allies and utilizing future technologies such as EV chargers.

##### Digital Experience



Develop a closer relationship with customers through digital experiences that enable to learn about and understand customers as if they were close friends.

##### Green Sustainability



Sustainably grow of the business with society and the environment.

## Performance in 2022

### 1. Greenovative Products

Become a leader in providing high-quality oil products to meet the customer’s needs while also being environmentally-friendly through 3 main types of products: EURO5-standard oil, such as E20 S EVO gasohol oil and Hi-Premium Diesel S, which have less sulfur than Euro 4-standard oil and are designed for new Euro 5 engines. Additionally, the latest products such as Hi Premium 97, which has an octane rating of 97, are the highest among gasohol oils (E10) in Thailand and are the only premium gasohol product to meet the Euro 5 standard. The company also offers lubrication oils that have achieved significant performance is as follows:



- The company has launched the distribution of its latest product, Hi Premium 97, which boasts an octane rating of 97, the highest among gasohol oils (E10) in Thailand and the only premium gasohol product to meet the Euro 5 standard. This product is suitable for premium car users who require an especially high-octane rating, as well as ordinary cars seeking performance enhancement and engine life extension.
- The company has continuously pushed for the sale of bio-fuel products to help reduce greenhouse gas emission, with an emphasis on promoting the sale of gasohol E20 S EVO through 955 gas service stations that sell E85 fuel (as of December 2022). This has led to the continuously increase in market share of E20 and E85 products to continuously increase and claim second place in the market
- The company developed lubrication oil products according to international standards, whereby the company is certified for ISO 9001 quality management standard and ISO/TS 16949 quality management standard for the automotive industry and international quality management systems. In 2022, the company increased its market share for lubrication oil products from 9.9% to 10.1% in the previous year (as of December 2022).

### 2. Network Management

Expand gas service stations and develop designs to meet the customers’ needs with focus on areas with continuous increases in oil usage requirements and to create worthwhile investment returns for business allies.

- Innovative Service Stations: The company has utilized various technologies and innovations to develop gas service stations, improve the environment of gas service stations and incorporate non-oil businesses.
- The company improved the appearance of gas service stations with the unique designs service stations concept, delivering a unique customer experience through design, and developed of non-oil businesses partnerships. As a result, the company currently has 74 uniquely design service stations (as of December 2022), consisting of 5 different styles: Modern, Innovation, Eastern, Western, and Fantasy.
- In partnership with business allies. The company has developed EV chargers at Bangchak gas service stations located on major routes to support the increasing demand for electric vehicles (EVs). As of December, 2022, The company has installed EV chargers at the total 179 service stations, making the service station with the highest number of EV chargers available in all region throughout Thailand. The company aims to be the companion of EV users on every journey.
- Development a standard service stations located on a main road with consideration to the needs of customers.
- Support the improvement of standards and appearance of service stations to be ready for competition in terms of structure and service work in 140 locations (as of December 2022).



### 3. Non-Oil Offerings

Meet the needs of existing customers and future customers by developing non-oil stores alongside business partners and using technologies for the future (EV chargers).

- Develop 25 “Bangchak Food Truck” business in 2022 by partnering with leading brands to provide Grab & Go food services in gas stations in respond to urban lifestyles in the New Normal( as of December 2022).
- Expand non-oil business such as Inthanin Coffee in service stations. There are now Inthanin Coffee in 1,002 service station (as of December 2022), Bubble tea shop DAKASI, which Bangchak Retail holds the rights to expand business and manage branches in Bangchak gas stations nationwide with 51 branches (as of December 2022), and business alliances. The convenience stores under the brands “Tops Daily”, “Family Mart”, “Mini Big C” and “Lawson” are 15 branches, 17 branches, 133 branches and 1 branch respectively (as of December 2022).
- Better management of service station areas to optimize benefits under the new business framework to provide end-to-end services such as car care services under “Wash Pro”, “FURiO Care” “Green Wash,” “Trye Care” brands; food kiosks and food trucks, laundry services, logistics and delivery services, and vending machines.

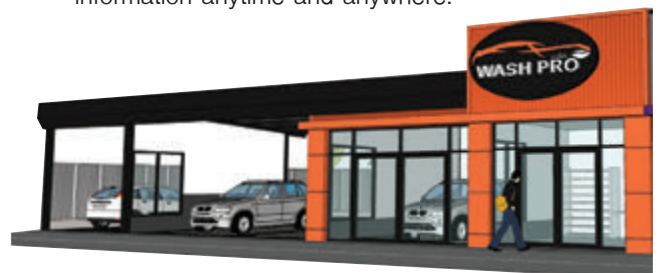
### 4. Digital Experience

Building close relations with customers through digital experiences that allow knowledge and understanding of customers like they are close friends.

- Expanded the network of fleet card and pre-paid card customers to increase sales through service stations.
- Use digital payment system for payment and membership points collection at all Bangchak service stations, Inthanin Coffee branches, and convenient Green Sustainability – build sustainable business while taking care of the environment and the society stores in service stations by using QR code that can be paid with any mobile banking application to reduce contacts and maintain social distancing between customers and employees in order to increase customers’ trust in Bangchak service station.
- Expansion of service stations with digital payment support to 760 branches (as of December 2022) with membership points collection at every Inthanin coffee ship and convenience store inside service stations to reduce contact with cash between customers and service providers to increase the confidence of service station users. Moreover, the company developed a

system for refueling without requiring windows to be lowered and for payments to be made by QR code to reduce the risk of contracting diseases due to the current ongoing pandemic.

- The company collaborated with the Thailand Environment Institute (TEI) to develop the criteria for designing service stations under the Inno-Green Station concept. This concept focuses on caring for the environment through the use of innovations while ensuring the safety and quality of life of all customers through service stations designed according to the principle of universal design. In 2022, the company has developed 72 service stations based on the aforementioned criteria, bringing the total number of 200 stations of present (as of December 2022).
- The company has developed the Bangchak card membership system. which includes benefits in “the greater the price rises, the greater the discount” project, a system to support members’ care of the environment, such the Ton Mai Khong Khun, Ta Kra Bun Project, this project allows members to donate points to various charities at any time. Additionally the company has developed other projects to expand the customer base, such as transferring Bangchak points to AIS points, exchanging them for ‘Bangchak PointPay’ discounts, using points to help pay at Thung Ngoen shops, transferring Bangchak points to MAAI points, and converting points into funds
- Developed BCP Link Application to facilitate dealers to access important information in real-time such as the Auto Ordering System (AOS) and work effectively through system such as Smart P&L which helps service station owners to monitor and manage the effectiveness of their operations.
- Develop online training for service station employees and operators to enable them to access important information anytime and anywhere.



## 5. Green Sustainability

### Build the sustainable business growth with the society and the environment.

Bangchak continues to drive projects and engage our customers and stakeholders in the development of society.

Examples of projects are:

- Toem Nam Man Pan Nam Chai Project** This project has been operation since 1997 and has been continuously developed by purchasing agricultural products and/or innovative products from farmers and SME entrepreneurs to give to customers who refuel. This is a way to support farmers and SME entrepreneurs at a time when agricultural produce prices are low and to give customers the opportunity to participate.
- Employment of Disabled and Elderly Project** (in suitable positions) to support the value and quality of life of people in society and give importance to participation by supporting products produced by persons with disabilities. The company has employed and provided opportunities for elderly persons and disabled to work at gas service stations. Currently, there are 146 elderly people and 26 disabled people employed. Additionally, Bangchak Retail Co., Ltd., has employed 2 elderly persons (1 person at the head office and 1 at an Inthanin coffee shop) and 3 disabled persons. (1 at the head office and 2 at Inthanin coffee shops) (as of December 2022).
- Garden Vegetables in Service Station project** Bangchak converted unused areas behind service stations into vegetable gardens to help reduce food cost for service station employees as well as to give away to customer as a thank you gift for using Bangchak service station. The gardens also serve to provide educational opportunities about growing garden vegetables to surrounding communities and schools.
- The Inthanin coffee shop business, as a leader of the coffee business that is “environmentally-friendly”** Inthanin Coffee, a leader in environmentally friendly coffee business – Inthanin Coffee was one of the first coffee shops to promote plastic reduction through “Bring Your Own Cup” campaign. In addition, Inthanin Coffee was a leader in using BIO Packaging including lids and cups that are made from plants and are fully biodegradable as well as ready to drink lids that reduce the need for straws; thus, reducing plastic waste and become the coffee shop that use bioplastic the most in ASEAN. Furthermore, “Kaew Phaw Kla” activity

invited Bangchak Group’s employees and Inthanin customers nationwide to return Inthanin bioplastic cups. Bangchak then gave these cups to the Forest Department to cultivate saplings in place of black plastic plant bags to reduce waste and increase green space.

- Project to study the feasibility of using solar air conditioners in Inthanin and Dakasi stores** by starting installation in 16 Inthanin and Dakasi stores (as of December 2022) with plans for expanding more installations in the following year.
- Thai Culture Promotion Project** Provide experiences that create good impressions to Thai cultures to customers such as promotional events during major holidays, giving krathong to customers on Loi Krathong Day including a dedicated area for worshipping and watering buddha statues.
- Lost and Found at Bangchak Project** to create a trustworthy image and good impression for service stations customers by providing lost and found service
- Roadside Assistant Project** instill a helpful mindset and culture to service station employees by providing basic services to drivers such as tires change and jump start.
- Bangchak’s Members Collective Giving Project** create engagement between customers who are Bangchak’s members and the society; Bangchak members can donate points from using Bangchak’s products and services to convert into cash donations to partner non-profits and foundations such as Princess Maha Chakri Sirindhorn Medical Volunteer Foundation, Ramathibodi Foundation, and the Thai Red Cross Society.



## Performance Outcome

Bangchak gas service stations is brand that successfully maintained its No. 1 ranking in Net Promoter Score (NPS) since 2017 to 2022. (Data from survey of over 1,500 oil users nationwide with the survey conducted by an external research company.)

	Unit	2017	2018	2019	2020	2021	2022
NPS Score	%	77.5	71.5	76.1	81.3	77.5	73.5
NPS Score	Ranking	Number 1 (shared)	Number 1 (shared)	Number 1 (shared)	Number 1 (shared)	Number 1 (shared)	Number 1 (shared)
Oil sales through service stations	Million liters/month	317.7	333.8	355.7	348.7	339.7	385.2
Average sales	Thousand liters/month/ standard service stations	509.8	496.0	497.7	458.5	421.6	445.2
Station expansion	Number	61	74	48	45	57	72

Amount of greenhouse gas reduction from refueling through Bangchak membership cards (Unit: tons carbon dioxide equivalent)

	2017	2018	2019	2020	2021	2022
	196,828	215,469	232,146	197,737	190,716	211,076



# Relationship Management and Customer Responsibility

## Significance

The company proactively and passively manages its relationships with various customers such as end users, industrial customers, and wholesales through the gas service station businesses of Bangchak Green Net Co., Ltd. (BGN), dealers, Inthanin shops, and cooperative service stations (Co-ops). This is in line with business strategies that focused on meeting customer needs, enhancing gas service station quality and creating good experiences under the concept of “Your Greenovative Destination.”

## Long-term Target 2020-2024



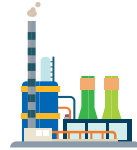
End User



Dealer



Service Station Dealers  
operated by Cooperative  
(CO-OP)



Industrial Group

The company aims to be the First brand of choice (The Most Admired Brand) by year 2024 as a way of thanking our customers for their loyalty. Our Customer Feedback Process brings input of customer expectations, which will be used for our planning of innovation as well as technology for products and servicing at service stations, complying with a concept of social and environmentally friendly. To gain more market insights on the “Your Greenovative Destination”, the company has used the international standard survey called Net Promoter Score (NPS). It is an index of measuring engagement through word of mouth and Customer Satisfaction. The company will use the information, needs and expectations of consumers for determining the strategy continuously.

## Performance 2022

### 1. Development of a Mechanism for Bilateral Communication between Customers, Businesses, and the Company

#### 1.1 End Users

The company provides various customer contact channels, including the 1651 call center, Facebook, email, website, official LINE account, LINE@, live chat, and the Bangchak mobile application. A system is used to store and process data from every contact channel, enabling the return of contact to customers in cases where lines are full or customers contact outside of business hours by utilizing the call-back system. Furthermore, the company monitors customers' comments on online social media platforms, such as the Pantip website and Bangchak's Facebook page, to gather data and improve services.

#### Satisfaction Assessment

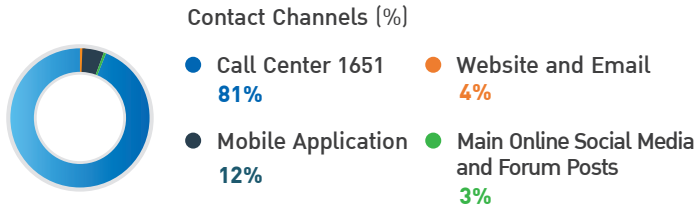
The company has multiple channels for evaluating customer satisfaction, such as mobile phone evaluation through an automatic call transfer system after service

use, and the mobile survey system for Bangchak card customers, covering gas station services and non-oil businesses. Additionally, the company receives customer satisfaction information from other channels, such as external organizational evaluation, annual market research, focus groups with businesses to exchange market information, etc. Customer can summarize complaints, questions, praises, sales promotions and service recommendations to send them to related agencies for service improvements. Furthermore, employees who are praised by customers receive awards to improve work morale.

In 2022, the company received additional complaints and recommendations from 2021, and noticed that customers' preference for online channels (mobile application, website, email and online social media) increased by 19% from 8% in 2021. However, customer satisfaction on responses to complaints and customer service reuse recommendations met set objectives.

## Complaints and Suggestions

### Contact Channels



4,859 Topics  
Divided into



There was no significant legal violation on marketing communications (Disclosure 2-27)

### 1.2 Industrial and Wholesale Customers

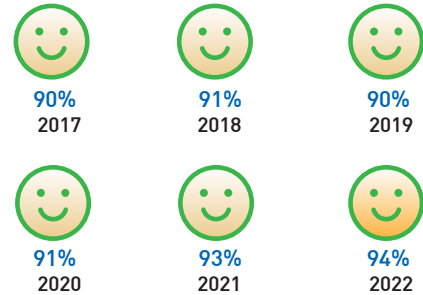
The company prioritizes the use of online systems in communication and assessing customer satisfaction, such as in technical service work and transportation service work, among others.

### 1.3 Service Station and Inthanin Coffee Operators

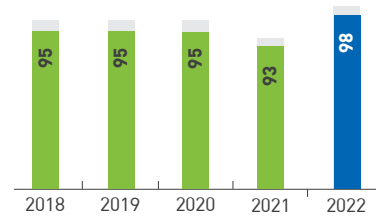
The company has an oil purchase system for gas service station businesses via the 1651 call center. Additionally, the company has a call-back system in place to allow personnel to contact customers when lines are full and also transfers calls for post-service satisfaction surveys. The company also has web ordering and mobile application, and email systems for 24-hour ordering of oil and has expanded the provision of oil ordering services and ordering of raw materials for Inthanin shop, and is focused on increasing work effectiveness alongside businesses through other communication channels such as LINE groups.

### Results

Satisfaction with response to complaint and suggestion (Target: 90%)



Assess the return of service (Target: 95%)



## 2. Development of systems and technology to support relationship

### 2.1 End Users

- The company has a CRM system and offers special privileges to new customers by category (truck customers and food riders, etc.) and uses the fuel consumption data and Inthanin shop service usage data collected from members to analyze and create privileges that promote repeat of service.
- The company provides convenience and increased safety for customer service during the COVID-19 situation through various systems. These include providing refueling notification via the official LINE account, allowing payment for refueling through QR code and wireless card swiping, which enables customers to tap credit cards without getting out of their vehicles, and offering points collection after providing customer's telephone number.
- The company complies with the Personal Data Protection Act to maintain customer data security by requesting for consent from new customers for the use of their personal information, and existing customers can add or revoke consent through the Bangchak mobile application.

## 2.2 Industrial and Wholesale Customers

- E-Tax system to facilitate the customers in online access to information.
- Increase number of oil depot to provide better coverage and faster delivery.
- Improve lubricants database so customers can select appropriate lubricant products through www.bangchaklubricants.com.

## 2.3 Service Station and Inthanin Coffee Operators

- Develop CRM systems by phone to collect data of incoming calls, allowing employees to immediately know which customers contacted.
- Allow call center employees to work from home in order to reduce risk from COVID-19.
- Expand the reach of E-Training for partners and employees so that they can access training and development material anywhere at any time.
- E-Report system to analyze the operational data of service stations through various E-Report systems accurately and quickly to cooperate in work improvement.
- Point-of-sale system for raw material used in Inthanin Coffee to be sent directly to distribution center. Coveraging the additional product such as bakery products and frozen products.
- Add a variety of payment features like True Money Wallet, Dolfin Wallet, ShopeePay Wallet, and Rabbit Linepay.

## 3. Relationship management to maintain existing customers and obtain new customers

### 3.1 End Users

**Their main privileges include** the following:

- New Bangchak card members receive 100 extra points from membership card registration.
- Benefits – matching the price increase with equal amount of points on the days where fuel price increase.
- Double points for all diesel purchases for Bangchak card members.
- Birthday privileges – earn 50 extra points to redeem for special discounts at Inthanin Coffee or Furio Care car service center.

### Special privileges for Bangchak member card customers in line with new normal:

- Redeem 1,000 points for Krungthai COVID-19 insurance.
- Redeem 350 points for a policy to protect against COVID vaccine side effects.

- Redeem only 1 point, receive a 57% discount on the purchase of COVID-19 test kit or a 53% discount on a COVID-19 testing.
- Redeem points for Andrographis paniculate pill, cloth mask, and alcohol gel hand sanitizer.
- Promotional items “weekday travel, good return” where customer receive 50 points for 500 baht spending on refueling.
- Able to order Inthanin drinks with special discount via Grab, Lineman, FoodPanda to reduce risk of contracting COVID-19 as well as enjoy special discounts.
- Promotion: use 15 points plus 15 baht to buy Inthanin beverages.
- Gas stations sell hand sanitizer gel in 5-liter size.
- Bring the slip that has accumulated points or redeem points for a 10 baht discount.

### Additional benefits

- Expand customer base by adding privileges to SCG, AIS Serenade, The1Card member cardholders to receive instant discounts from refueling at Bangchak gas stations.
- Members can exchange points with each other by transferring points from credit cards participating in the program into Bangchak membership cards and for transferring points between Bangchak and AIS points and MAAI. In addition, Bangchak points can be used to pay for products via the cash bag application.

## 3.2 Industrial and Wholesale Customers

- Provide knowledge on various topics such as products/emergency planning training /after-sales service/support equipment/check equipment range and engine maintenance.
- Provide total solution service in addition to selling products including equipment maintenance and quality assurance.
- Meet with major customers monthly to jointly build a sales support tool and expand the sale network.
- The company approved additional secured loan amounts.
- The company has created promotional offers as discussed with customers and granted quarterly and annual discounts to continuously facilitate customer purchases and has increased the products sold by the company.

## 3.3 Service Station Operators

- Deliver high quality products such as Hi Premium Diesel S and E20S EVO as well as PM 2.5 reduction diesel fuel. Including the oil development to reduce

dust and pollution from PM 2.5 dust, to prevent the problems from situation of small particulate matter or PM 2.5.

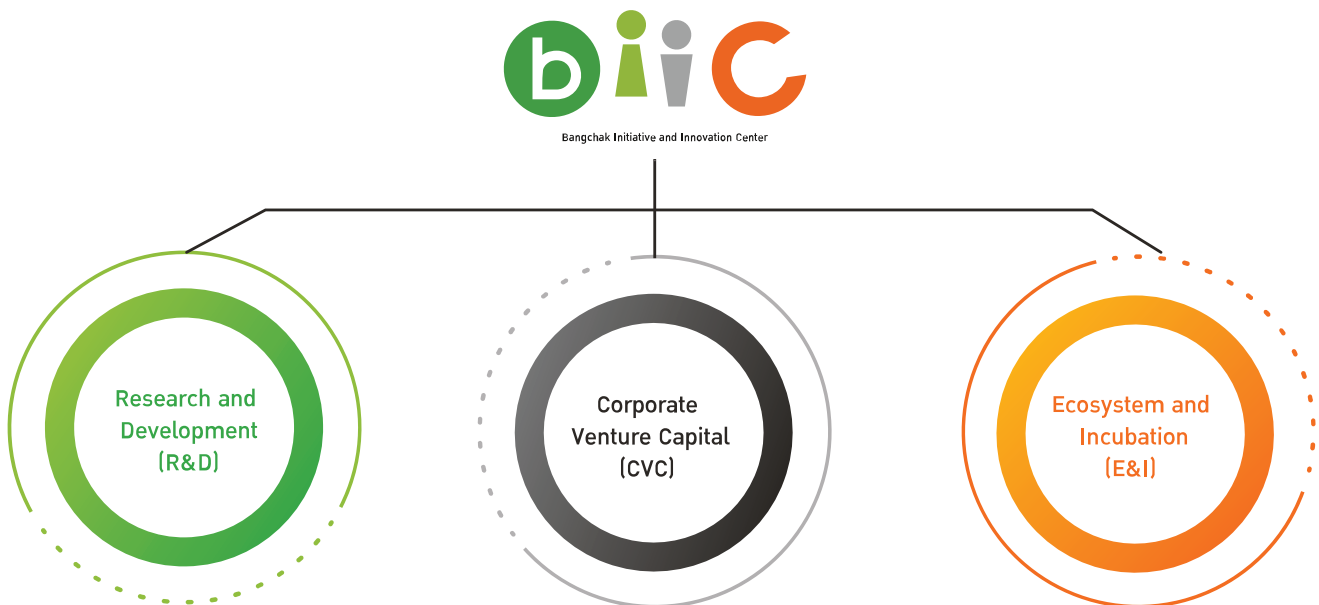
- Implement an online communication system to increase the effectiveness of client communications.
- Develop “Program Bonding” to support investment in service station development to provide complete and value-added services as well as add products and improvements to service station.
- Support alternative vaccines and deliver “Care Box” to dealers. Inside the box contains the thermometer, pulse oximeter, Andrographis paniculate, alcohol gel, mask for the entrepreneurs and the service station employees.
- Increase consumer confidence through preventive measures and maintain cleanliness within the service station (7 safes).
- Expand the numbers of service stations that accept digital payment.
- Develop a point redemption system to expand the customer base, for example, with AIS, exchanging points “The more you transfer, the more you get”, and with Krungsri Ayudhya Card Company under the project “Transferable, easier to exchange”.
- Expand partners in the online market to increase sales for Inthanin coffee shop operators with True Food, Shopee Food, and Air Asia Food and organizing promotional activities through food delivery partners.
- Develop new beverages and bakery menus to better serve customers.
- Provide delivery services through Kerry in Inthanin Coffee stores.
- Joined the government’s COVID-19 economic stimulus program “Ying Chai Ying Dai” for Inthanin Coffee.
- Develop Inthanin Mobile Application for customers to choose to pick up products at branches and buy monthly packages (Subscription).



## Innovation Management

With realization about the importance of creating new innovations not only generate income and increase the company's competitiveness, but also to create positive impacts on stakeholders, society, and the environment, the company aims to expanding new work and skills, develop the quality of life in the areas of health and well-being of people, reducing the use of natural resources, and minimize pollution from its business.

Bangchak established the Bangchak Initiative and Innovation Center (BiiC) to create a green ecosystem for driving various innovations with a focus on green energy and bio-based products to in turn grow its domestic and international businesses derived from R&D and corporate venture capital while engaging in business ecosystems and incubation. In line with the BCP 316 NET work plan to become carbon neutral by year 2030 and achieve net zero carbon emissions by year 2050 in Bangchak Group.



With a determination to manage the company's innovations, the company received the Southeast Asia MIKE Award (The Most Innovative Knowledge Enterprise) at the Gold Level for its promotion of knowledge and innovations in the organization, continuous development of products and services for customers and importance given to personnel and technologies in every area based on the 8 sustainability indicator factors as follows:

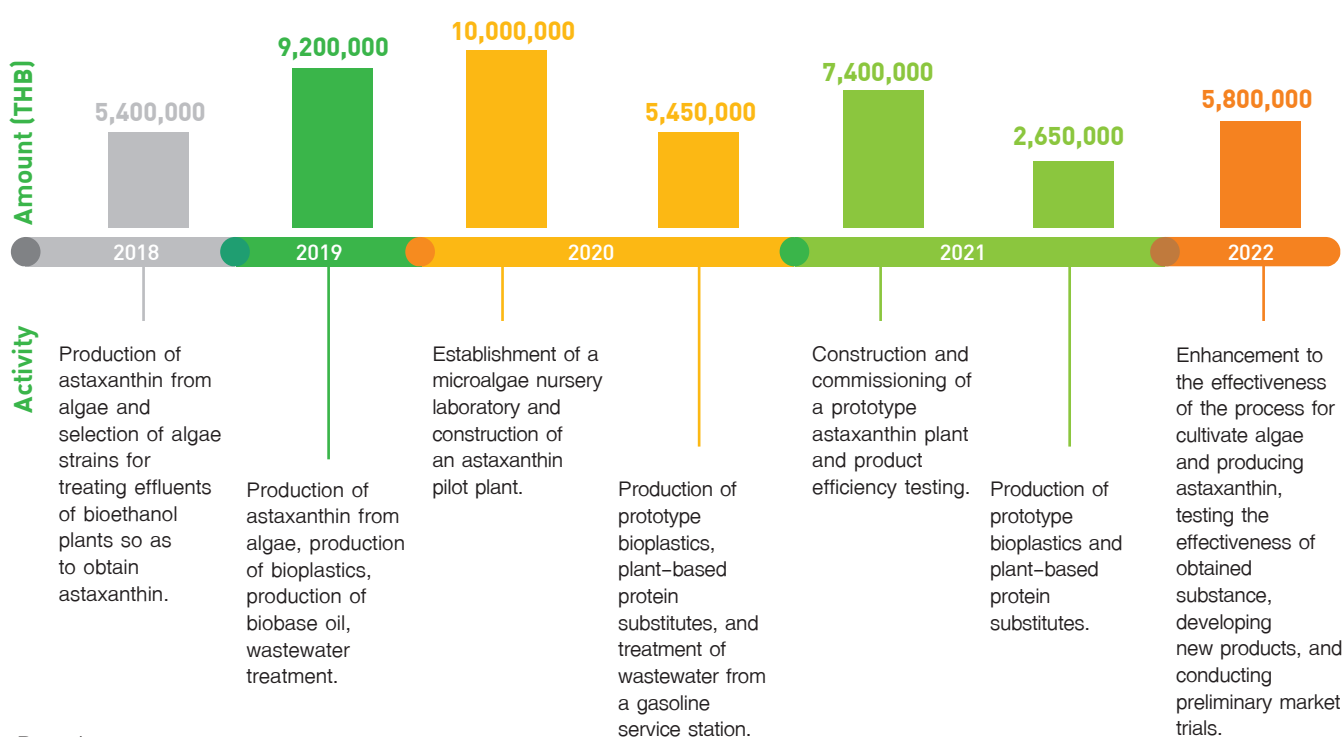
1. Supporting personnel to gain knowledge and capabilities to create innovations.
2. Organization leaders, vision and strategy.
3. Meeting expectations, needs, and experiences of customers and stakeholders.
4. Developing cooperation and networks both internally and externally.
5. Building organizational culture and innovations.
6. Investing in and delivering of knowledge-based products, services and solutions.
7. Promotion the use of knowledge practice guidelines and knowledge creation systems.
8. Creatively and realistically utilizing space to create value for stakeholders.

## Key Performance

### 1. Research and Development (R&D)

On the production of astaxanthin from model factories for processing into high-value products as well as developing and improving production processes and testing the effectiveness and toxicity of the manufactured astaxanthin in collaboration with the Faculty of Pharmacology at Chulalongkorn University, it was found that consumption of astaxanthin improves vision and the skin health without causing liver or kidney toxicity. Application of astaxanthin on the skin also caused irritation. Furthermore, the company developed new experimental products such as nutritional supplements and cosmetics and has studied and developed the Nano particles of astaxanthin for improved product effectiveness.

#### Company Spending in Research and Development of Technologies and Innovations



#### Remarks:

- In 2019 Bangchak won 2.8 million baht in tax privileges from NSTDA along with 2.3 million baht in supporting research fund from the Thailand Research Fund (TRF)
- In 2020 Bangchak won about 1 million baht in tax privileges from NSTDA

### 2. Corporate Venture Capital (CVC)

For CVC's in investment boundaries, which are now more consistent with Bangchak group's plan to become carbon neutral by 2030 and achieve net-zero carbon emissions by 2050. This includes learning about new technologies for creation and using green businesses as part of Bangchak Group's new-S curve in 4 areas: green energy technology, energy transition technology, bio-based and wellness, digital technology and others.

In 2022, CVC invested over 58% of its total budget directly in start-ups, both as follow-on investments and initial investments. Start-ups directly funded include Winnonie Inc., which develop innovation electric motorcycle greenovations to enhance the quality of life of public motorcycle riders. Additionally, the company invested in the development of hydrogen technology and start-ups developing anode free solid state batteries.

### 3. Ecosystem and Incubation (E&I)

For ecosystems and incubation (E&I), Bangchak Initiative and Innovation Center (BiiC) launched “The Intrapreneur Project to Build Insiders into Business Owners”. The project aims to brainstorm ideas from employees to build upon existing businesses and seek ways to operate new businesses to generate supplementary income. As part of the project, employees of the company and affiliated companies were assigned to propose new business development projects base on the Design Thinking concept to design products and services and improve components to incubate and enhance the potential for commercial growth. Ongoing projects including the following:

#### Smart Coin-Operated Gas Station Project (Krathing).

This project was launched in 2021 ,utilizing financial and lifestyle innovations such as wallet top-ups to serve communities located far away from gas stations. After incubation for commercialization in 2022, the number of smart coin-operated machines increased from 10 to 110, with plan to increase to 200 machines by 2023.



#### Algae Cultivation Research Project for High-Value Extract Production.

This project is operated in collaboration with research and development agencies to obtain financing for expanding production capacity and support the domestic market. The project aims to become the hub for cultivation and extraction of high-value substances from algae in the Southeast Asian market. Currently, the brand Asta. A offers nutritional supplements and cosmetics made from an important extract from red algae (astaxanthin), which is an anti-oxidant with 500 times more effectiveness than Vitamin C. The company plan to expand products to include human food and animal feed.



Furthermore, E&I contributed to expanding the collaboration network for driving innovations and the synthetic biological technology industry or “Thailand Synthetic Biology Consortium” with involve working with 17 agencies with a plan to further expand collaboration to include 22 agencies. Currently, a biosphere project is being developed in collaboration with a network of experts in the public and private sectors from both local and international entities. The goal of the project is to develop manpower and incubate entrepreneurs in biology to support business growth, enhance the industry and improve competitiveness in line with the national strategy under the BCG economic model.

The company communicates and heeds the opinions of stakeholders in innovation continuously through various channels, such as stakeholder engagement surveys on various issues. The company obtains opinions from investors and external interested parties through financing activities for new businesses, to develop and improve business models and incubate other innovations.

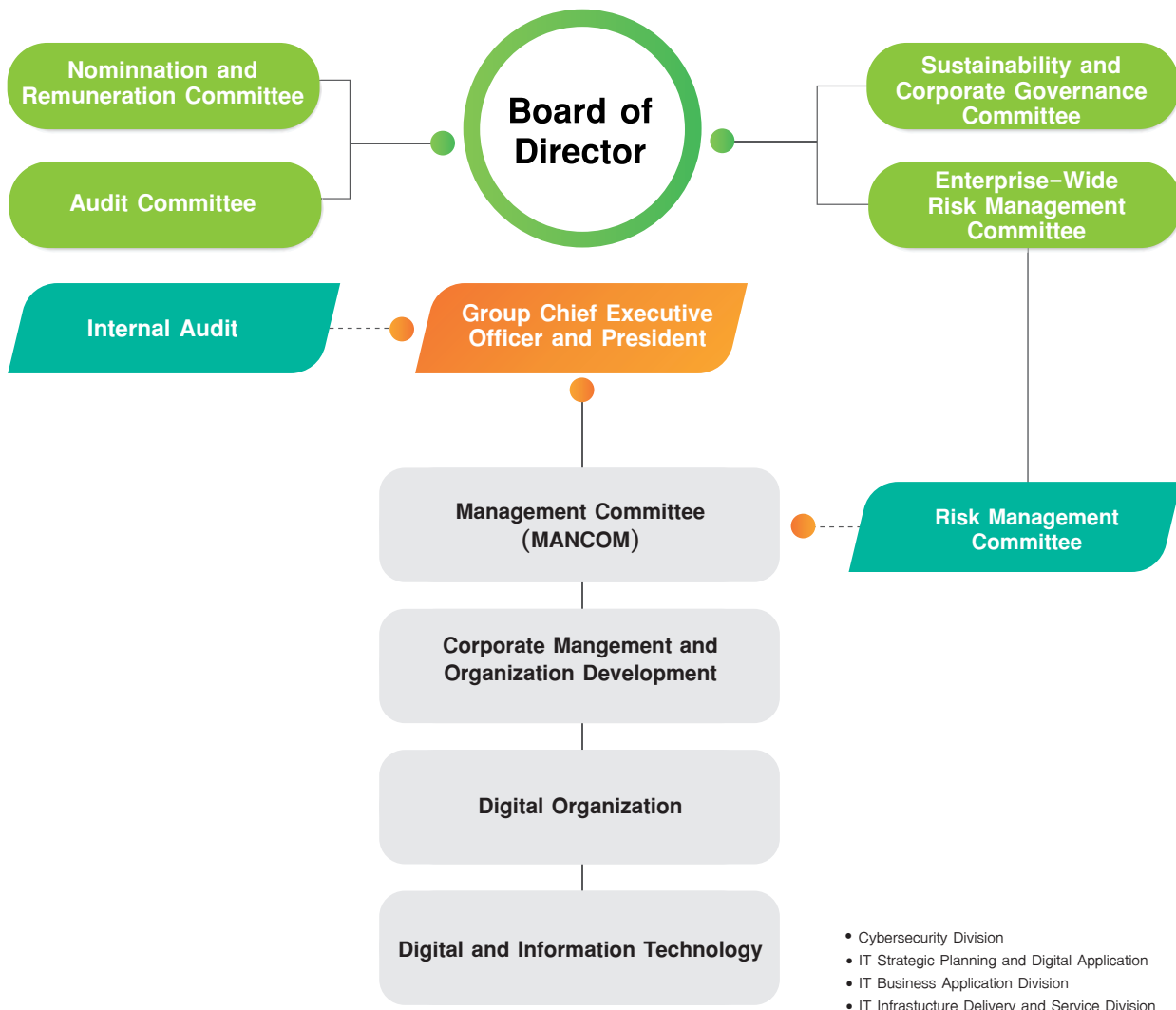
## Information Technology (IT) and Cyber Security for Business

Cybersecurity is an important issue that can have an impact on both internal and external stakeholders. This includes potential operational security risk such as system crashes, and the possibility of personal information violation of employees, partners and customers.

Therefore, the company relied on information technology systems as important tools to meet the expectations and needs of stakeholders. It follows practical guidelines, tools, and frameworks to implement up-to-date and efficient standard. Risk management also focuses on security systems in line with international standards and government requirements, such as the Computer Crimes Act, B.E. 2560 (2017), Cyber Security Act, B.E. 2562 (2019), and the Personal Data Protection Act, B.E. 2562 (2019). This approach supports business expansion in accordance with corporate strategic plans and prevent the violation of the stakeholders’ rights resulting from the misuse of personal information.

### Information Technology and Cyber Security Management Structure

The company has appointed The Information Technology and Cybersecurity Digital Department is responsible for the management of the committee and report performance to the Management Committee (MANCOM), and they also report IT risk management and cybersecurity to the sub-committees and the Enterprise-wide Risk Management Committee (ERMC).





Since 2018, the company has set up a cybersecurity section to be responsible for managing cybersecurity and cybersecurity management occurs in line with international standards, including ISO/IEC 27001:2013, ISO/IEC 27032:2012, ISO/IEC 27018:2019 and NIST Cyber Security Framework.

## Information Security Management in accordance with International Standards

- ISO/IEC 27001:2013 Bangchak has received certification for ISO/IEC 27001:2013, an Information Security Management Systems standard, since 2012. The company implemented the standard in risk management, design of security system, and in operations to create resiliency in control and development.
- ISO/IEC 27032:2012, Bangchak received ISO 27001 since 2018, which focuses on the confidentiality, integrity and availability in the cyberspace to protect hardware and software assets as well as information and virtual assets such as brand and reputation.
- ISO/IEC 27018:2012 The company has been certified by this standard since 2021, which focuses on information security management to protect of personally-identifiable information in the company's cloud.

## Protection of Assets, Information and Systems

Bangchak has implemented the Information Technology and Cyber Security Policy to ensure protection coverage through:

1. Conduct risk assessment of important IT systems and develop backup system and emergency management plan in an event where operations cannot be conducted electronically. The backup system and emergency plan are frequency tested for readiness.
2. Information technology management shall have measures to control and protect assets and equipment to ensure operational readiness and deterrent against unauthorized access from both onsite and offsite usage.
3. Control access to information and information technology usage based on level of importance as part of data management and confidentiality. This includes control of electronic messaging as well as providing a written contract on confidentiality and information protection with external entities.
4. The company provided Multi-Factor Authentication (MFA), advance Endpoint Protection, Zero Trust advanced security information and event management (Advance SIEM) systems. In addition, Deception Technology that can help analyze new attacks quickly and accurately, helping admin to responds confidently to protect the company's information systems. The company conducts awareness raising activities with relevant users. Technical vulnerabilities are managed through:
  - Testing of procedures and processes to manage security incidents at least once a year including conducting a cyber security drill.
  - Conducting a penetration test on important operation systems to analyze risks and impacts to the business at least once every year.
  - Conducting vulnerability assessment of the operating system (OS) Software and network/security equipment to determine whether there are any vulnerability and impact level so system operators/managers can determine the likelihood of attacks and develop corrective actions.

## Internal communication to raise awareness and increase effectiveness of IT system usage.

Internal communication has been increasingly implemented in internal operations and businesses. Therefore, Bangchak has provided communications and training for employees which included:

- Orientation for new employees through the use of operational training and measure understanding of cybersecurity awareness as well as requirements for the use of corporate information systems and regulatory compliance such as the Computer Crime Act of 2017 and Personal Data Protection Act of 2019.
- Communicate potential cyber risks to create knowledge and security awareness through Company's e-mails.
- Conducted Cybersecurity Awareness Improvement Program annually through phishing mail assessment understanding assessment which includes conducting phishing simulation in order to determine the level of risk to the company. To assess users' awareness, the Security Awareness Assessment is conducted. Results are documented, analyze, and use to develop further training plans as well as to improve phishing mail prevention measures. In 2021, 4 scenarios were conducted along with the assessment of errors from the test to employees immediately to create awareness (rapid improvement program). In addition, the various scenarios revealed some weaknesses in which Bangchak used the information to conduct analysis to close the vulnerabilities by communicating with employees to learn, be aware, and know how to deal with the threat of Phishing Mail better.
- Cyber Security Response for Bangchak Group is another measure implemented to improve cyber security. The company educated employees, executives, and subsidiaries through cyber security incident case studies such as business email compromise (BEC) (e.g. fake invoice). The company also implemented Strictly Process Confirming as follow:
  1. Requests: Registration or change to important information, especially bank account information.
  2. Use the company form to verify and confirm the change of information and must be signed by responsible person of the counter party.
  3. Must have relevant, formal, and legal documents or issued by a government agency.
  4. Re-Check with requester by telephone.
  5. Add these steps into the operation manual.

## Countermeasures in Case of Cyber Threats

Emergency drill and business continuity plan: The company has instituted plans and procedures for Incident Response Plans which are considered as a high-risk, to be able to prevent and recover effectively and rapidly in order to operate the business continuously and minimize the impacts. In operation, the company set up an IT Service Management System using BMC Remedy system named MyIT, which has procedures for managing information security incidents. Employees can report to the Information Technology Service in 3 channels: MyIT system, email, and telephone.



## Number of Data Breach Incidents, Inadvertent Disclosures and Data Leakage

Year	2017	2018	2019	2020	2021	2022
Number of Time	0	0	0	0	0	0

## Number of Customer Data Leaks or Unauthorized Disclosures/Uses

Year	2017	2018	2019	2020	2021	2022
Number of Time	0	0	0	0	0	0





# Environmental Dimension



Net Energy Consumption

**13,753.21**

Terajoules

**Greenhouse Gas (GHG) Emission Scope 1&2**  
(Operational Control Approach)

**0.946**

Million tonnes of carbon dioxide equivalent



Total water withdrawal from all sources\*

**2.38**

Million m<sup>3</sup>

(\*produced water from crude oil extraction/processing, surface water, ground water and third-party water)

Water recycled and reused of the refinery

**1.56**

Million m<sup>3</sup>



5Rs waste management

**99.99%**

of total waste

Number of significant oil and chemicals spills (more than 100 barrels/time)

**0**

case

Environmentally friendly products

Low Carbon Product



Avoid emission for third-parties

## Efficient Resource Allocation for Maximum Benefits (Operational Eco-Efficiency)

In 2022, the oil refinery and oil trading businesses had a mean refinery capacity of 122,610\* barrels per day or 102% of the total refinery production. This was due to the fact that oil prices and gross refining margin were high in line with significantly increasing usage demand for fuel worldwide along with increasing domestic demand for oil after the COVID-19 situation improved. Accordingly, the company modified its refineries to become high value specialty products to develop new products such as a solvent under the BCP White Spirit 3040 brand name, and the company is also a producer of UCO (unconverted oil), which can be used as a raw material in high-quality lube-based oil for lube Group III as the only producer of high-quality lubrication oil in Thailand, which increases gross refining margin.

Due to the effects of climate change and increased shortages of natural resources worldwide and the COVID-19 pandemic, the company gave priority to making use of natural resources in production in worthwhile manner with maximum production effectiveness and minimal waste and pollution. As such, the company has modified its production processes to be more flexible by procuring new sources of crude oil as appropriate to consistently meet production targets, and the company has pushed for improvement programs related to increasing production effectiveness and productivity while continuously reducing energy consumption. Accordingly, reduced energy consumption also contributes to reduced CO<sub>2</sub> emission, and the company has projects to reduce steam in production, effectively use CCRU units with superior energy efficiency than Reforming Unit No. 3, and the company has improved its boilers for greater fuel consumption and emissions control effectiveness. Examples of projects carried out by the company include the following:

- A project to reduce input temperature from the CCRU (continuous catalytic regeneration unit) reactor that led to an emissions reduction of over 1,486 tons of carbon dioxide equivalents per year.
- A project to install coating materials to prevent loss of heat at kiln walls to reduce energy consumption at Boiler No. 2 that led to an emissions reduction of over 217 tons of carbon equivalents per year.
- A project to reduce use of high-pressure steam in Production Process No. 4 that led to an emissions reduction of over 159 tons of carbon dioxide equivalents per year.
- A project to reduce the input temperature of the humidity control tower of the Diesel Quality Improvement Unit No. 3 (3C-3703) that led to an emissions reduction of over 146 tons of carbon dioxide equivalents per year.

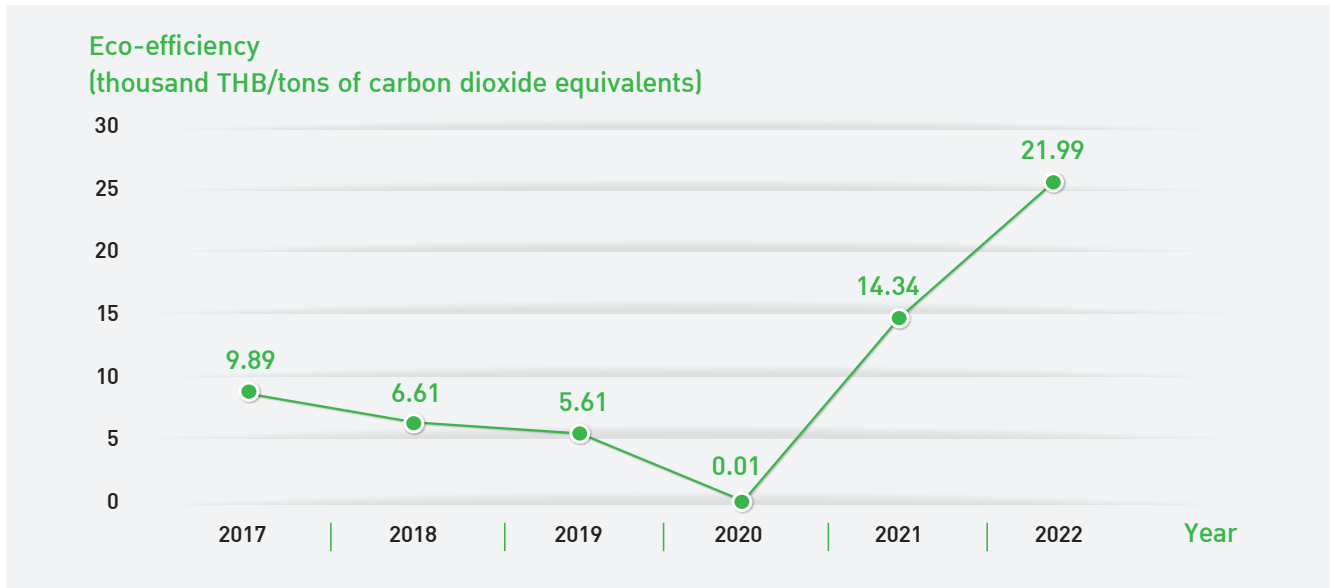
Furthermore, the company gave importance to design and installation of high-efficiency technologies according to international standards to help control production processes for maximum effectiveness in natural resource consumption.

The company has an environmental management system certified according to the ISO 14001:2015 standard that covers resource utilization and pollution control. The system serves as the driving force for continuous development under a proactive policy in line with the criteria of Green Industry Level 5: Green Network, which are the highest set of green industry criteria by the Department of Industrial Works covering business operations, especially the company's environmental efforts. Moreover, the company pushed for expansion and promotion of environmental management guidelines among stakeholders throughout the entire supply chain, communities and consumers to push toward the establishment of a green network and to demonstrate the determination to develop the environment until creating an organization culture for operating business in a socially-responsible manner.

### Eco-Efficiency

The company is determined to achieve business growth. At the same time, however, the company continues to consider the impacts of business activities, particularly environmental impacts, in order to strive toward sustainable business development. Therefore, the company uses eco-efficiency as an indicator that reflects production effectiveness and environmental impacts from production. Accordingly, the company uses income equity before interest, taxes, depreciation and amortization (EBITDA) to reflect economic growth and uses greenhouse gas emissions as a major environmental topic in the petroleum industry to reflect environmental impacts, and a high eco-efficiency value will demonstrate a high level of production effectiveness and low environmental impacts.

For eco-efficiency in 2022, the company found that, when compared to 2021, it increased due to the impacts of rising oil prices and gross refining margin in line with increasing fuel consumption demand and improving COVID-19 situation when compared to 2021, which contributed to the rising national demand for oil. Thus, the company's returns in the oil refinery industry increased, even though greenhouse gas emissions in 2022 were lower than the previous year due to the operation of projects to increase oil refinery energy efficiency. Therefore, this demonstrates the company's determination to operate business while reducing environmental impacts.



Remarks: EBITDA and greenhouse gases in Scopes 1 and 2 (tons of carbon dioxide equivalents) of the refinery business and the marketing business.

## Energy Consumption and Climate Change

### Energy Consumption

The refinery business is a highly energy-intensive industry. In the form of thermal energy, electrical energy and steam power. Therefore, the company realizes energy management to be efficient and in accordance with the standard energy management service system ISO 50001 to reduce environmental and social impacts from resource consumption and air pollution emissions from energy consumption. It has been operating continuously since 2014 and has short, medium, and long-term refinery development goals and plans as a goal to improve the refinery’s energy efficiency. The short-term plan is to set energy consumption goals and increase the efficiency of existing system. The medium-term plan is to increase efficiency and effectiveness of the production process. In addition, the company has studied long-term projects that can significantly reduce energy consumption called Energy Improvement Project, as well as formulated an Energy Road Map to achieve energy reduction goals along with sustainable production process development.

The company has jointly announced the intention of the Energy Beyond Standard network with more than 70 leading government and private organizations related to energy consumption. It is expected to have an average energy saving of 10-20%.

### 2022 Energy Efficiency Target

The company defined refinery’s energy consumption target by considering the energy consumption in the production unit of fuel oil equivalent barrels per production capacity (%FOEB), which was developed from 2021 (%FOEB 5.24) due to the improvement of the COVID-19 situation compared to 2021, domestic oil demand tends to be increased to response to this situation, the company has increased production capacity to approximate 102% in 2022. In 2022, the target is to reduce energy consumption within the production unit equal to 4.99% of fuel oil equivalent energy per production capacity (%FOEB).

### 2022 Performance

The company has implemented CCRU (Continuous Catalytic Regeneration Unit), which is a unit with better energy efficiency than the previous unit, resulting in better overall energy consumption. In addition, the company recognizes the technological changes that are evolving by leaps and bounds. Therefore, artificial intelligence (AI) systems are used in conjunction with human resource development to work efficiently and develop the company’s refinery to be a leading refinery and keep pace with the world.

The company has continuously implemented refinery development projects and monitored the same projects that have been implemented since 2019 , which are aimed at improving energy efficiency. Examples of projects implemented include:

- Installation of coating materials to prevent heat loss at furnace walls to reduce energy consumption at the steam boiler 2.
- High pressure steam reduction project at Continuous Catalytic Regeneration Unit (CCRU).
- High pressure steam reduction project at Naphtha Light Oil Improvement Unit 2.
- High pressure steam reduction project at Sulfur Removal Tower in Process Water 4.
- Heat exchanger renovation project to recover waste heat at Crude Oil Distillation Unit 2.
- Inlet temperature reduction project at Continuous Catalytic Regeneration Unit (CCRU).

As a result of energy management and completed energy efficiency development projects, energy consumption within production units was equal to 4.83% of fuel oil equivalent energy per capacity (%FOEB) in 2022, better than the target of 4.99% of fuel oil equivalent energy per production capacity (%FOEB).

## Refinery Business Results

### Energy consumption within the production unit (Percentage of fuel oil equivalent barrel to Capacity %FOEB)



## Future plans

For energy reduction plans, the company has collaborated with foreign experts to exchange technology and experience and use it as a guideline for future project development. This ensures the development of energy efficiency. In addition, the company has a project to commence operations in 2023, which is likely to increase energy efficiency after the project implementation, and the use of CCRU (Continuous Catalytic Regeneration Unit), which is a new high-efficiency unit, instead of the Catalytic reforming unit of the 2<sup>nd</sup> and 3<sup>rd</sup> distillation units, will result in a reduction in overall energy consumption. In addition, the company has other energy reduction projects such as:

- Catalyst reforming unit deactivation project of distillation unit 2.
- Gas engine generator installation project to replace gas turbine generator.



## Climate Change

Climate change from greenhouse gas emissions is a key sustainability issue for all industry groups. The company is aware of the physical risks and impacts and changes in climate change regulations to the company and its stakeholders in order to demonstrate its commitment to respond to climate change in line with the Paris Agreement. Bangchak Group has announced its Carbon Neutrality target policy by 2030, setting a target to reduce greenhouse gas emissions (Scope 1 and 2) by 30% and aim for a Net Zero GHG Emissions reduction target. The company's greenhouse gas emissions have been defined as Corporate KPIs, as well as performance evaluation indicators of Bangchak Group executives and Chief Executive Officers and Presidents. The company has formulated strategies and assessed both short-term and long-term climate change risks and opportunities in line with the guidelines of the Task Force on Climate-Related Financial Disclosures (TCFD), which assesses climate-related financial impacts, covering risks and opportunities from the impacts of climate change in physical and transitional aspects, including:

### 1. Physical risk

Related Issues	Impact on Business Operations	Mitigation measures	Risk management costs
Flooding/ High sea level	Loss of revenue of 62 million baht/day due to equipment damage and production shutdown.	<ol style="list-style-type: none"> <li>1. Continuously monitor flood situation and sea level support.</li> <li>2. Maintain rain gutters and related equipment of the refinery.</li> <li>3. Build a water barrier around the refinery area in case of emergency.</li> </ol>	1. A budget of 3 million baht was spent on studying and designing flood walls for refineries.
Water scarcity	Additional expenditure of 72,540 baht (as of 2022) on groundwater use as a reserve water source for production.	<ol style="list-style-type: none"> <li>1. Water Stress Risk Assessment in Refinery Area.</li> <li>2. There are 3Rs (Reduce, Reuse, and Recycle) measures for water. For more information, please refer to the section "Water Management" in this report.</li> </ol>	<ol style="list-style-type: none"> <li>1. A budget of 1.5 million baht was spent on the improvement of groundwater wells to be used as a backup water source.</li> <li>2. Request CAPEX of Water Management Project.</li> </ol>

## 2. Risks and Opportunities from Transition

Related Issues	Impact on Business Operations	Mitigation measures
<b>Policy Risk</b>		
Carbon price	1. Higher operating costs	1. Expand your business to low-carbon business. 2. Improve productivity. 3. Build a network to support carbon credit exchange, including the Carbon Market Club.
<b>Marketing Risk</b>		
Crude Oil Prices	1. Impact on oil refining costs due to lower oil demand.	1. Continuous monitoring of crude oil prices use financial instruments to reduce the impact of price fluctuations and diversify crude oil supply strategies. 2. Expand into high-value products and businesses that do not rely on oil-based raw materials.
<b>Corporate reputational risk</b>		
Higher standards and requirements for climate impact data reporting.	1. The cost of reporting data in accordance with relevant standards is higher.	1. Set up a team responsible for managing and reporting information according to relevant requirements. 2. Provide digital tools in data management and reporting processes.

Related Issues	Impact on Business Operations	Execution strategy
<b>Policy Opportunities</b>		
Supporting renewable energy technologies and reducing greenhouse gases.	1. It allows investments in such technologies to pay back faster. 2. Reduce carbon pricing	1. Monitor and jointly invest in renewable energy technology and greenhouse gas reduction suitable for the company. 2. Collaborate with the public and private sectors to support deep decarbonization technologies.
Requirements to increase the proportion of biological substances in fuel.	1. Increase revenue from biofuel business.	1. Expand biofuel business
<b>Technology Opportunities</b>		
Trapping technology, Carbon capture, utilisation and storage (CCUS) can be practical.	1. Investing in such technology is cheaper. 2. Reduce carbon pricing	1. Seek cooperation with partners in the experimentation and evaluation of CCUS technology applications.
<b>Marketing Opportunities</b>		
The demand for renewable electricity is increasing.	1. Increase in revenue from renewable power business.	1. Accelerating renewable energy business expansion. 2. Enhance competitiveness in renewable energy business compared to competitors.

The company assessed the financial impact arising from carbon tax measures in 2020. B.E. 2573. In the absence of support measures at 873 million baht per year. If a country enforces a net zero carbon emission target (NZE scenario) Therefore, there are plans to expand the business to green energy and bio-based products business. You can read more details at the report. Task Force on Climate-Related Financial Disclosures (TCFD) year 2023 follow QR Code:



QR Code

Task Force on Climate-Related Financial  
Disclosures (TCFD) 2023

The company has a sustainability policy of Cost-effective management of resources and environment encourage executives and employees at all levels to be aware of environmental risks and impacts arising from business operations covering climate change. It requires auditing, risk management, and impacts that may affect the environment and climate. Promote the use of technology and innovation to develop the Environmental Management System. It also develops cooperation with local and international organizations in the field of resource management, environmental stewardship, and efficiency. Effective adaptation and mitigation of climate change impacts economic value.

## Climate Governance

Company establish governance and management structure. Greenhouse gas emission reduction operations cover from the director level to the operational level in order to ensure that all related operations are integrated and efficient according to the target. The Sustainability and Corporate Governance Committee (SCGC) is responsible for proposing sustainable development guidelines to the Board of Directors. Review sustainable development practices by comparing them with international standards and make recommendations to the Board of Directors for continuous modernization and responsiveness to the needs of stakeholders, as well as handing over sustainability development policies to the Sustainability Policy Committee (SPC).

The Sustainability Policy Committee (SPC) is responsible for formulating and reviewing policies, operational guidelines and sustainable development goals, as well as considering the implementation guidelines in accordance with the company's sustainability strategy framework covering climate change management. It also supports and drives the performance of the Sustainability Management Committee (SMC), which is responsible for implementing climate change policies and strategies. Assessment of climate-related risks and opportunities and guidelines for reducing greenhouse gas emissions. In addition, the company recognizes the importance by establishing an Net Zero Development Division to operate and co-drive Bangchak Group to achieve the organization's goals.

## 2022 Target

- Scope 1 greenhouse gas emissions of refineries do not exceed 953,055 tons of carbon dioxide equivalent.
- Scope 2 greenhouse gas emissions of refineries do not exceed 4,310 tons of carbon dioxide equivalent.

## Climate Change Strategy and Action Plan

In order to achieve Carbon Neutrality by 2030 and Net Zero GHG Emissions by 2050, the company has developed the BCP 316 NET strategic framework, which covers 4 approaches. It emphasizes tangible processes that can be expected in the long term as follows:

**B: Breakthrough Performance** target to reduce greenhouse gas emissions by 30% from the base year (2019).

Energy efficiency through high-efficiency production processes low carbon emissions and environmental friendliness from the use of energy and clean fuels in the production process.

**C: Conserving Nature and Society** target to reduce greenhouse gas emission by 10% from the base year (2019) and to create ecological balance and connectivity to a low-carbon society through natural carbon absorption and storage, Bangchak Group has begun to study and initiate a Green & Blue Carbon plan that can link the dimensions of community-social development with participation among stakeholders, including customers, communities, government agencies academics, and non-governmental organizations (NGOs) to support people's well-being through 4 key forms: reforestation, community forest conservation, mangrove forest planting and conservation, and seagrass resource study.

More details on land and marine ecosystem development can be found in the "Contributions to Social Care" section of this report.

**P: Proactive Business Growth and Transition** target to reduce greenhouse gas emissions by 60% from the base year (2019).

Energy Transition to Net Zero GHG Emissions goals with new technologies for sustainable growth and Green Energy Technology to create a green business that is the New-S curve for Bangchak Group. Green Energy Technology and Energy Transition Technology.

## NET: Net Zero Ecosystem

Building an ecosystem to support the Net Zero GHG Emissions goal, such as: Establishment of Winnonie electric motorcycle rental platform collaboration with various sectors to establish Carbon Market Club. In addition, the company has expressed its intention to be a part of driving and supporting the achievement of carbon neutrality and net zero GHG emissions at the corporate level by 2030. 2050 through operations under the Carbon Neutral Thailand Network. As a "Climate Action Leading Organization" (CALO).

However, while the world is focused on fast-growing clean energy investments, the global energy sector is still viable. But the energy transition will take time, coupled with major risks such as the energy crisis that is expected to affect the country's energy scarcity. Bangchak Group therefore continues to reaffirm its business position that focuses on balancing the Energy Trilemma: Energy Security, Energy Affordability, by seeking opportunities to increase the country's energy security at affordable prices and the sustainability of resources and the environment. To balance the use of energy from the earth, which affects carbon dioxide emissions into the atmosphere, with environmental protection and sustainability of the planet.

## 2022 Performance

In 2022, the Bangchak Group has a total greenhouse gas emissions of 945,665.57 tons of carbon dioxide equivalent. They are classified by business groups as follows:

Business Area	Scope 1 greenhouse gas emissions (tons of carbon dioxide equivalent)	Scope 2 greenhouse gas emissions (tons of carbon dioxide equivalent)	Total greenhouse gas emissions by business area (tons of carbon dioxide equivalent)
Refinery	930,897.27	5,110.71	936,007.98
Office Building & Regional Center	484.69	733.23	1,217.91
Marketing Business	738.50	7,701.17	8,439.67
Combine	932,120.46	13,545.11	945,665.57

Remark: Find the greenhouse gasses information of subsidiary company as follows:  
 BCPG: <http://bcpg.listedcompany.com/misc/flicbook/index.html?id=265675>  
 BBGI: <https://www.bbgroup.com/storage/download/environment-dimension/greenhouse-gas-emission-accounting-report.pdf>

### Key operations

- The refinery business has energy management and energy efficiency projects to reduce greenhouse gas emissions, such as the installation of heat loss prevention coatings in furnace walls, heat exchanger renovation projects, and steam reduction projects. Study and evaluate carbon dioxide (CO<sub>2</sub>) emissions through life cycle assessment guidelines Life Cycle Assessment (LCA) of products.
- The marketing business focuses on the use of electricity from solar sources, such as the use of solar air conditioners in Inthanin and Dakasi stores, and the installation of solar rooftop at petrol stations in the aim of Net Zero Service Stations and installation of EV charger in Bangchak’s petrol station to support the increasing of EV vehicle in all regions of Thailand.
- Establishment of electric motorcycle rental platform Winnonie , a startup within Bangchak Group that brings green energy innovations to electric motorcycles to improve the quality of life of public motorcycle riders.
- Fuel transportation business by BFPL and liquefied natural gas procurement and distribution business BMSG supports the business of providing and distributing low-carbon alternative fuels.

- Together with partners Thanachok Oil Light Company Limited and BBGI Public Company Limited established BSGF Company Limited (BSGF) to operate the business of manufacturing and distributing Sustainable Aviation Fuel (SAF) from used cooking oil 82,000 tons of carbon dioxide equivalent per year.
- Investing in startups that develop Blue Hydrogen “Transitus” production in the UK to build a green hydrogen in the future.



- The head office building received the Greenhouse Gas Emissions Reduction Award from the Greenhouse Gas in Low Emission Support Scheme (LESS) from activities to reduce electricity consumption, reduce fuel consumption, and sort waste for recycling.
- Purchase carbon credits from BCPG Public Company Limited for carbon offset in scope 1 and 2 of office buildings and regional centers.
- The establishment of the Carbon Market Club to encourage the exchange of knowledge on carbon credit management and carbon credit trading in the Thai market has become more active. Bangchak Group and its 11 founding partners have expanded their work and recruited

members from both corporate and individual forms to join the network until now. With 39 organizations and 145 individuals in 2022 supported carbon credit trading and digital renewable power producer rights certificates to reduce greenhouse gases by more than 400,000 tons of carbon dioxide equivalent.

- The company has been approved by the Forest Department for 3,172 rai, a community forest conservation project with the Mae Fah Luang Foundation, and tree planting in operational areas nationwide. Mangrove forest planting in collaboration with the Department of Marine and Coastal Resources.
- Bangchak Group supported the feasibility study project on seagrass resources in Koh Mak Islands and expanded to sustainable development work towards a Low Carbon Destination together with 5 agencies, namely: Koh Mak Sub-district Administration Organization, Ban Ao Nid Integrated Agricultural Community, Enterprise Special Area Development Organization for Sustainable Tourism, Faculty of Fisheries of Kasetsart University, and Thailand Greenhouse Gas Management Organization (Public Organization). Formulate a 3-5 years plan covering the study of greenhouse gas emissions from key activities. Guidelines for reducing greenhouse gas emissions in everyday life (waste management, clean energy use, transportation, etc.) and restoration-conservation of terrestrial and marine ecosystems to absorb carbon.
- 12<sup>th</sup> Annual Environmental Seminar : Energy Security and Carbon Sequestration Bangchak Group organizes environmental seminars every year. To highlight the transition from fossil fuels to clean energy that requires time, capital and appropriate technologies, taxonomy

mechanisms or classification of carbon-neutral and eco-friendly investment businesses are key factors that will accelerate the energy transition and create value for investments that will contribute to carbon reduction. In line with Bangchak Group’s new vision “Crafting a sustainable world with Evolving Greenovation”, Bangchak Group has placed importance on balancing three energy challenges: energy security, energy affordability, and resource and environmental sustainability. To balance the use of energy from the earth, which affects carbon dioxide emissions into the atmosphere, with environmental protection and sustainability of the planet.

### Climate Change-Related Awards

The Company received the Excellent Low Carbon and Sustainable Business (LCSB) Award for the second consecutive year from the Management Organization. This award honors organizations that are role models in low-carbon business operations. Driving sustainability, the company operates its business that focuses on



reducing greenhouse gases and emphasizes sustainability in all dimensions, namely the economic dimension, environmental dimension, and society dimension as an energy transition leader who prioritizes ensuring energy security along with affordable access to energy. While striving to reduce our impact on the environment as much as possible and drive the creation of a low-carbon society to contribute to sustainability for the planet.



## Water Management

Water is an important resource for business, industry, and human activities. However, the risks and impacts of water usage problems have intensified in Thailand, e.g., water shortages and water quality problems. Therefore, water management is important for using water in the most beneficial and sustainable manner without affecting the environment.

The company, as a business in the energy industry, uses water resources in its major production processes, including steam production for crude oil refining and cooling, etc., recognizes the importance of water resources as well as risks and the impacts from the use of water from water sources in the company’s activities and production processes, including discharge of wastewater that may affect the environment and society outside, including the company. Therefore, the company conducts organization-level risk analysis on water in terms of quality and quantity, regulatory changes and pricing structure, and conflicts with stakeholders in the use of water resources (stakeholder conflict), and the company also conducts analysis of water stress of the Chao Phraya River in the refinery area and Sam Lae raw water pumping station in Pathum Thani Province, which is the source of raw water where the company obtains tap water from the Metropolitan Waterworks Authority to use in the production process. The company uses the World Resources Institute’s Aqueduct Water Risk Atlas and The Global Facility for Disaster Reduction and Recovery (GFDRR) ThinkHazard tools to optimize water management for water stressed areas.


It was found that the refinery area and the area of the Sam Lae raw water pumping station were not water-stressed.

The company has a continuous water-use risk management process with the Water Footprint of Product process for 6 types of products to reduce the use of tap water in production. The company also monitors droughts, floods and changes in water levels in the Chao Phraya River and manages the refinery’s water by using the 3Rs principle (Reduce, Reuse & Recycle) to reduce use of tap water in production. Results of water management are compiled and presented for improvement through working groups at all levels from the operational level to the management level. Additional details on this topic can be found under “Bangchak and Sustainability”. Accordingly, the company heeds the opinions of all stakeholders, especially the communities around refineries and government agencies that give importance to such issues through various channels, including listening to opinions during community activities and meeting with relevant government agencies. For more information, see Treatment of Stakeholders.

The company’s additional projects to reduce use of tap water in 2022 were as follows:


- New cooling tower installation project for Plant No. 2.
- Project to reduce the use of steam stripping at distillation units (extension).

### Goals in 2022




Use water efficiently to control the intake of new water in the production process to not exceeding 0.055 cubic meters per barrel equivalent of production unit

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Reduction of cumulative water consumption by 30 percent, equivalent to the base year of 2015.

### Strategy



Use the 3Rs (Reduce, Reuse & Recycle) principle to increase water efficiency by reducing water consumption, reusing water, and improving the wastewater treatment system for reuse.

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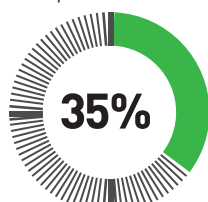


Manage water with modern tools/ technology.

## 2022 Performance

The company used tap water from the Metropolitan Waterworks Authority by up to 1.76 million cubic meters and partially used groundwater according to the management plan, which was one of the measures to reduce tap water consumption during the drought crisis, and maintained the condition of water wells to 0.44 million cubic meters. In 2022, the company received water from various sources by a total of 2.38 million cubic meters, if including water separated from crude oil, and 2.34 million cubic meters if not including water extracted from crude oil, or a total of 0.052 cubic meters per barrel of oil equivalent. The water was discharged to natural water sources (surface water) in the amount of 0.896 million cubic meters. When considering the amount of water used for the production process, the amount was 1.485 million cubic meters or 0.03 cubic meters per barrel compared to production capacity.

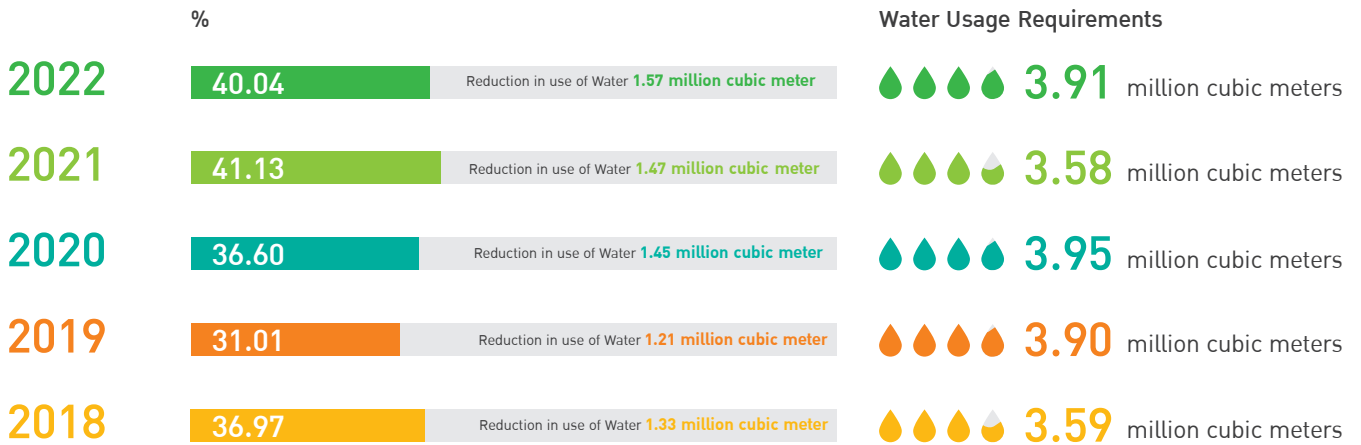
No.	Work Plans for 2022	Performance
<b>Water Reduction</b>		
1	Improve the quality of tap water with a micron-level filter system (micro-filtration system) and reverse osmosis system in conjunction with a reverse osmosis unit to increase the water quality along with an electric deionization system (electro de-ionization system) to improve the quality of raw water before entering the demineralization system at the power plant.	Reduced water consumption by 0.12 million cubic meters/year*. (Representing 0.05% of the total demand for tap water, excluding water from crude oil, and 2,799 cubic meters per million barrels of oil equivalent).
<b>Water Reuse</b>		
2	Good quality condensate water from the production process is used instead of water for boilers.	Reduced water consumption by 0.64 million cubic meters/year. (Representing 0.27% of total demand for tap water, excluding water from crude oil, and representing 14,317 cubic meters per million barrels of oil equivalent).
3	Use stripped water from the sour water stripping unit and the wastewater from the stripping steam system of the 3 <sup>rd</sup> distillation unit instead of tap water in the crude oil desalting unit (desalter).	Reduced water consumption by 0.13 million cubic meters/year. (Representing 0.06% of total demand for tap water, excluding water from crude oil, and representing 2,896 cubic meters per million barrels of oil equivalent).
<b>Water Recycle</b>		
4	Take condensate water contaminated from the 4 <sup>th</sup> distillation unit (Plant 4) to improve the quality for use in the boiler feed water system.	Reduced water consumption by 0.47 million cubic meters/year (Representing 0.20% of total water demand, excluding water from crude oil, and representing 10,528 cubic meters per million barrels of oil equivalent)
5	Take the treated water from the wastewater treatment unit for further quality improvements with a micron level filter system (micro-filtration system) and reverse osmosis system for use in the cooling process.	Reduced water consumption by 0.20 million cubic meters/year. (Representing 0.09% of total demand for tap water, excluding water from crude oil, and representing 4,560 cubic meters per million barrels of oil equivalent).

## Success Indicators

<p><b>Year 2022</b> Cumulative reduction in tap water use</p>  <p><b>35%</b></p> <p>(when compared to the base year of 2015).</p>	<p><b>Water use control relative to production capacity</b> (target at no more than 55 cubic meters/ thousand barrels of oil equivalent)</p>  <p><b>52</b> cubic meters/ thousand barrels of oil equivalent</p>	<p><b>Household-equivalent reduction in water use:</b></p>  <p><b>4,120</b> households*</p> <p><small>*Water usage data in the Bangkok Metropolitan Region. In Phra Khanong District where the refineries are located, household members numbered 1.85 people/household and the water usage was 0.56 cubic meters/person/day or 1.04 cubic meters/household/day. (Data from the Metropolitan Waterworks Authority: 2015.)</small></p>
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**Percentage of Reduction in Use of New Tap Water Relative to Water Usage Requirements in Production Processes of a Given Year** (% and Reduction in Water Consumption)



\*Data compared to the base year of 2015 from the sum of recycled water from the reuse of good quality condensate water at the boiler and in the 4<sup>th</sup> distillation unit, combined with the use of water from the oil treatment unit following quality improvement by reverse osmosis and use of treated wastewater from the wastewater treatment unit by reverse osmosis by using in the cooling tower.

**Water Management in Collaboration with External Organizations/Agencies and Stakeholders**

The company cooperates with organizations, outside agencies and stakeholders to promote management and stewardship of water resources through projects and activities as follows:

- Garbage collection and tree planting activities along the Chao Phraya River with the community.
- Cooperation with the Marine Department in the purchase of the Si Thararak 8 Vessel, which is a waste and oil spill disposal vessel, to maintain the environment of the Chao Phraya River.
- Project to purchase used vegetable oil from households around the refineries and Bang Nam Phueng Market to reduce oil stains from cooking and prevent people from dumping into the Chao Phraya River and public waterways.
- Environmental education school project (Eco School) in collaboration with the Department of Environmental Quality Promotion, Phra Khanong District Office and Bangna District Office by encouraging administrators/teachers to teach science subjects and the environmental subjects in 11 schools around the refineries to promote learning on how to make course plans and integrate teaching and learning activities in the form of environmental education covering the whole system. In this year, Baphitwithaya School has prepared a project to “dispose wastewater in the cafeteria”



to reduce or eliminate wastewater from the school cafeteria entering the public water canal near the school, which connects to the Chao Phraya River.

- Project Citizen in collaboration with King Prajadhipok’s Institute. The students who participated in the project proposed public policy on water in terms of preventing wastewater in schools and communities.
- A project to raise awareness among youths about the problem of garbage in the canals that affects the environment and community in collaboration with Krungthep Thanakom Co., Ltd.

## Water Pollution Management

Water is a major factor for the existence of life. It is the source of many aquatic creatures and plants, and water also has important uses in farming, households and industry, and the company has to use water in its production processes. Therefore, reducing water pollution is a major issue that the company must take responsibility for to minimize impacts to natural water sources.

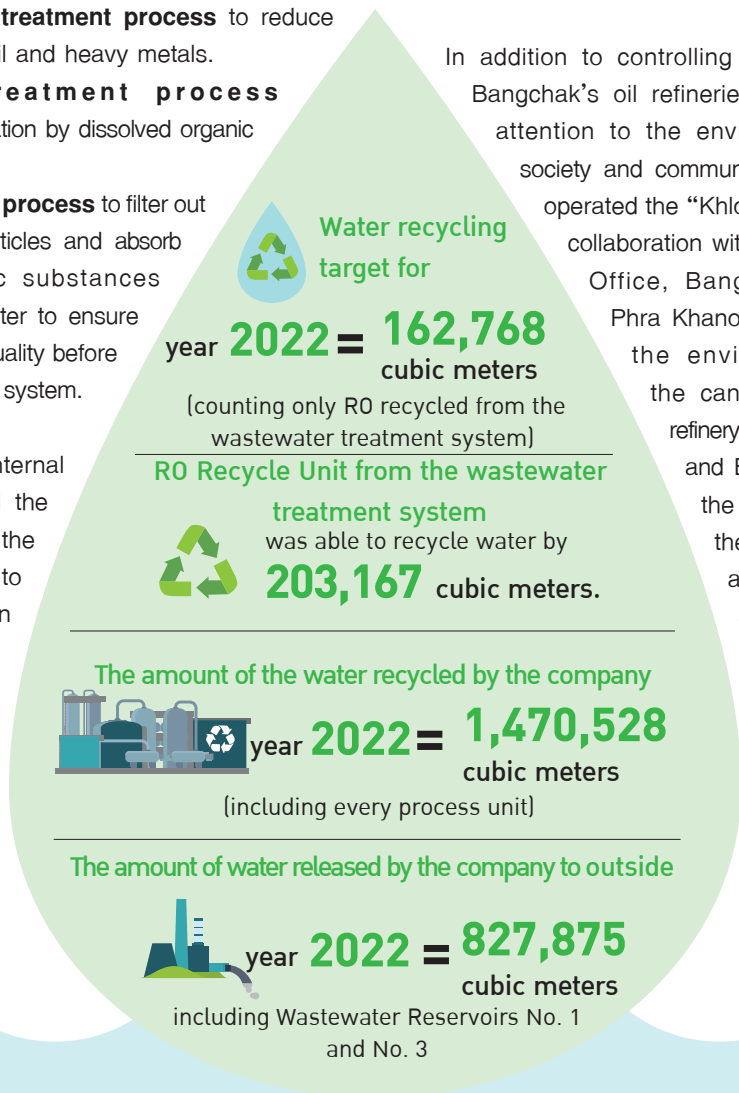
The company manages water pollution through the use of a highly effective water treatment system to ensure that the quality of wastewater released from the company’s plants exceeds legal standards. In addition, the company applies the 3Rs principle to reduce wastewater by reusing treated water in production processes to reduce use of natural resources and minimize impacts on the environment and communities around the refineries. The refinery wastewater treatment processes are divided into 3 parts as follows:

1. **Physicochemical treatment process** to reduce contamination by oil and heavy metals.
2. **Biological treatment process** to reduce contamination by dissolved organic substances.
3. **Tertiary treatment process** to filter out small and hard particles and absorb remaining organic substances dissolved in the water to ensure appropriate water quality before entering the recycle system.

The company has an internal control system to control the quality of wastewater in the wastewater treatment unit to ensure that values remain within the company’s controlled values, and the company analyzes the quality of water after treatment on a regular basis at the company’s

analysis laboratory covering pH testing and dissolved oxygen value to ensure that the wastewater treatment system works effectively. Furthermore, the company has installed online COD equipment capable of measuring COD values and sending results real-time to government agencies and communities surrounding the refineries, whereby the pollution management results are compiled and presented for consideration of improvement through work groups on every level from the operational level to the executive level. For additional details, see the topic “Bangchak and Sustainability”. Accordingly, the company heeds the opinions of every stakeholder, especially communities surrounding the refineries and government agencies that give importance to these issues, through multiple channels such as opinion hearings during community activities and meetings with the relevant government agencies. For additional details, see “Treatment of Stakeholders.”

In addition to controlling the wastewater quality of Bangchak’s oil refineries, the company also pays attention to the environment and surrounding society and communities. In 2022, the company operated the “Khleng Suai Nam Sai” project in collaboration with the Phra Khanong District Office, Bang Na District Office and Phra Khanong Police Station to restore the environment and quality of the canals around Bangchak’s oil refinery area such as Bang Chak Canal and Bang Oh Canal by improving the scenery of the area along the entire length of the canals and restoring the canals to ensure their cleanliness and improve the wellbeing of the communities living near the canals and the ecosystem.



# Air Emission Management

Bangchak has always developed business alongside air pollution emissions control. In addition to strictly complying with the law, Bangchak also considers employees and contractors in the oil refinery area, and this includes communities and the environment surrounding refineries. The company gives importance to controlling the emission of pollutants from the source through continuous use of fuel consisting entirely of natural gas, which is fully clean energy, in production processes. In addition, Bangchak installed technologies in line with international standards and operates sulfur recovery units at all times to ensure maximum effectiveness in eliminating sulfur, which is a pollutant, from being emitted to the environment and to reuse gases from sulfur to produce liquid sulfur for use in other industries. Additionally, the company has installed low NOx burner technology at all burning nozzles to effectively reduce emission of oxides of nitrogen during burning.

In 2022, Bangchak fully used the enclosed ground flare system, which led to gas that is transferred to the incineration chamber to burn more completely, thus reducing air, noise and light pollution. This was done to operate business while caring for the surrounding communities according to the ISO 14001 international standards, of which the company has been certified for its 25<sup>th</sup> year. Moreover, the company decreased the target for stack emissions in line with an aggressive environmental management policy and continuously increases reporting of emissions and movements of pollution through monitoring and measurements of air quality by use of online measurement instruments at the stacks, worksites, and atmosphere surrounding the refineries. Air quality is periodically measures by third parties, and the company arranges for daily measurements of volatile organic compounds being released by equipment, and Bangchak also surveys the release of volatile organic compounds (VOCs) to continuously improve raw material and product control equipment.

**Flare and fuel combustion :** The company decreases pollution at the source according to pollution control guidelines by using fuel consisting entirely of natural gas, which causes low pollution from the source while giving the most effective burning control, in addition to improving flare technologies.

**Storage tanks and product loading :** The company continuously chooses appropriate storage tanks for holding oil in storage along with equipment improvements to control and reduce VOCs on the ceiling of storage tanks. As for product transfers, vapor recovery unit (VRU) technology with up to 99% effectiveness has been installed to reduce VOCs, and the company also has a constant monitoring and control system.

**Wastewater treatment system (wastewater treatment plant) :** The company measures and monitors VOCs from the wastewater system regularly and uses activated carbon to absorb VOCs.

**Leaks from production processes (fugitive) :** The company controls, measures and monitors VOCs and improves the standards of equipment brought in for use to ensure effectiveness and minimal leaks.

<h2 style="margin: 0;">Strategies</h2> <div style="margin-top: 10px;">  <p><b>Environmental Management System</b></p> <ul style="list-style-type: none"> <li>• ISO 14001</li> </ul> </div> <hr style="border: 0; border-top: 1px solid white; margin: 10px 0;"/> <div style="margin-top: 10px;">  <p><b>Digitized Measurement and Transparent Communication)</b></p> <ul style="list-style-type: none"> <li>• The company monitors air quality online from the stacks, work areas and atmosphere around the oil refineries.</li> <li>• The company communicates its environmental quality online to the public transparently and in a verifiable manner.</li> </ul> </div> <hr style="border: 0; border-top: 1px solid white; margin: 10px 0;"/> <div style="margin-top: 10px;">  <p><b>Reduction in Air Pollution</b></p> <ul style="list-style-type: none"> <li>• Use clean fuels.</li> <li>• Lower the stack emissions target.</li> <li>• Use technologies to reduce air pollution.</li> </ul> </div>	<h2 style="margin: 0;">Objectives in 2021-2023</h2> <div style="margin-top: 10px;">  <p><b>Zero air pollution complaints.</b></p> </div> <hr style="border: 0; border-top: 1px solid #ccc; margin: 10px 0;"/> <div style="margin-top: 10px;">  <p><b>Stack pollution emissions levels that meet objectives.</b></p> </div>
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## 2022 Performance

In 2022, the company received no community complaints. Nevertheless, the company continues to always care for and control the quality of air released to the environment as follows:

### Environmental Management System

- The company became certified by ISO 14001 for the 25<sup>th</sup> consecutive year.
- The company used a digitized measurement system with transparent communication.
- The company inspected continuous air quality emissions (CEMs) from 7 chimneys. These send real-time signals to the Department of Industrial Works, and the company is able to continuously measure quality and report it via a display monitor.

### Reduction in Air Pollution

1. Continuously use natural gas in burning.
2. Lower the stack emissions target to be more challenging.
3. Construct enclosed ground flares that work together with elevated flares to be able to accommodate excess gas ventilated from the production process during refinery startup, shutdown and emergencies, making this project important in supporting proactive measures to prevent community noise, light and environmental impacts.

### Action Plan in 2022

#### Reduction in Air Pollution

The company prepared an integrated plan to manage air quality in the category of VOCs.

### Outcomes

 <p>ISO 14001 certification for the 25<sup>th</sup> consecutive year.</p>	 <p>Air pollution complaints: (target = 0 complaints) Year 2021 = 0 complaints. Year 2022 = 0 complaints.</p>	 <p>Air quality as measured by third parties were 100% within standard values.</p>
 <p>Controlled fugitive VOCs at every point of measurement to not exceed 200 ppm. (Legal specification: no more than 500 ppm). Year 2021 = 2.53 tons. Year 2022 = 2.99 tons.</p>	 <p>Installation of new enclosed ground flares: Year 2021 = Full operation trial. Year 2022 = Full operation.</p>	

## Management of Waste and Scrap Materials

The company recognizes the impacts of environmental contamination and safety of stakeholders through negative impacts stemming from the company’s business processes throughout the entire supply chain such as raw material transportation, production and product distribution, and the company gives importance to and strictly and continuously follows the laws and recommendations of licensing agencies, and the company adheres to the 3Rs waste management principle of reduce, reuse and recycle in line with domestic and international practice guidelines in order to minimize environmental impacts from waste disposal and minimize the quantity of waste sent for disposal while seeking opportunities to reuse waste in the most beneficial manner according to the principles of the circular economy and striving toward achieving zero landfilling of waste from production processes. Thus, the company developed the 3Rs waste management concept into the 5Rs concept and 7Rs concept as follows:



### Reject

Reject use of non-environmentally-friendly materials or chemicals in work.



### Recovery

Recover valuable resources in waste for reutilization such as by extracting precious metals from spent catalysts for use in other industries, of which the company was able to extract approximately 134.96 tons.



### Rethink

Rethink every area to consider utilization before discarding or disposing such as by having in place a plan to inspect and sort suitable lubrication oil for quality improvement instead of disposal.



### Repurpose

Repurpose used materials to recover value through other uses such as by transforming used wooden pallets into plant shelves inside project areas.

The aforementioned principles demonstrate that Bangchak gives importance to reduction of waste impacts across the entire supply chain, starting with good raw material section. Consequently, the company was able to reduce waste in the production process at the source. In addition to producing by product from production. Additionally, the company has in place a good management system for reducing waste and storing waste from business operations effectively without it spilling into the environment, and the company collected waste-related data through the waste transportation document invoice system, which enabled the company to inspect the quantity of waste entering the disposal process from the origin to the place of disposal. At the same time, waste management and handling at the destination starts with having a process to procure licensed disposers that meet legal standards and selecting disposal processes that first and foremost strive toward promoting the circular economy, and the company also inspects the places of business of waste disposers each year in order to check and control actions according to standards.

Bangchak’s oil refineries are certified according to the Standard for Zero Waste to Landfill by the Department of Industry, which began serving as a certifier since 2021 and has continued to do so ever since. In addition to giving importance to industrial waste, Bangchak is also expanding to achieve zero office waste to landfill through activities and projects under the 5Rs principle such as the following:

**Public Relations and Promotion of Conscience about Proper Waste Disposal** The company engages in public relations through 5S or project activities to campaign for correct sorting and disposal of waste, discontinuation of use of foam boxes and reduction of use of office paper, etc.

**Klong Ma Lot 5 Baht Project** Employees buying food at the cafeteria were instructed to bring their own food boxes rather than using plastic containers to allow employees to choose the amount of rice they want while reducing food waste.

**Hop Pha Ma Laek Khong Project** Employees were instructed to bring unused uniforms and bags that were still in good condition to donate for further use by underprivileged people.

**Lang Kha Khiao Project** UHT beverage boxes were sorted and recycled into roof panels to assist disaster-stricken people. The project has been ongoing since 2019.

**Khaya Kamphra Project** Waste with suitable properties is sorted and turned into fuel to produce electricity rather than landfilling. The project shows that the refineries do not only control the refinery areas but also care about municipal waste.



**Office Paper Waste Management Project** The project was launched in 2020 through cooperation with the Thailand Responsible Business Network to sort office paper waste for exchange with new A4 paper. In 2022, the company was able to gather 3,650 kilograms of discarded office paper to exchange with 77 reams of new paper.

In 2022, because the refinery business effectively operated according to the 5Rs principle, the amount of waste was effectively reduced, thus allowing up to 99.99% of all industrial waste created to be used. Moreover, the company additionally reported information on the quantity of office waste to expand the scope of waste management to be more comprehensive.

**Strategies**



Manage waste according to the 5Rs principle.



Comply with related laws.

**Goals for 2022**



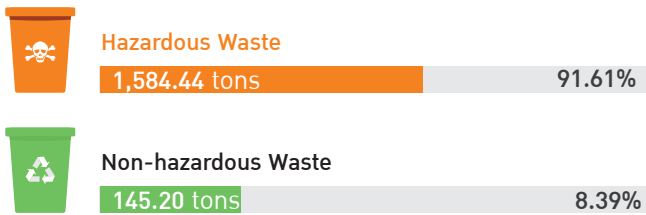
Zero waste send to landfill for disposal.



Continually increase waste management control in line with the 5Rs principle.

## 2022 Performance

### Amount of Industrial Waste in 2022



### Amount of Office Waste in 2022



The amount of waste disposed by incineration without energy recovery (excluding recycled or reused waste or incineration for energy recovery) was **0.11** tons, without landfilling.

### Total Industrial Waste Management According to the 5Rs Principle (%)



The company managed industrial waste according to the 5Rs principle, whereby 99.99% of the total amount of waste created was utilized.

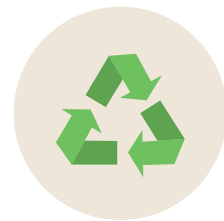
## Goals for 2025



**Zero** industrial waste for landfill.



**Zero** tons of industrial waste disposed by incineration without energy recovery (excluding recycled waste, reused waste and energy-recovered waste).



Waste generation intensity control effort successfully reducing industrial waste production per production unit by **3%** from normal business operations in 2025 when compared to the 2015 base year.

## Circular Economy

Bangchak operates business according to the BCG Economy model covering 3 main economic areas, namely, bio-economy to focus on making worthwhile use of resources through utilization of technologies and innovations to process agricultural produce in to high-value bio-based products, circular economy to focus on making worthwhile use of resources, raw materials and products, and green economy to strive to resolve environmental problems and reduce impacts in a sustainable manner. These concepts are used to operate business in order to create value and sustainability for the company and all stakeholders. Accordingly, the company applies the circular economy concept in business according to the following practice guidelines:

1. Enhance resource utilization effectiveness while reducing risk from future shortages of natural resources.
2. Minimize environmental impacts in line with sustainable production and consumption goals.

## Company Goals

1. Develop innovations according to the circular economy guidelines for worthwhile use of resources to promote sustainable consumption.
2. Support reuse of single-use plastic in the Song To Kla Mai Project for biodegradable cups of Inthanin coffee shops to subsequently return them to the land.

## 2022 Performance

Bangchak recognizes and gives importance to the management of plastic that cannot be fully recycled. Thus, the company uses environmentally-friendly renewable materials instead of plastic by using biodegradable plastic cups or bio cups and by developing new plant-based drinking lids (ready-to-drink lids that require no straws) that can degrade naturally for the Inthanin coffee shop business, which is a non-oil business of the company. The goal of this is to reduce plastic problems and reiterate the company's eco brand or friendliness to the environment. This project has been ongoing since 2019 and continues up to the present.

The Inthanin coffee shop business is a leader of coffee shops that use PLA bio packaging (polylactic acid) through use of plant-based lids and coffee cups that are fully bio-degradable and contribute to mitigating plastic waste problems and waste disposal pollution. As a result, the coffee shop brand became the number 1 brand of ASEAN in terms of bioplastic use. Moreover, the company collaborated with the Royal Forest Department in the "Kaeo Pho Kla" project by transforming used Inthanin coffee cups into containers for cultivating saplings instead of black plastic bags in order to reduce waste and contribute to increasing green spaces. With the driving mechanism of the "Kaeo Pho Kla" project requiring a large amount of bioplastic cups, Inthanin received cooperation from customers in collecting cups and exchanging them for discounts and in the cup delivery process. Accordingly, the company gained excellent cooperation from Vandapac Co., Ltd. that supported the company with collection teams to transfer the cups to warehouses and the warehouses (Integrated Logistics Services Co., Ltd. or ILS) gave logistics support for every Inthanin coffee shop nationwide to collect the cups for delivery to the Royal Forest Department. In addition, the Royal Forest Department (Seedling Production Section, Forest Planting Promotion Office) supported the reuse of single-use plastic to pass on seedlings from Inthanin's biodegradable cups into the land. Finally, franchisees, especially those searching for investment and landlords supported the company by choosing to open a coffee shop brand that uses biodegradable materials and has projects to make use of materials and provide a good option for environmentally-conscious people. Hence, Inthanin's "Kaeo Pho Kla" project truly contributed to the circular economy through the cooperation of the value chain.

## Goals for 2024

Bangchak's BSGF will start operating business by constructing sustainable aviation fuel (SAF) production units from used cooking oil in the vicinity of Bangchak's oil refineries. These production units are expected to commence operation by around the end of 2024 with an initial production capacity of 1,000,000 liters per day. This will be sustainable aviation fuel that every airline worldwide can use as a substitute right away without any impact on their engines, thereby contributing to reduction of greenhouse gas emissions in the airline industry by around 80,000 tons of carbon dioxide equivalents per year (compared with the greenhouse gas emissions of the airline industry today).

The SAF product from used cooking oil can produce comprehensive positive economic, social and environmental impacts in line with the BCG Economy Model, whether in the area of bio-economy through focus on use of bio-based resources for creating value through development of high-value products, or the circular economy that considers maximum of reuse of materials, and green economy which does not only prioritize economic development but instead development that balances social development and environmental conservation to achieve both security and sustainability.

The joint venture to found BSGF to be the first and only in Thailand to have production units for SAF from used cooking oil is a new chapter for Thailand's energy industry, which is undergoing a transition toward clean energy through use of green innovations and is another major step forward in the BCP 316 NET plan of Bangchak Group to achieve net zero GHG emissions by year 2050 and drive Thailand toward achieving net zero GHG emissions by year 2065.









## Production Logistics

The company gives importance to the enhancement and upgrade of the product logistic system to be more effective, accurate, timely and safe in order to reduce impacts on communities and the environment from contamination in cases of product spills. The company’s guidelines are as follows:

- Enhance logistics effectiveness in terms of cost, time and safety and care for the environment by reducing greenhouse gas emissions.
- Take care of suppliers and drivers who oversee the delivery of refined fuels from refineries until they arrive at gas stations according to schedule.

### Enhancing Product Logistics Effectiveness

#### Goals for 2018-2023

- 
Transport products by using large vehicles (semi-trailers) by 45% of all deliveries.
- 
Transport fuels to customers according to the company’s future distribution plan (as calculated based on the rate of growth in gas stations for an increase by 330 stations from 2018 to 2023).
- 
Experience zero accidents in transportation (cases involving vehicle damage by a value exceeding 1 million baht).
- 
Receive no more than 3.5 complaints/one thousand transportation trips.

### Performance

#### Proportion of Use of Large Vehicles (Semi-Trailers) in Transportation

(Target: At least 2% increase per year) Amount of Reduction in Greenhouse Gas Emissions (tons of carbon dioxide equivalent)

Year	%	Amount of Reduction in Greenhouse Gas Emission (tons of carbon dioxide equivalent)
2022	43	9,809
2021	41	7,946
2020	41	7,520
2019	39	8,839
2018	35	5,922

#### No. of Transportation Complaints per One Thousand Trips

(Target: < 3.5 complaints per one thousand trips)



#### Transportation Accident Statistics\*

(Target: zero accidents)

2	2	2	0	0
2018	2019	2020	2021	2022

\*(Cases involving vehicle damage exceeding 1 million baht.)

### Strategy

- Transport products by using large vehicles (semi-trailers) by 45% of all deliveries.
- Transport fuels to customers according to the company’s future distribution plan (as calculated based on the rate of growth in gas stations for an increase by 330 stations from 2018 to 2023).
- Experience zero accidents in transportation (cases involving vehicle damage by a value exceeding 1 million baht).
- Receive no more than 3.5 complaints/one thousand transportation trips.

### Significant Performance

The company continues to operate a project to increase the share of deliveries by use of large vehicles (semi-trailers) and use of logistics technologies to continuously enhance transportation effectiveness as follows:

• **Increasing the share of deliveries made by large vehicles (semi-trailers):**

In 2022, the company was able to increase the share of deliveries by the use of semi-trailers to 43%. This was achieved through offering discounts to gas station businesses when they use large vehicles in their deliveries and preparing spaces to accommodate large vehicles at new gas station construction sites. Accordingly, transportation by this method can reduce greenhouse gas emissions by 9,809 tons of carbon dioxide equivalents when compared to the use of 2 single vehicles for each trip rather than using one single large vehicle.

• **Improving logistics technology:**




The company has an auto ordering system (AOS) for the gas stations of Bangchak Green Net Co., Ltd. to enable effective management of fuel reserves and purchase planning. Moreover, the company improved the transportation management system (TMS) to allow pairing purchase orders from gas stations with appropriate routes to increase use of large vehicles in transportation (multi-drop) and to help monitor each fuel transportation trip and driver behaviors such as transportation speed and sleeping at the wheel to prevent accidents and increase transparency during transportation.

• **Complaint management:**




The company has in place an e-complaint management system to make it more convenient to receive and monitor complaints. This system is connected to the SAP system for automatically collecting fines from transportation service providers to promote maintenance of service standards.

### Caring for Suppliers and Drivers

Both suppliers and product delivery drivers are an important part of effective delivery of fuel to gas stations and in ensuring work success according to objectives. As such, the company has goals and work plans to meet needs in caring for suppliers and vehicle drivers as follows:

<p><b>Goals</b></p>  <ul style="list-style-type: none"> <li>• Promote positive relations between customers and transportation contractors.</li> </ul> <hr style="border: 0; border-top: 1px solid white; margin: 5px 0;"/>  <ul style="list-style-type: none"> <li>• Reduce cost for transportation contractors.</li> </ul> <hr style="border: 0; border-top: 1px solid white; margin: 5px 0;"/>  <ul style="list-style-type: none"> <li>• Ensure that transportation contractors receive work fairly and work effectively.</li> </ul>	<p><b>Significant Performance</b></p> <p>The company has cared for suppliers and drivers in preparing for returning to normal after the COVID-19 pandemic as follows:</p> <ul style="list-style-type: none"> <li>• The company held monthly online meetings to set goals and monitor work performance (KPI).</li> </ul> <hr style="border: 0; border-top: 1px solid #ccc; margin: 5px 0;"/> <ul style="list-style-type: none"> <li>• The company maintained measures to reduce the cost of suppliers and transportation contractors such as by reducing backup vehicles, extending the usage life of transportation vehicles, allowing contractors to use vehicles to accept work from other parties on a temporary basis, increasing the delivery of fuel from the Bang Pa In warehouse rather than delivering from refineries in order to reduce traffic and air pollution problems.</li> </ul>
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### Future Work Plans

 <p>Use AI (artificial intelligence) to support analysis and improvement of product transportation such as by designating delivery areas and delivery routes and enhancing effectiveness and increasing customer satisfaction.</p>	 <p>Increasing use of semi-trailers in transportation to 45%.</p>	 <p>Improving drivers by reviewing and providing additional knowledge about safe driving measures, fire-extinguishing and work operations inside oil warehouses.</p>
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## Biodiversity and Forest Management

Rapid economic growth today has led to exploitation of natural resources and various ecological disturbances in nature, leading to 5S of biodiversity and habitat and ecosystem destruction, along with human impacts in terms of quality of life such as reduction in food sources and economic activity such as decreased productivity due to the condition of areas that experience losses in flora and fauna. The company recognizes both the positive and negative impacts on biodiversity from the company’s business activities and has set biodiversity as an important topic in its policy to develop business sustainably alongside the environment and society, and the company’s practice guidelines are as follows:

1. The company arranges for risk assessments to be conducted on biodiversity and has in place measures to reduce impacts from high-risk activities.
2. The company promoted the adoption of technologies and innovations and developed cooperation with organizations on the local and international levels to create value in biodiversity in areas where the company is involved and/or has the capability to offer assistance.

### Company Objectives

1. Avoid surveying, exploring and conducting business in World Heritage sites and conservation areas according to the specifications of the IUCN.
2. Avoid causing losses to biodiversity in the company’s business operations.

### Work Plans for 2022

1. Review biodiversity impacts in oil refinery areas where the company operates its main businesses.
2. Study practice guidelines on biodiversity management in line with international standards.
  - Tools for assessing practice guidelines on biodiversity risk.
  - Practice guidelines for biodiversity work planning.
  - Evaluation tools and practice guidelines for avoiding loss of biodiversity.

The company has a long-term plan to assess risks and create biodiversity work plans to cover the company’s main businesses in the future

Biodiversity and Forest Management Policy  
<https://www.bangchak.co.th/storage/document/biodiversity/2023/biodiversity-policy-th.pdf>



## Performance in Biodiversity

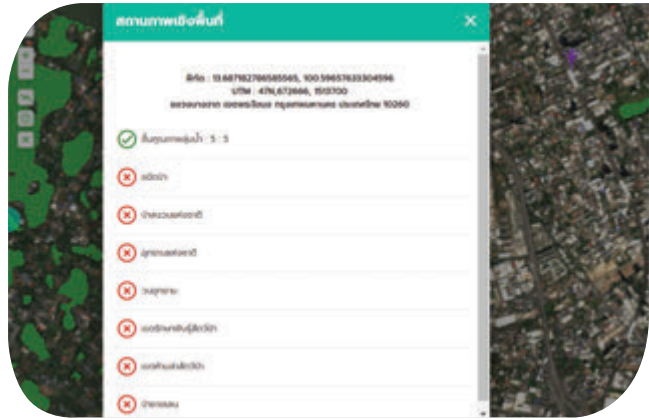
### Biodiversity Risk Assessment

The company recognizes biodiversity impacts throughout the entire value chain and has a plan to assess biodiversity risks in activities and areas where the company operates its main businesses, including oil refineries, oil warehouses and gas service stations. In 2022, preliminary risk assessment was conducted in the area of oil refineries with a plan to expand to oil warehouses and gas service stations later on. Accordingly, information about the coordinates and distances from areas with value in diversity is shown in the table below.



Business Area	Location (coordinates)	Area (rai)	Type of Business Activity
Oil refineries	13.686916, 100.596299	480	Oil refinery

The company checked the distance of the refinery area from high-value biodiversity areas such as areas protected according to IUCN specifications and UNESCO World Heritage sites, wetlands (Ramsar) and protected forests according to Thai laws (national parks and forest parks) from satellite maps and national green space management system (G-FMS) and found that none of the aforementioned areas are located within a 5-kilometer radius of the refinery area.



Furthermore, the company assesses environmental and biodiversity impacts according to the ISO 14001:2015 guidelines and makes considerations based on the impacts of pollution on biodiversity. Accordingly, pollution is controlled at refineries to remain below the levels specified by the law at all times, and so the company has a low level of risk for causing severe impacts on high-value biodiversity areas. Therefore, the company continuously focuses on monitoring biodiversity impacts such as in controlling the release of wastes, e.g., wastewater, trash and air pollution from activities in order to prevent them from spilling into the environment and to comply with the law. Additionally, the company continuously organizes activities to promote diversity in areas surrounding oil refineries and in high-value biodiversity areas such as the following:

### Biodiversity Promotion Project: Sen Thang Hing Hoi, The Path of Conservation Project

#### Overview of Activity/Management

The company works to support, promote, develop and care for biodiversity in collaboration with communities and neighbors around refinery areas in 6 sub-districts in the Khung Bang Ka Chao area, namely, Bang Nam Phueng Sub-district, Bang Ka Chao Sub-district, Bang Krasop Sub-district, Bang Yo Sub-district and Song Khanong Sub-district, Phra Pra Daeng District, Samut Prakan Province, and has been doing so from 2013 up to the present. This area is an abundant area with a high level of biodiversity, and the company prioritizes taking care of the firefly population in the area, which currently is unstable and increases and decreases according to the environment.

Objectives	Strategy	Performance
<ol style="list-style-type: none"> <li>Up-to-standard/appropriate habitat ecosystems and firefly population in terms of both quantity and quality.</li> <li>Development of correct knowledge and understanding in the local population about fireflies and firefly conservation.</li> <li>Establishment of a community network and groups of people to perform firefly-related work in the area.</li> <li>Promotion of sustainability in firefly efforts in the local area.</li> </ol>	<ol style="list-style-type: none"> <li>Create a local committee and develop community leaders/youths.</li> <li>Create projects/activities to restore, conserve and improve sceneries and provide training knowledge.</li> <li>Support community participation in the area.</li> <li>Support research for the conservation and breeding of fireflies.</li> <li>Promote the participation of employees through reforestation and firefly-counting activities, etc.</li> </ol>	<ol style="list-style-type: none"> <li>Four different types of fireflies were discovered in the area as follows:                             <ol style="list-style-type: none"> <li>Sclerotia quatilis (Thancharoen)</li> <li>Pyrocoelia sp.</li> <li>Pteroptyx malacciae (Gorham)</li> <li>Pteroptyx valida (Olivier). The average firefly population was 50,526 fireflies/year</li> </ol> </li> <li>A committee of 23 people from 6 sub-districts.</li> <li>Firefly survey/counting teams numbering 36 people along with 78 youths participating in activities from 6 sub-districts.</li> <li>Related projects and activities such as lectures to provide knowledge about conservation, mangrove forest planting activities and construction of paths, bridges and dikes; public announcements, World Firefly Day event, the “Ruam Phon Khon Rak Hing Hoi” academic discussion and training of young guides.</li> <li>Support for researchers in the area and out of the area in 2 research projects. Part of the research found that the company’s activities do not impact fireflies and the surrounding environment in terms of quantity and quality.</li> </ol>

## Project to Support Farmers with Large Plots and Stingless Bee Farmers at Bang Nam Phueng Sub-district

### Overview of Activities/Management

The company supported, promoted, developed and supervised the raising of stingless bees on the basis of environmental conservation and biodiversity in conjunction with promoting the community economy in a participatory manner. Accordingly, the company operated the project in collaboration with large-plot farmers raising stingless bees and farmer groups involved in the raising of stingless bees at Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Sakhon Province. The project has been ongoing since 2019 and continues to be operated today. Stingless bees are indicators of environmental abundance and biodiversity in the local area and also benefit the community economy.

Objectives	Strategy	Performance
<ol style="list-style-type: none"> <li>Up-to-standard effort and development of knowledge in the raising of stingless bees.</li> <li>Establishment of a community network and groups of people to perform work related to stingless bees.</li> <li>High-quality and up-to-standard honey and products from stingless bees.</li> <li>Development into a stingless bee community enterprise at Bang Nam Phueng Sub-district to create steady income for group members and the community.</li> </ol>	<ol style="list-style-type: none"> <li>Support the establishment of a large-plot farmer group in the raising of stingless bees.</li> <li>Establishment of a local committee and develop community leaders.</li> <li>Organize related projects, activities and training.</li> <li>Expand upon and increase the number of farmers raising stingless bees to increase the number of stingless bees and their hives.</li> <li>Support education and expand the cultivation of trees and flowers that serve as food sources of stingless bees.</li> <li>Support education and research involving external networks.</li> </ol>	<ol style="list-style-type: none"> <li>A large-plot farmers group in the raising of stingless bees was established at Bang Nam Phueng Sub-district.</li> <li>A work committee/group was established with 10 members.</li> <li>The company organized projects and activities such as on providing knowledge about stingless bees and how to raise them and lectures on nutritional supplements for stingless bees; supported increases in membership, hives and honey; and participated in World Bee Day activities.</li> <li>Up to 60 people/individuals/households in the group to raise stingless bees or raised stingless bees for a total of 300 hives raised, with the natural stingless bee population (estimate) numbering <math>\geq 1,000</math> bees and farmed stingless bees numbering <math>\geq 300,000</math> bees.</li> <li>Research by King Mongkut’s University of Technology North Bangkok, Rayong Campus, found that &gt; 12 flowers, such as coconuts, Salacca wallichiana, etc. are food sources for stingless bees.</li> <li>Six different products from stingless bees and others were produced such as honey, soap (bars), shower cream, shampoo, lotion and balm.</li> <li>The company collaborated with external networks in development and research such as the Big Brothers network on stingless bees with the National Research Council of Thailand (NRCT), Department of Industrial Promotion, Ministry of Industry and network members, etc.</li> </ol>



## Phuet Phan Pan Suk Project

### Overview of Activity/Management

The company launched the Phuet Phan Pan Suk Project to increase green spaces, which is important for promoting biodiversity, by distributing tree saplings to customers and the public through Bangchak gas service stations, 9 Inthanin coffee shops and Phra Khanong District Office. The saplings were also given to employees to plant in green spaces near them, and the company also organized a tree-planting activity in areas near Bangchak’s oil refineries in Phra Khanong District on the occasion of the 90th Birthday Anniversary of the Queen Mother Sirikit and on National Mother’s Day on 12 August 2022 in collaboration with the Bangkok Metropolitan Administration, the Expressway Authority of Thailand, communities, condominiums, and neighbors around the refineries, including Phun Sin (Phet Suk Upatham) School and in the area of Bang Ka Chao, Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Prakan Province, in collaboration with the community leaders of Bang Nam Phueng Sub-district, the Royal Forest Department, Nakhon Khuean Khan Ecological Green Space Management Center, in addition to working through the Our Khung Bang Ka Chao Project.

Objectives	Strategy	Performance
<ol style="list-style-type: none"> <li>1. Development of green spaces for abundance and promotion of diversity.</li> <li>2. Establishment of a cooperation network to increase green spaces on the public level.</li> <li>3. Promotion of sustainability in green space efforts to support local biodiversity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Development and expansion of green spaces to support biodiversity through the planting of trees in areas near to the company’s operations, community relations areas and outside areas.</li> <li>2. Focus on choosing appropriate plant species for planting based on utility and consistency with the area.</li> <li>3. Building of cooperation and participation with network members inside and outside the areas of operation such as Phra Khanong District Office, Bang Nam Phueng Sub-district Administrative Organization, the Royal Forest Department, the Expressway Authority of Thailand, etc.</li> <li>4. Expand cooperation and engagement with the public sector through the company’s business operations and CSR activities.</li> </ol>	<ol style="list-style-type: none"> <li>1. Up to 3,290 trees were planted in areas near the place of operation of Bangchak oil refineries in Phra Khanong District. Suitable plant species were chosen in collaboration with Phra Khanong District Office such as golden shower trees, white champaka, choutenia glomerata, tecoma stans, etc.</li> <li>2. Up to 400 trees were planted in Khung Bang Ka Chao, Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Prakan Province, with plans to plant an additional 500 trees in the future. Native trees and other suitable trees were planted such as Ardisia polycephala, rain tree, Dipterocarpus alatus, etc.</li> <li>3. Saplings of 9 tree species were distributed, namely, Cassia bakeriana, Tabebuia aurea, Dolichandrone serrulata, etc. to customers and the general public through 9 Bangchak gas service stations and 9 Inthanin coffee shops and Phra Khanong District Office, and the trees were also given to employees to plant in green spaces near them. In total, 9,000 trees were handed out.</li> </ol>



## Our Khung Bang Ka Chao Project

### Overview of Activity/Management

The company became a member in support of the Our Khung Bang Ka Chao Project of the Chaipattana Foundation in collaboration with other public and private agencies numbering over 34 organizations to jointly drive development in the Khung Bang Ka Chao area to build upon the speech and royal wish of His Late Majesty the King Bhumibol Adulyadej and Her Royal Highness Princess Maha Chakri Sirindhorn and the operating guidelines of the Chaipattana Foundation to conserve and develop Khung Bang Ka Chao into an abundant green space and to improve the way of life and well-being and economic growth of the local people. Under 7 shared objectives, the company participated as a work committee to support work in 3 areas/shared objectives, namely, development/expansion of green spaces, sustainable tourism and development of youths, education and culture.

Objectives	Strategy	Performance
Promotion and development/expansion of green spaces in the Khung Bang Ka Chao area for environmentally-friendly and sustainable growth (green growth).	<ol style="list-style-type: none"> <li>Expand green space through joint development of government surplus land under the care of the Royal Forest Department over an area of 400 rai and 95 parcels (including Phase 1 of the implementation project), with Bangchak’s portion alone at 19.71 rai and 11 parcels.</li> <li>Select plant species for planting as appropriate to the benefits and consistency with the local area.</li> <li>Build cooperation with and participate with network members inside and outside the area such as Bang Nam Phueng Sub-district Administrative Organization, the Chaipattana Foundation, etc.</li> <li>Encourage customers and employees to participate in the project/communities in planting forests/trees through the company’s channels such as Bangchak member cards, the bicycling club and company CSR activities.</li> </ol>	<ol style="list-style-type: none"> <li>Up to 1,170 trees were planted/reforested over an area of 19.71 rai or 11 parcels (100%). Native trees were planted alongside other suitable trees such as <i>Sonneratia caseolaris</i>, <i>Rhizophora mucronata</i>, <i>Bruguiera sexangular</i>, <i>Schoutenia glomerata</i>, <i>Hopea odorata</i>, <i>Shorea roxburghii</i>, <i>Erythrina variegata</i>, <i>Azelia xylocarpa</i>, etc.</li> <li>The company organized activities for executives and employees to visit areas to plant trees on 3 occasions, with 385 executives and employees participating.</li> </ol>



## Lam Pa Thao Watershed Forest Restoration Collaborative Project

### Overview of Activity/Management

The company participated in restoring, supporting, and preserving water source forests to remain abundant to serve as a food source and a source of learning about the nature of wildlife for the local people continuously and sustainably by coordinating cooperation with and caring for the local people (Buddhist monks, villagers, teachers, instructors, students, and representatives of local agencies) through the Lam Pa Thao Water Source Forest Restoration Collaborative Project and projects to cultivate saplings for reforesting Phu Long Forest and making off-season offerings to monks and replanting the Lam Pa Thao water source forest in Phu Long, Chaiyaphum Province, to promote learning, conscience and volunteer-mindedness among employees and neighbors surrounding Bangchak oil refineries in Bangkok Metropolis, and family groups and schools, to take care of forests and the environment through assistance in sapling cultivation and actual trips to plant trees at the water source forest.

Objectives	Strategy	Performance
<p>Restore, support and preserve water source forests to remain abundant and to serve as a source of food and learning about the nature of wildlife for the local people in a continuous and sustainable manner through coordinating collaboration and having locals care for forests themselves.</p>	<ol style="list-style-type: none"> <li>1. Cultivate saplings and plant them at actual locations.</li> <li>2. Promote conscience, volunteer-mindedness, and forest and environmental conservation in employees and neighbors around Bangchak oil refineries through helping to cultivate saplings and making actual trips to plant trees.</li> <li>3. Support and coordinate collaboration with local people to restore the Lam Pa Thao Watershed Forest.</li> <li>4. Promote and select trees for sapling cultivation and planting and local efforts through consultation and seeking of opinions from locals by giving focus to suitability, sustainable benefits and consistency with the area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Saplings were cultivated and actually planted by the number of 83,600 trees/261 rai. The trees planted were native trees mixed with other suitable trees for planting in the area.</li> <li>2. Employees and neighbors around Bangchak oil refineries in Bangkok Metropolis, family groups and schools worked together to cultivate saplings and travel to actually plant trees. In total 936 people were involved.</li> <li>3. Local communities and the project committee exhibited conscience for forest conservation and cooperated in preventing forest fires and were also stronger.</li> <li>4. No illegal logging occurred due to the local people, and animal poaching decreased.</li> </ol>





## List of Environmental Expenses

Overall environmental expenses in 2022 increased by about 86,961.08 million baht from 2021 or by 85.33% due to a 40% increase in crude oil prices when compared to the previous year. This reflects an increase in raw material prices in tandem with products by 87,491.96 million baht. Although in this year, the company operated its refinery units by an average of 122.61 thousand barrels per day, which was greater than in 2021, the company was able to control quality in production processes such that raw material expenses not tied to products decreased by 9.66 million baht in line with the quantity of oil without quality losses, which had a value of 30.77 million baht. Furthermore, the company's expenses in pollution control equipment decreased by 508.88 million baht due to 484.39 million baht of depreciation in pollution control equipment, while environmental equipment maintenance fees amounted to 23.03 million baht, respectively. Furthermore, management system operating expenses decreased by 0.19 million baht and the cost of wastewater treatment and waste disposal decreased by 1.46 million baht.

In addition, byproducts and waste reuse increased by 12.09 million baht or 59.63%. Primarily, this was due to increased sale of liquid sulfur by 13.34 million baht, although the value of steel and aluminum sales decreased by 1.25 million baht.

(Unit: Million THB)

List of Environmental Expenses (EN 31)	2020	2021	2022
<b>Raw Material Expenses Tied to Products</b>			
Crude Feed	54,827.42	81,445.69	169,495.13
Ethanol	6,124.10	5,980.37	7,263.95
Biodiesel (B100)	0.11	0.00	0.00
Biodiesel (B100)-Premium	0.00	0.00	0.00
Biodiesel (B100)_Hi PURE TYPE2	7,131.39	8,371.91	8,049.93
Used Cooking Oil	0.32	0.01	31.18
Chemicals	162.17	160.35	173.75
Water used in production	18.77	27.65	24.24
Energy Consumption in Production	1,303.81	1,618.08	3,062.46
<b>Raw Material Expenses Not Tied to Products</b>			
Slop Oil	25.36	58.07	27.30
Wastewater	11.15	11.61	12.24
Excess Chemicals from Stabilization Ponds	0.11	0.20	20.68
<b>Pollution Control Equipment Expenses</b>			
Environmental Equipment Maintenance Expenses	12.62	23.03	0.93
Pollution Control Equipment Depreciation Expenses	234.88	500.07	686.69
Wastewater Treatment Expenses	6.34	6.12	5.69
Waste Disposal Expenses	4.99	5.46	4.95
<b>Environmental Protection Expenses</b>			
Monitoring and Measurement Expenses	8.27	7.70	9.32
Waste Storage Area Depreciation	0.02	0.05	0.02
Management System Operating Expenses	0.47	1.58	1.39
Environmental Equipment Expenses	-	-	-
<b>Byproducts of and Waste Reuse</b>			
Liquid Sulfur	(10.46)	(17.16)	(30.50)
Steel-Aluminum Scrap	(1.64)	(3.12)	(1.87)

# Social Dimension

## Safety

Lost Time Injury Frequency Rate (LTIFR)



Employees		Contractors	
Male	Female	Male	Female
0	0	2	0

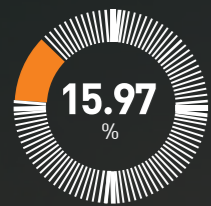
High-Consequence Work-Related Injuries

- Employees 0 time
- Contractors 1 time

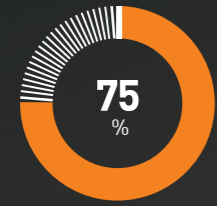


## Employees Stewardship

Promotion Rate



Employee Engagement Score



Total number of employees  
**1,098** persons

Support activities and business processes that are socially responsive (money, volunteer time of employees, items, management) up to

**235.75** million baht

Education program that covers young people more than

**15,000** persons



## Carbon Markets Club

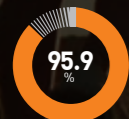
Contribution from **53** organizations and **150** people help reduce greenhouse gas emission by

up to **400,000** tons of carbon dioxide equivalent.



## Community and Society Development

Percentage of CSR activity satisfaction



## Human Rights Due Diligence

Percentage of human rights risk assessment



Employees Subsidiaries Suppliers

Percentage of human right risk identified



Employees Subsidiaries Suppliers



## Occupational Health & Safety

Security, safety and occupational health are important issues in the petroleum industry. This is because accidents in work and/or production processes, transportation or distribution can impact a wide variety of stakeholders, such as by leading to injuries and loss of life or property of operators and surrounding communities; causing business impacts in the form of business disruption to correct remedy situations and compensate related persons; and environmental impacts such as spills of pollutants. Thus, the company has set its security and occupational safety and health policy for employees and contractors to have the duties and responsibilities in safety for themselves and colleagues according to local laws and international standards such as ISO 45001 and to operate consistently with the Process Safety Management (PSM) system under the safety, security, occupational health, environment and energy (SHEE) management structure. Accordingly, work committees are

responsible for setting SHEE policies, conducting reviews, making proposals and providing resource support, as well as to appoint work communities to support SHEE work to develop SHEE management standards and systems effectively, efficiently and continuously and sustainably (Disclosure 403-1). The safety management system includes work-related Hazards Identification, risk assessment, and Incident investigation and improvements. Accordingly, the company stipulates for inspection of operations inside the organization such as safety patrol and meetings to announce inspection results and monitoring and correction of results by the Safety Committee by at least once monthly according to legal specification, along with inspection from external audit such as audits to assess compliance to the ISO 45001 standard, etc. to ensure that the safety management system and inspection and monitoring systems cover all employees and contractors (100%) operating in the refineries and the headquarters.

### Targets:



Zero Occupational Illness Frequency Rate (OIFR).



Zero Lost Time Injury Frequency Rate (LTIFR).



Zero Fatality Rate.



No significant oil and chemical spills in the environment.



Zero spills of flammable chemicals or chemicals from primary containers or production processes leading to serious impacts (Tier 1) according to API 754 specifications.

## Occupational Safety and Health Management Guidelines

The company is determined to improve and develop its safety, security, occupational health, environment and energy (SHEE) management system continuously in line with the safety management and administration system according to ISO 45001 along with the Process Safety Management system (PSM). The company continuously facilitates activities that promote safety both inside and outside the work area, which is known as Safety 24 hours. The Safety 24 hours programs encourages employees in all levels, including contractors to increase safety awareness and knowledge on safety practices and develop personal accountability.



### Activities to promote safety culture in operations include the following:

- Promotion of safety culture transformation such as through Line Walks by work site executives to give importance of safety awareness for workers and to conduct Field Risk Assessments (FRA) which assigns employees to seek for hazards and risks to conduct proactive prevention.
- Regular monthly meeting and safety patrol with safety officers and contractors.
- Giving of Contractor Safety Management Recognition Awards to contractors who correctly follow procedures and serve as good role models for their colleagues.



- Safety promotion activities organized by the Safety Committee and from meetings and exchanges of opinions between executives and employees.
- Promote prevention and self-care to reduce the spread of COVID-19.

### Activities to promote safety outside the work area include the following:

- Campaign for employees to drive safely and to wear safety helmets every time when driving motorcycles and wearing of seatbelts before travel.

The company's continuous effort in safety and safety activities led the company's employee safe work hours to reach 6,000,000 manhours without lost time accidents. In addition, in 2022, the company received an honorary award for being the Outstanding Model Enterprise Award in Safety, Occupational Health and Working Environment (National Level) for the 6<sup>th</sup> consecutive year from the Ministry of Labor.

## Work-related Hazards Identification, Risk Assessment, and Incident Investigation

(Disclosure 403-2)

The company has procedures to identify hazard identification and risk assessment include improvement opportunity identification through What If method and HAZOP, among others, and these cover the work activities of employees and contractors, with important processes including the following:

1. These measures determined hazard, risk, and improvement opportunity identifications and assessments for all procedures to eliminate hazard and minimize risks by using "The hierarchy of control" method at acceptable levels and to review this process at least one time a year or any changes occur and to review this process at least one time a year or any changes occur.
2. The company has a process to conduct Job Safety Analysis (JSA) for non-routine activities to identify hazard and surveillance of work environment and worker health including exposure monitoring hazardous situation and comprehensive risk assessment, in addition to having an Online Work Permit system.
3. Covered in the control and preventive measures are compliance on work permit, requirement to have a regular Safety Talk among employees before the start of a workday and the compliance checks on safety rules at work to enhance effectiveness of the process Employee- or contractor-conducted risk assessments on the engineer or trained supervisory level on risk assessment and submission of risk assessment reports and control measures to section managers for review and approval.
4. Engineers and supervisor and above of employee or contractor go through development courses on risk assessment procedures relevant to their work. After assessing risks and controlling measures, level up all results and recommendation must be compiled for the management team to review and sign off to. Everyone always has a duty to review and monitor implementation of the recommendations to control risks.

The risk assessment results in 2022 showed that risk activities for work-related hazards that might lead to high-consequence injuries include fires, chemical spills, falling materials, or impacts with materials, etc., and appropriate hazard control measures have been implemented appropriately according to the hierarchy of controls such as safe production process design, risk and procedure review, safety management system review and procurement of personal protective equipment for employees and contractors.

In addition, Bangchak encourage employees to write Safety Observation Reports about unsafe acts and unsafe conditions to prevent potential incidents that employees or contractors might observe or encounter as being unsafe in work and that might impact operators. Anyone has the authority to stop work if he or she finds unsafe conditions or unsafe acts. Unsafe conditions and unsafe acts must be reported to manager and area supervisor in order to resolve the issues and ensure safe conditions before proceeding with the work. Furthermore, employees are encouraged to identify work hazards and risks through work groups such as Field Risk Assessments (FRA), Safe Work Practices (SWP), Contractor Safety Management, Operation Audit Team (OAT), PSM Daily Audit and SHE Committee, and work plans are specified for conducting joint inspections and making recommendations with operators to raise awareness and increase knowledge and understanding in operators regarding potential hazards in order to lead to appropriate early prevention.

### Work-related risk and incident investigation process (Disclosure 403-2)

The report and investigation process of work-related risk situations and accidents are vital in safety management. The objective of such the process is to identification of the root causes and set up control and prevention measures to prevent reoccurrence. Bangchak has put in place a systematic reporting system to record unsafe actions, unsafe conditions, and near-miss incidents. \ Whenever an incident happens, the people present in the situation or people who encounter the situation must write a report to the person involved of the area and related persons to inform them within 24 hours. A working team will be formed to investigate the accident or incident that occurred in order to determine the root causes through the “Why Tree analysis” and to specify measures for preventing recurrence along with recommendations for improvements (opportunities for improvements: OFI) with monitoring of corrective and improvement actions according to investigation results and preparation of lesson-learned from the incident are shared with the employees and contractors through various communication channels.

### Work-related health services (Disclosure 403-3)

The company uses a proactive occupational health process to conduct health risk assessments covering all refinery areas to specify risk control measures with regular monitoring and inspection of the work environment such as by measuring lights, noise, heat level and chemicals in work areas to ensure safety to the health of operators. In addition, corrective actions are taken in work sites and/or work procedures with follow-ups on corrective actions in cases where measurement results show values exceeding the

safety standards, and for the office area, air quality measurements are monitored inside the building according to the recommendations of the Singapore Standard 554:2016 with the measurement parameters including temperature, relative humidity, wind speed, carbon dioxide and carbon monoxide, particular matter smaller than 10 microns, particulate matter smaller than 2.5 microns (PM 2.5), total VOCs) and formaldehyde, not to mention total bacteria count (airborne) and total fungi count (airborne). Accordingly, no value exceeded the standard value in the period from 2018 to 2022.

Furthermore, the company assigned safety officers and occupational medical practitioners to supervise and advise employees and contractors in matters related to occupational health and to monitor the health of employees and contractors as follows:

- Employees receive health examinations at the start of employment, during employment and at termination of employment.
  - Employees receive annual health examinations covering general health examinations and health examinations according to occupational risks factors, with the company’s occupational health experts and occupational physician specifying the list of health examinations based on risk factors. The team analyzes the test results based on internal and external factors in the workplace. If employees are found to be ill, they are advised to visit a doctor and receive ongoing health care. In addition, there are additional check-up items based on risks specific to each age group such as check-ups for prostate cancer, pancreatic cancer and gastrointestinal cancer as part of the employee’s health examination program covering diseases from daily living, and employees are instructed to continuously monitor their health.
  - Conducting medical emergency training provided by the Bangchak and contracted hospital rescue teams to ensure coordination flexibility and increase rescue effectiveness.
  - Hiring occupational medical experts to assess and improve the general and risk-factor-based health examination program.
  - Bangchak required all contractors to undergo risk-factor-based health check. This includes analysis follow-up and consultation. In cases where employees have abnormal health results, are required to be submitted all of health checkup reports to supervisors of Bangchak and a representative of the Safety Section.
- Under the Personal Data Protection Act, the company considers all employees’ and contractors’ health information to be personal data, and the company intends to use such

data only to promote health and prevent hazards from employees and contractors that are hazardous to their health. Accordingly, employees and contractors can file complaints in cases where such data is used inappropriately, and they can do so through various channels, including the labor union or the employee committee of the company, whistleblower channels, and the 1651 hotline.

### Participation, Consultation and Communication on Occupational Health and Safety (Disclosure 403-4)

Bangchak has appointed the Safety, Occupational Health, and Work Environment Committee the official working group in accordance with the regulation to ensure the safety, occupational health and work environment to ensure continuous improvements in the area. The working committee is a collaboration between management and employee representatives. At least 50% of the committee members must come from representatives of operations staff where each function elects their own representative. In addition, a meeting is to be held at least once per month to announce news, updates on progress and operation, present future plans, review safety performance, and report result to management.

The company communicates and provides opportunities for employees and contractors to participate in occupational health and safety issues through various activities such as the SHEE Excellence Day with communication through Outlook, announcement boards, loudspeakers (safety radio channel) to provide news, knowledge, warning signs, and life-saving rules promotion to apply IOGP's life-saving rules through the use of media that is easy to understand.



### Occupational Health and Safety Training

(Disclosure 403-5)

Bangchak provides safety, occupation health, and fire suppression training for all employees and contractors prior to starting work based on job positions, job types, and work risk. In addition, the company prepares training plans, provides training, assesses outcomes and records, and keep training history information to develop knowledge, capabilities and understanding in what might cause hazards or accidents along with hazard prevention and control during operation to ensure safe performance of duties.

The company trains and issues electronic passes to contractors (express safety passes) by recording data about contractors who will access areas and sending information via an electronic system with the ability to view safety videos online for convenience and to reduce training time.

### Promoting employees' health (Disclosure 403-6)

Bangchak promotes the health of employees and contractors outside of work-related activities as follows:

- Medical staff are available during working hours in the company's medical room to provide first-aid and emergency assistance without charge.
- The company provides annual health check-up, flu, and COVID-19 vaccinations for employees.
- The company has a project to promote employees health with aim of preventing non-communicable diseases (NCDs) including monthly exercise activities such as by accumulating walking steps, running and doing simple cardio exercises and participating in e-sport competitions such as dancing and boxing competitions, etc. The company also has an activity to encourage the employee to consume foods that contain vitamins by announcing it through media to transform adequately "good" people to see the value of Vitamin D and to reduce sugar intake by eating more vegetables, etc.
- World Heart Day activities for employees to recognize the importance of heart disease and to review basic first-aid techniques such as CPR and how to use automated external defibrillators or AED.

## Performance

With the company's work safety management for all employees and contractors, the company also monitors performance indicators such as Injury Frequency Rate (IFR), Injury Severity Rate (ISR), Total Recordable Injury Rate (TRIR), and high-consequence work-related injuries rate of employees and contractors. The results are as follows:

Total Injury Rate of Employees	2020		2021		2022	
	Male	Female	Male	Female	Male	Female
Lost Time Injury Frequency Rate (LTIFR) Employees	0	0	0	0	0	0
Total Recordable Injury Rate (TRIR) Employees	0.60	0	0	0	1.38	0
High-consequence work-related injuries rate* Employees	0	0	0	0	0	0

The company has a Contractor Safety Management System in which contractors are required to operate strictly and consistently according to safety regulations and to investigate causes and extract lessons to make work improvements and control work to prevent a recurrence, with both short-term and long-term improvement plans specified along with follow-ups on completed corrective actions and communication to persons involved along with personal safety activities to create a sustainable culture of safety.

Total Injury Rate of Contractors	2020		2021		2022	
	Male	Female	Male	Female	Male	Female
Lost Time Injury Frequency Rate (LTIFR) Contractors	0.34	0	0.45	0	1.43	0
Total Recordable Injury Rate (TRIR) Contractors	0.34	0.54	1.79	0	1.43	0
High-consequence work-related injuries rate* Contractors	0	0	0	0	1	0

## Process Safety Management

Bangchak operated safety management in accordance with the Process Safety Management (PSM) system and has established the PSM Governance Committee (PSM GC) with continuously work plans since 2015. In addition, safety values 3E were set:

- Everyone goes home safely every day.
- Environment and assets are protected.
- Efficient and reliable operation.



### On-going Projects since 2015

- Felt Leadership (FL) program, presence and acting as leaders safety.
- Field Risk Assessments (FRA) program to raise awareness and understanding in of potential hazards to prevent potential incidents.
- Establishment of safety standards including Lock Out Tag Out (LOTO), Line Break (LB), and Hot Work (HW) by creating additional work standards for poorly ventilated areas and work standards for drilling in 2022.
- Development of Process Safety Information (PSI) and collection of basic knowledge and necessary information for hazard identification in the protection process
- Implementation of Process Hazard Analyses (PHA) tools to analyze hazards in production processes and for finding appropriate solution and prevention.
- Incident Investigations (II) to analyze the root causes of accidents to specify systematic prevention measures.
- Implementation of Management of Change Technology-Facilities (MOC-T, F) which is a process to ensure effective changes management processes by evaluating the potential impacts and review of risk from experts in related work sections and communication of understanding in operators to reduce risk from changes.
- Use Pre-Startup Safety Review (PSSR) to review equipment and processes related to production processes after halting production machines and major maintenance to ensure safety before restart of production.
- Emergency Planning and Response (EPR) by training and developing skills to prepare for and respond to emergencies with emergency drills on various levels on a regular basis. In 2022, a surprise drill was held on every level.
- Management of Change Personnel (MOC-P).



- Training and Performance (T&P) and development of qualified persons to become authorizers of high-risk work.
- Contractor Safety Management (CSM) covering contractor selection, work control via site audits and post-contract assessments.
- Mechanical Integrity (MI) inspections to determine the effectiveness, and control the hazards of work equipment throughout the entire usage life and to maintain equipment and tools.
- Quality Assurance (QA) to verify that equipment, various machines in production have been installed according to design and are ready for use.
- Adoption of a digital system for managing safety in production to create a data center for speed of work and use of data in analysis to determine guidelines for preparing safety work plans.

### 2022 Performance

In 2022, Bangchak achieved all safety targets. The leaks or spills of flammable substances from the containers or production process with serious impacts (Tier 1 and 2) in accordance with the requirements of API 754 was reported to be zero.



# Human Rights

## Performance

Bangchak recognizes the importance of human rights and environmental management in systematic business operations. The company conducts its business by adhering to the rights of stakeholders including LGBTQ+group and accepts differences of opinion as well as social equality such as religion, skin color, and ethnicity, including vulnerable groups such as disabled persons, children, and indigenous people, in addition to having respect for the environment. To build confidence in doing business with respect to human rights, Bangchak’s human rights policy has been established in accordance to the United Nations Global Compact (UNGC) and the Universal Declaration of Human Rights (UDHR), the United Nations Guiding Principles on Business and Human Rights (UNGPs), and the Women’s Empowering Principles (WEPs). The company set a framework on this by setting guidelines for the Board of Directors, management executives, and employees at all levels, for the compliance of everyone.

The implementation of the Women’s Empowering Principles (WEPs) is a guideline for gender equality under the concept of “Diversified energy sources create energy security” just as diversity and equality strengthens organizations. At Bangchak Group, we recognize the importance of sexual equality and have created workplaces for people to truly participate, and as a promote of the intention to push for and support this issue, the company has signed in approval of the WEPs.

## Awards

**In 2022, the company received 1 corporate human rights promotion award, as follows:**

The UN Women 2022 Thailand WEPs Awards as follows:

Award: 1<sup>st</sup> runner up award in transparency and reporting.

This information is published on



In 2022, the company received 1 award for supporting persons with disabilities as follows:





The company received an award from the Office of the Securities and Exchange Commission together with the Ministry of Labor, Department of Skill Development, Department of Employment, Department for Empowerment of Persons with Disabilities, Thai Listed Companies Association and Disabilities Thailand as follows:

Award: Outstanding Sustainability Model Organization in the Thai Capital market for Empowerment of Persons with Disabilities, 2022.

This information is published on



## Human Right Due Diligence Process

Policy Commitment	Human Rights Impact Self Assessment	Access to Remedy	Human Right Due Diligence Process	Performance Tracking & Reporting
<ul style="list-style-type: none"> <li>- Develop a policy of Business Responsibility on respecting human rights and the environment covering the entire supply chain to provide as a guidelines for the Board of Directors and employees.</li> <li>- Policy announcement* BCP website, with preparations according to the practice guidelines:                             <ul style="list-style-type: none"> <li>▪ UNGC</li> <li>▪ UDHR</li> <li>▪ WEPs</li> <li>▪ ISO 26000</li> <li>▪ UNGP</li> <li>▪ Annually reviewed</li> </ul> </li> </ul> 	<ul style="list-style-type: none"> <li>- Assess impacts of all business process affecting human rights.</li> <li>- Review processes to improve and minimize the likelihood of abuse.</li> </ul> <p>Note: Annually reviewed</p>	<ul style="list-style-type: none"> <li>- Establish remedial mechanisms in the event of negative human rights impacts.</li> <li>- Implement stakeholders engagement process where remedies are needed</li> </ul> <p>Note: Annually assessment</p>	<ul style="list-style-type: none"> <li>- Human rights checklist (To ensure that there are no residual risks).</li> </ul> <p>Publish on the BCP website.</p> 	<ul style="list-style-type: none"> <li>- Follow up on the performance.</li> <li>- Report to the management and disclose to stakeholders.</li> </ul> <p>Note: Announcement via BCP website.</p>

## 2022 Key Operation

- 1) Assessed relevant human rights and environmental risks every year. Bangchak conducts comprehensive human rights due diligence covering 8 main risk areas including construction and expansion of business operations, employees, contractors, communities and society, surrounding communities, customers and consumers, business partners, migrant labors, employment of LGBTQ+ group, and temporary workers which include vulnerable groups such as women, children, minority groups, and people with disabilities. The scope includes refinery and oil trading business, marketing business, and suppliers.
- 2) Trade partners are evaluated based on the Supplier Code of Conduct for sustainable business development, which covers issues such as labor and human rights practices, safety, occupational health, and environment, as well as human rights risks. The organization has created this code of conduct, employees are encouraged to solve problems incases involving human rights violations by trade partners as published in <https://www.bangchak.co.th/storage/document/sustainability/2021/bcp-supplier-code-conduct-2021-th.pdf>.
- 3) The company instills a sense of responsibility and understanding about human rights by providing in-house training and sending employees to receive training from external agencies, as follows:
  - a) The company provided training on business and human rights, which was led by Professor Kittkhunwithit Mantaphon, a distinguished professor of the Faculty of Law, Chulalongkorn University, and human rights expert. The training took place on 28 September 2022 and involved the participation of 302 Bangchak company employees at every level.
  - b) The company attended human rights lectures provided by the Stock Exchange of Thailand (SET), the UNGC and UN Women.
  - c) The company shared its knowledge on human rights, SCOC, HRDD and labor rights to organization employees and other companies that were conducting work studies.
- 4) The company prepared a manual for Human Rights Due Diligence (HRDD) to specify guidelines for preventing and minimizing impacts that could lead to human rights violations, including environmental and community violations, throughout the company’s activities and the supply chain. The manual was created by agencies directly in charge of implementing the guidelines and specifiers measures for remedying any violations in line with the company’s policies,

and appropriate budgets and measures for compensation human rights violations.

- 5) The company took actions based on practice guidelines derived from the national action plan on business and human rights (NAP implementation) such as the following:
  - a) The company created a social and environmental project called “Patithin Kao Rao Kho” to donate old calendars to the Foundation for The Blind in Thailand under the Royal Patronage of H.M. the Queen. The calendars were used to create braille letters for teaching the blind, thereby contributing to both education and environmental protection.
  - b) The company established the labor project called “Breastfeeding Promotion Project” by constructing an isolated breast-pumping section in the workplace. This initiative aimed to provide a suitable area and convenience to employees in effective breast milk pumping.
- 6) For contractors and suppliers, the company uses Supplier Code of Conduct (SCOC) assessment tool for labor and human rights, safety, occupational health, and environment risk.
- 7) Human rights risks that have been assessed are as follows:

### Risk Topics Employees

1. Equal opportunities in recruitment, employment, compensation, and career advancement.
2. Equal treatment in the workplace (e.g., verbally, gestures) for all gender, ages, religions, educational level, etc.
3. Equality in employee rights and basic welfare.
4. Equal opportunities for training including knowledge and understanding of relevant safety issues.
5. Freedom of collective action and negotiate related to work conditions.
6. Violence, sexual harassment, and inappropriate contact.
7. Safe and hygienic work conditions.
8. Whistleblower protection and confidentiality of victims.

### Contractors (Partners who provide Services/Labor)

1. Equality in the contractors selection process, temporary contractors, migrant workers term of employment wages and benefits not lower than that required by law.
2. Equality treatment in the workplace (e.g., verbally, gestures ) for all genders, ages, religions, educational level, etc.
3. Equality in receiving relevant safety knowledge and training.
4. Freedom of collective action and negotiations related to work conditions. And equal opportunities to provide inputs to improve collaboration.
5. Violence, sexual harassment, and inappropriate conducts covering scope of workplace.
6. Safe and hygienic work conditions.
7. Whistleblower protection and confidentiality of victims.



### Suppliers (Raw Material/Product Suppliers)

1. Production process uses hazardous materials or inputs come from areas where there are human right violations or are viewed as unsustainable.
2. Use of child labor, forced women labor, or illegal labor in the production process .
3. Treatment of employees, contractors, and migrant workers of business partner are not in compliance with labor, safety, and environmental regulations.
4. Equal access to relevant safety trainings (including receiving appropriate PPEs per job requirement).
5. Safe and hygienic work conditions.
6. Whistleblower protection and confidentiality of victims.
7. Non-discrimination against organizations with established business relationships.

### Communities

1. Current land management and land acquisition for future investments consider:
  - Community rights to access natural resources and water sources.
  - Community cultural impacts.
2. Establish processes to survey the needs/expectations of communities and society around the areas of operation and processes to continually collect communities' concerns.
3. In carry out community activities, ensure inclusive and equal treatment especially to women, disabled, and other disadvantaged groups.
4. Management the entire supply chain to ensure that there are no negative impacts to community, environmental, social, and economic aspects.
5. Ensure systematic communication channel with communities, including during emergency situations.
6. Ensure channels for receiving community complaints and protection of the confidentiality of whistleblowers.

### Customers

1. Establish guideline for equal treatments of customers such as verbal expressions and gesture, including precaution on any physical contacts and other contacts.
2. Establish process to prevent the following issues:
  - Sexual harassment or other serious incidents where customers are threatened.
  - Protection of customers' personal information (including storage, access, and use of data).
  - Prevention of violation of children's and women's rights through public relations advertisements and media or activities.

Performance Evaluation in Human Rights Risks	Employees	Trade Partners (Contractors & Tier 1 Suppliers)	Subsidiaries
Percentage of risk assessed for the last 3 years.	100	100	100
Percentage of cases identified risks.	0	0	0
Percentage of risk identified with measures to reduce impact.	0	0	0

## Risk Mitigation

### Safety Management for Impacts during Product Transportation from Warehouses to Service Stations

#### Details:

- Vehicle accidents along transportation routes from warehouses to service stations can have potential community impacts.

#### Mitigation Measures:

- Prevent accidents from drivers with Driver Monitoring System (DMS) and control driving speed with Global Positioning System (GPS).
- Jointly review transportation plans and performance on a monthly basis (monthly KPI meeting).
- Manage and control the number of transportation vehicles to follow contract specifications.
- Review the operating procedures of contractors and vehicle drivers.
- Review the readiness of incident response teams and inspect the readiness of incident response equipment.
- Hold emergency plan drills for various situations jointly between transportation contractors and the company.

#### Accept complaints through

- Hotline: 1651
- Website: [www.bangchak.co.th/th/cg/whistleblowing-form](http://www.bangchak.co.th/th/cg/whistleblowing-form)
- Social media: [www.facebook.com/bangchakmemberclub](http://www.facebook.com/bangchakmemberclub)

### Caring for Neighboring Communities on the Issues of Cultures, Traditions, Local Wisdom, Lifestyle and Economy/Society

#### Details:

- There is a possibility that community relations activities/projects might not be consistently managed or implemented in a way that support the cultures, traditions, local wisdom, lifestyles, and economic/social conditions of communities.

#### Mitigation Measures:

- Collect data from neighboring communities, including cultural dimensions, through community visits.
- Annually survey communities' opinions, needs, and satisfaction for community relations activities/projects (survey by 3<sup>rd</sup> party).
- Design and plan community relations activities/projects in line with collected data, and support non-violation neighboring communities' cultures, traditions, local wisdom, lifestyles, and society.
- Organize activities/projects according to plans emphasizing the important of following work plans in every stage. Prioritize ensuring consistency, support, and contribute to the cultures, traditions, local wisdom, lifestyles, and social conditions of neighboring communities.
- Appropriately adopt new and modern technologies and communication channels for use in neighboring communities, considering cultural, and other dimensions.
- Handle complaints and recommendations, and specify remediating mechanisms for situations where the community is impacted by the company's activities protect whistleblowers and maintain data confidentiality.

#### Accept complaints through

- Hotline: 1651
- Social media: [www.facebook.com/bangchakmemberclub](http://www.facebook.com/bangchakmemberclub)
- Telephone: from 08:00 am to 5:00 pm > 02 335 4102-5, from 5:01 pm to 07:59 am > 02 355 4051.

## Customer Service and Gas Stations Safety

### Details:

- There is a possibility that customers leave cigarette butts at gas stations which would impact safety at the station.

### Mitigation Measures:

- Put up safety signs and raise safety awareness in service stations.
- Establish measures to inspect areas and important equipment and to increase the installations of security system to cover gas service stations.
- Conduct basic fire extinguishing drills for service station at least once annually.
- Establish rally point for customers and facilitate disabled customers to safety.
- Establish screening process for business partners and trading partners in accordance with the legal requirements.
- Guarantee against damages from the company's operations to customers, where cases are proven.
- Protect personal information in accordance with international cybersecurity management standards, ISO/IES 27001: 2013, ISO/IES 27032: 2012, and NIST Cyber Security Framework.

### Receive customer complaints through:

- Hotline: 1651
- Social media: [www.facebook.com/bangchakmemberclub](http://www.facebook.com/bangchakmemberclub)
- Telephone: 02 335 4410

## Employment through recruitment companies not complying with legal requirements

### Details:

- The company may be directly or indirectly involved when business partner do not comply with legal requirements.

### Mitigation Measures:

- Inform all important business partners to know and comply with the Supplier Code of Conduct for the business operations of goods manufacturers and suppliers of goods, raw materials and services.
- Regularly assess business partners on environmental, safety, human rights and good corporate governance issues.
- Track suppliers' performance through supplier annual self-assessment
- Establish supply chain management system covering partners' selection process, performance monitoring, and evaluation.
- Communicate with trade partners on the operational level to inform them about the performance that the company expects from them in line with the company's standards.
- Communicate potential impacts of operations to human rights to suppliers and business partners through the annual seminar.

### Accept complaints through the following channels:

- Website: [www.bangchak.co.th/th/cg/whistleblowing-form](http://www.bangchak.co.th/th/cg/whistleblowing-form)
- Social media: [www.facebook.com/Bangchak/](http://www.facebook.com/Bangchak/)
- CEO suggestions box.
- E-mail: [ico@bangchak.co.th](mailto:ico@bangchak.co.th)
- Telephone: 02 335 8570
- Complaint letter in an intranet system within the company

## Sexual Violence and Harassment

### Description:

- This is a possibility that employees might experience sexual violations in the workplace.

### Mitigation Measures:

- Communicate practice guidelines to inform employees through every channel to ensure their understanding about the guidelines according to the corporate responsibility policy on respect for human rights.
- Provide training on expressing appropriate political opinions without causing work impacts.
- Specify work regulations concerning conduct and verbal use, as well as unity, in employee work manuals.
- Provide protection to employees and whistleblowers by creating a confidential database accessible only to the persons involved.

### Accept complaints through the following channels:

- Website: [www.bangchak.co.th/th/cg/whistleblowing-form](http://www.bangchak.co.th/th/cg/whistleblowing-form).
- CEO suggestions box.
- E-mail: [ico@bangchak.co.th](mailto:ico@bangchak.co.th)
- Complaint letter in an intranet system within the company
- Telephone: 02 335 8570

## Measures for Receiving Complaints and Tips

The company has established channels for whistleblowing and filing complaints regarding human rights issues, illegal activity, and misconduct, open to both employees and other stakeholders. To protect employees and complaint filers, a confidential database accessible only by the persons involved parties has been created, and fact-finding committees composed of representatives from on-involved work sections have been established to investigate complaints according to regulations. The committees will announce their findings to the complainants within an appropriate timeframe, depending on the severity of the complaint. The company's whistleblowing and complaint channels are as follows:

- Report information through the company's labor union or employee committee.
- Hot Line: 1651
- Email to the Internal Audit Department.

## Collective Bargaining

The company provides opportunities for employees to have representatives who can communicate with the company's management in the form of a labor union, consisting of the employees of Bangchak Corporation Public Company Limited. The labor union is registered as another juristic person in accordance with the law, and the company grants it the authority to act independently. The company also supports the activities of the labor union in accordance with the law including facilitating annual labor union meetings or publicizing labor union activities through the company's communication channels. Currently, the membership of the company's employee labor union is 473 employees or 43%. All employees are subject to the mutual negotiations through regular meetings and discussions with executives. Furthermore, the labor union has the right to appoint an employee committee (currently with 13 members) to develop the welfare and benefits of employees together with the representatives of Management to ensure that employees receive benefits appropriately according to their intentions and expectations and hold joint discussion meetings every quarter in line with the law. In 2022, some of the results from the joint meetings include improvement of the marketing representative vehicle policy to ensure greater appropriateness to use, addition of benefits in giving souvenirs to employees who have worked for up to 30 years and providing convenience through increasing the channels for communication between employees and the employee committee through email.

## Disputes and Complaints

The human rights strategies and activities mentioned above resulted in the company receiving on human rights complaints in 2022 regarding its business activities or trade partners. These complaints could be related to the non-use of forced labor, absence of labor disputes, freedom of negotiation, non-discrimination, non-violation of the rights of vulnerable groups such as disabled persons, children and indigenous people, as well as non-violation of significant social laws and regulations.



## Employees Stewardship and Development

Under the changes of global situations associated with the economy, environment, and society coupled with the changes in technology, there must be some influences to the operation of business. The company reviewed its vision, missions, and organizational value for I AM BCP to set the direction of business and provide guidelines for driving employee development, while maintaining an emphasis on taking care of employees under the 100XHappiness strategy. To multiply employee happiness by 100 times to achieve sustainable growth for 100 years, or Bangchak100X, while also keeping employees continually safe from COVID-19. The company also emphasizes the importance of employee retention, talent attraction, and retention as well as career development and career path, with the following frameworks, goals and operations:

### Employee Care Goals for 2022-2026

- The BEST Employer under the 100X Happiness (Be Well and Happy) management framework.



### Employee Care Activities

- The company has set its strategic plan on employee stewardship and followed up the employee issues on a regular basis through the Management Development Sub-Committee (Sub MDC) of each business group. The company usually gather employee feedback from the Employee Engagement Survey and screen various issues for discussions before passing them to the Management Development Committee (MDC) for consideration and approval for further improvement and development. Such the monitoring also helps the company handle employee stewardship in each business group or working group in a closer manner and more effective. The samples are such as the issues of manpower planning that well synchronized with the business growth plans, employee development plans (learning and development), job rotation for development plans and learning promotion for business growth plans.
- The company has a data analytics system and an executive dashboard that enable the executives to consider proper employee care to be in line with the business direction quickly. This is an important strategy contributing to the factors for effectively mobilizing the organization (agility).

Bangchak's employee management consists of four areas: 1. Planning and Recruitment 2. Employee Development 3. Employee Engagement and 4. Employee Retention

## 1. Planning and Recruitment

Manpower planning and recruitment of either internal or external personnel is an important task to get ready for an appropriate operation to achieve in the goal and vision of the company. The company aims to search for competent and good personnel with appropriate qualifications, knowledge and capabilities. As such, the company hires all employees in the organization full-time, and additional information on employee welfare can be found in the section on "Employee Engagement Management" in this report (GRI 401-2).

### Employee Recruitment Goals

Indicator	Year 2022	Year 2023-2025	Year 2026 (long-term)
• Job succession rate	90%	92%	94%
• Hiring the disabled rate (1% of all employees)	11 employees	11 employees	11 employees
• Top employers survey ranking	A ranking in 1 of the 17 employers.	A ranking in 1 of the 12 employees.	A ranking in 1 of the 8 employers.
• Average employee recruitment time (days)	42 days	42 days	40 days

#### Work Strategy for 2022

#### Major Achievements in 2022

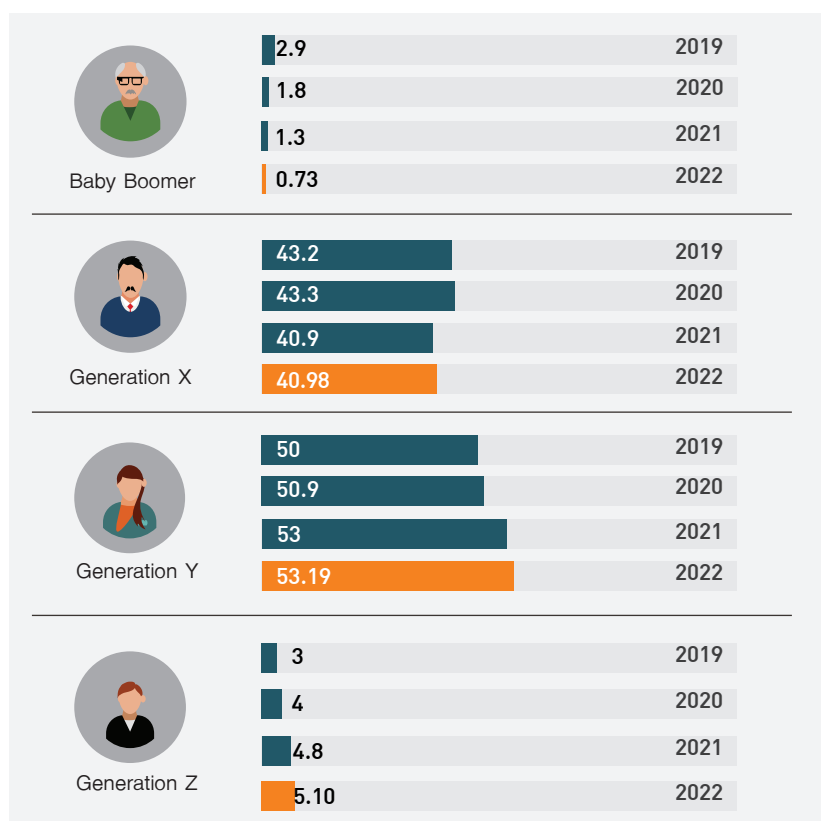
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Manpower and capability planning in line with the company's 3-year strategic plan.</li> </ul>  | <ul style="list-style-type: none"> <li>• Proactive recruitment by means of public relations in various roadshows in universities and job fairs according to the target university. In addition, online recruitment channel improvement by crating online career roadshow online sessions with target universities in line with the company's strategy to develop employer branding.</li> <li>• Undergraduate Scholarship Program and high vocational certificate level (Diploma) in order to create a knowledgeable and capable personnel ready to support the company's growth, including companies in the group.</li> <li>• A bilateral project and Memorandum Of Understanding (MOU) were established with the Office of Vocational Education Commission and academic institutes involving colleges in related fields, whether in technical or commercial fields. In total, 7 students participated in the bilateral project with the company to plan their development plans in support of the company's business direction such as electric vehicle mechanics from Winnonie Co., Ltd.</li> </ul> |
| <ul style="list-style-type: none"> <li>• Employment with value and equality, providing opportunities for employment of disabled people to create sustainability for the society.</li> </ul> | <ul style="list-style-type: none"> <li>• Employment of disabled persons who has potential to work in appropriate positions, a total of 11 persons, in proportion of 1% of all employees under Section 33 of the Empowerment of Persons with Disabilities Act, B.E. 2550 (2007), which also contributes to Goal No. 8 of the Sustainable Development Goals (SDGs).</li> </ul>  |

Work Strategy for 2022	Major Achievements in 2022
<ul style="list-style-type: none"> <li>• Build good image of the organization through various kind of online media to attract new generation to know about Bangchak and want to work with.</li> </ul>	<ul style="list-style-type: none"> <li>• BCP Talent Internship Program is open to accepting internship for both Thai and Non-Thai graduates/ students studying in Thailand. In 2022, a total of 163 students were accepted for internship with Bangchak, where they received experience training in green innovations. Although their training periods varied according to their universities' specifications, all the students were able to become interns in the project.</li> <li>• Organization of the Bangchak Hackathon Program was organized through the "BCP Young Greenovator" project under the theme "Leading in Energy Transition", Students were able to think, develop, and create greenovative solutions for Bangchak by working on worthwhile innovation projects and building upon prototypes for actual business application in Bangchak Group.</li> <li>• Continuous public relations were carried out through the Bangchak Career Facebook page, which was visited by 216,298 visitors (an increase from 2021 by 16.5%), to communicate and promote outreach to online followers. In addition, the news and activities categories on the career.bangchak.co.th website were modified to provide interesting information about the benefits and work at Bangchak for a total of 10 categories as follows: 1) Career Development; 2) Lifestyle &amp; Facilities; 3) New Normal; 4) FAQs; 5) Greenovative Experience; 6) Bangchak Career Podcast; 7) Bangchak Scholarship; 8) How to Introduce Yourself; 9) BCP Career Events; and 10) BCP Onboarding Program.</li> <li>• New and modern public relations channels were developed, including Bangchak Career official LINE account of which there were 2,000 followers, the BCP Talent Intern official LINE account for the internship project, and also the Bangchak Career TikTok account.</li> <li>• Additional public relations channels were established through the Bangchak LinkedIn account to attract young students and job applicants.</li> <li>• Modern and popular media were developed and utilized, including publications through the Facebook page, YouTube, and Spotify such as the Bangchak Career Podcast. This podcast provide interesting facts for working age individuals ranging from first jobbers to retirees through a total of 10 episodes with Thai and English soundtracks, which are published on YouTube, SoundCloud, and Spotify. Additionally, the Bangchak Virtual Career Roadshow was created to replace job and career fairs during COVID-19. This was achieved by publishing video clips through the Bangchak Career YouTube channel. In addition, contents posted on Facebook throughout the entire year 2022 were compiled into 2 Bangchak Career E-books containing over 20 articles covering topics related to working age people today.</li> <li>• Bangchak Career collaborated with external contents publishers related to job applications, such as Work Venture, which published articles and videos, and JobTopGun, where the company was voted and reviewed as a "Dream Company" that provides balanced care to employees covering 4 areas by providing above-standard good life, good jobs, good money and good society. The company received a score of 3 for the YOU SAY Flower of Hearts, which was the highest for votes and reviews. In addition, Bangchak Career participated in publishing the media of You Say, HR Say to attract younger job applicants to sign up via the JobTopGun website and to choose Bangchak as their dream company to work with.</li> <li>• A survey of job applications in each generation was conducted by creating communication channels and publishing media contents that meets the needs of the targeted age to attract job applications to join the company.</li> <li>• A survey was conducted to determine the retention rate of employees resigned from the company within 2 years of their employment. The survey found that the retention rate for new company employees increased after to adjusting benefits and work styles align more consistently with the need of employees in each age group.</li> <li>• Bangchak is creating Bangchak Internship Alumni, to create a network for previous student interns to apply for work and to invite friends to work with Bangchak. Additionally, the company plans to add more channels to publicize its activities and job openings.</li> <li>• "Bangchak is launching the Friend Get Friends project to create a channel for more rapidly recruiting applicants.</li> </ul>
<ul style="list-style-type: none"> <li>• Shorten the time for recruitment.</li> </ul>	<ul style="list-style-type: none"> <li>• Extending the Smart ME personnel management system to the staffing and recruitment system through computer system. Also, the continuous development of the new Onboarding Program to create bangchak values and engagement with the organization from beginning throughout the probation period. Additionally, the Onboarding Bangchak Lifestyle manual was created to provide information about the environment around workplaces such as accommodations, hospitals and recreational destinations.</li> <li>• Increasing recruitment channel by using "Introduce Yourself" function in Smart Me so interested applicants can post the resume without a job opening offered.</li> <li>• Bangchak is enhancing the employee selection exams in the area of competencies, by allowing them to be completed through an online computer system. This move is aimed at enabling the completion of selection exams for all other subjects via computer systems. Additionally, the company has improved the exams to keep up with changing times and to enable more precise measurements of performance.</li> </ul>

### Performance on Recruitment Targets in 2022

Goal	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022
Employees (People)	1,254 people	1,251 people	1,230 people	1,103 people	1,098 people
The ratio of successful employment as planned (Target)	94.44% (90%)	90.72% (90%)	94% (90%)	90% (90%)	92% (90%)
Employment of the disabled/ handicap (Target)	13 people (13 people)	13 people (13 people)	12 people (12 people)	11 people (11 people)	11 people (11 people)
Length of time for recruitment of new employees (Target)	40 days (43 days)	40 days (43 days)	40 days (43 days)	42 days (42 days)	42 days (42 days)
Rate of new employee	67 people	74 people	30 people	43 people	57 people
Retention rate (less than two years of service) (Target)	99% (85%)	99% (85%)	99% (85%)	97% (85%)	85.86% (85%)

### Bangchak Employees by Generation



### Future Employee Recruitment Plan

The company committed to recruiting knowledgeable and capable employees who can support the business direction and help build a positive image for the organization. To attract younger talent and generate interest in working with the company, we will leverage various channel platform to learn about and feel a desire to work with the organization.

## 2. Employee Development

Bangchak considers employees as vital importance to the business as each of them is invested with variety of potential costs. Bangchak has prepared a development plan suitable for employees of all levels aiming to uplift their capability according to job standard as set. Required competency (job skills and qualifications) of the job in each career is defined and considered together with the potential of the employee (Talent Focus). This is in pursuance with the top goal to be the best employer based on the i am bcp core values. The company also encourages employee to share new ideas, initiating innovations through agile and design thinking process in order to encounter with VUCA World: Volatility, Uncertainty, Complexity and Ambiguity. Accordingly, in 2022, the company recognized the importance of technology disruption and thus supported employees in adopting digital technologies to enhance work effectiveness through the Bangchak Group Digital Contest. The contest was aimed at encouraging employees to use digital tools to transform work processes in favor of digitalization, and included training on the use of digital tools to provide employees with knowledge before submitting their work for the contest.

### Employee Development Goals for 2022-2026

In order to assess the capabilities of employees, the company measures and evaluates their competencies and performs analyses to develop individual learning plans aligned with each employee’s career path development. The company has set goals for the period of 2022–2026 as follows:

Indicator	Year 2022	Year 2023-2025	Year 2026 (long-term)
Success in competency and skillset development, aligned with future goals of the organization.	≥ 70%	≥ 75%	≥ 80%
Success in the preparing career development plans for talented individuals and successors.	≥ 80%	≥ 90%	100%
The number of employees receiving learning through the e-learning and BCP-KMS training within the organization.	≥ 80%	≥ 90%	100%

Work Strategy for 2022	Major Achievements in 2022
Competency-based development.	Review of the assessment of the skills and attributes required for work in each career path (competency assessment) to create employee development plans by first starting with the primary businesses, namely, the oil refinery and marketing businesses.
Talent development and succession plan: plan for executives, critical positions and positions in new businesses	Talent development: Preparation of a psychometric test covering the emotional intelligence, knowledge, ability, attitude and personality traits. Based on the results can create individualized development plans for high-competency employees by starting with the management level 100% according to target.  Succession plan: Development of succession plans for executives and critical positions by 80.6% according to target.
Development of a learning system through modern and accessible technologies that meet employee needs.	97% of target group employees received learning in the e-learning and BCP-KMS organization knowledge management systems.
Development of employees technologically and digitally to use them in assisting work processes in favor of becoming a digital transformation organization.	Bangchak will develop knowledge among IT and hold a digital contest to select internal instructors who will provide guidance and consultation to employees working on projects using a low-code platform. Accordingly, employees submitted over 60 projects for the contest in the first year.  Assessment of the digital awareness of target group employees to search for potential and necessary skills requiring additional digital development in order to create employee development plans.

## Employee Development Programs

The company has developed learning program and kept on developing employee so they can be professional in what they do, have knowledge and understanding in management, including skills necessary for improvement and changes.

These development programs are as follows:

- **Talent Development & Succession Plan: A development plan for the talents and successors by career path**

In addition to the development of high potential employees to be ready for succession and technical competency development at work that requires specific expertise, the company also sees the importance in uplifting some other relevant skills and capability of the employees, especially communication skills, capability building, and aptitudes. Accordingly, the company evaluated performance alongside potential for growth, strategic planning skills, and leadership skills.

- **Assessment Center: Competency Assessment Center**

Personal interest of the employees is also included. The company believes these resources will help employees understand and get into their own potential through the tests, assessments and additional courses by analyzing and developing the potential of employees as follows:

- **DISC Test:** Analytical Tools for Personal Traits and Behavior used to know and understand own characteristics. It also analyzes the differences of others which are useful for developing communication style suitable for people of different characters and socializing each other in the workplace.
- **Strengths Finder Test:** A test help employees understand the individual talents and potential. The result of the test is often used as a basis for strength development and utilization of internal potential so that the employees can work more effectively with their full strength and potential.
- **English Test:** The English proficiency assessment form was used to evaluate employees' English proficiency and knowledge in order to determine their eligibility for training in programs or projects that require a minimum English assessment score requirements. This is done to provide employees with more opportunities for maximizing employee potential.

- **Mandatory Program: A course to support business growth and leadership in the organization for employee of each level**

The company is mandatory for employee development of all business group in support the new VMV (Vision, Mission and Value) of the organization and to being the best employer in the future. It is designed on grounds of the information gathered from the employee engagement survey, HR trend and Thailand 4.0 trends which will be

brought about as factors for business administration and human resources management to meet business growth needs in a timely and effective manner and in line with the needs and expectations of employees with development divided by employee level.

- **E-learning**

The company recognizes the importance of employee access to flexible learning along with the ability to choose subject content based on interest. As a result, an online learning or e-learning system has been adopted for use in the organization with Conicle is the primary learning platform provider.

- **BCP-KMS**

The company improved the Business Continuity Planning-Knowledge Management System (BCP-KMS) to allow employees to exchange and share knowledge and work experiences, lessons learned and work tips and tricks in order to capture the critical knowledge of the organization, aligned with long-term strategies and business needs. In 2022, the knowledge in the system covered 63 topics in total.

- **BCP Library (Weekly Development e-Journal)**

The company wishes to encourage employees to gain diverse knowledge to keep up with the times and encourage a reading culture. As a result, the company created #StaySafeStaySmart by BCP Library. This is a weekly development a weekly e-journal providing knowledge in English, general knowledge, and book recommendations from the e-library or online system that can be borrowed via the e-library or online system. In 2022, the project has been operating for 3 consecutive years, with additional learning contents added in digital mindset, knowledge about the company's business, etc.

- **Employee Scholarships**

To develop employees who can support the company's vision with focus on leading greenovation companies in Asia with good corporate governance and that operate their business in a participatory and sustainable manner, the company developed practice guidelines for awarding scholarships to the employees of Bangchak and employees of other companies in Bangchak Group for master and doctor level education in the country and abroad based on the company's criteria.

- **Innovation & Design Thinking Program**

The company emphasizes the importance of applying agile and design thinking concepts in employee development by including them as part of training at all levels of the organization, including employees at all stages of their career. Training provides knowledge and coaching on how to pitch projects before making presentation at an executive meeting.

- Operational training project to enhance work effectiveness, reduce costs and add value to the primary businesses and to promote adoption of innovative approaches in developing new businesses in addition to providing training to give knowledge on various levels according to work plans.

- **Preparation Digital Transformation Organization**

- The company recognizes the importance of technology disruption and supports employees in enhancing work effectiveness through the use of digital technologies. Therefore, the company organized the Bangchak Group Digital Contest to encourage employees to embrace digitalization and adopt various digital tools in their work processes, with the IT team providing knowledge on how to use various digital tools to employees before the contest.
- Furthermore, the company recognizes the importance of developing the digital skills of executives and employees to prepare them for changes in the organization. Thus, the company organized a digital awareness assessment to assess and develop digital skills in executives and employees using a digital awareness assessment form that covered 7 dimensions, for later development of employee development programs.

- **Preparation for Employee Retirement or Layoffs Following Business Adjustments**

- In cases where changes in agencies, production or distribution or services cause employee layoffs, the company will inform employees at least 60 days in advance and pay legal compensation (GRI 402-1 a) as stated in the employee manual and with the review and mutual approval of labor union representatives, the employee committee, and the company's executives (GRI 402-1 b).
- For retiring employees, the company gives importance to preparing ahead of retirement to allow employees to be able to live their post-retirement life with quality. Thus, the company provides training for employees aged 45 and above in related topics such as financial management, knowledge about social security benefits and health insurance, and other relevant areas.

### **Future Employee Development Plans**

In order enable employees to align their work with the company's future business strategy and changes in the company's core values with emphasis on the boldness, customer empathy, and passion and ownership, in response to technological advancements, the company creates guidelines for the development of employees covering knowledge, work skills, behaviors and mindset consistently with new values to support the company's intended business direction.

### **3. Employee Engagement**

Bangchak conducts an employee engagement survey annually to measure engagement and assess the employees' satisfaction toward the organization. The results of the survey are used as the basis for care, development and support for employees under the strategy of 100X Happiness to create happiness in 4 areas to drive the organization toward success and become a sustainable organization for 100 years according to Bangchak100X.

Accordingly, the company continuously pushes for the implementation of work plans that cover people value, as well as unit and business group value, in order to create plans that promote employee engagement in the organization and care for employees during the COVID-19 situation. The company also promotes employee participation in the specification of the new i am bcp organization values, with the approval of the Management Development Sub-Committee (Sub MDC) of each business group according to the following details:

#### **Happiness Area 1: Happy Stay**

- **Support for the Hybrid Workplace Policy:** The company continues to support the hybrid workplace policy for agencies that are suitable for work from home. Thus, employees are instructed to go into office only as required and appropriate in order to promote greater employee work-life balance, as well as greater flexibility in their personal lives.
- **Development of Employee Journey and Adoption of Technology:** Areas and atmospheres have been appropriately arranged for every area to be a place for performing a variety of work accompanied by knowledge exchanges and amenities, and facilities, and technologies essential for work and life in the workplace. This includes the construction of the Suk Saran Building to create a workplace in a garden, the renovation of the canteen and library areas into activity areas, the development of a smart connect system in meeting rooms, the upgrading employee cards into start cards, and allowing for the use of business cards through QR codes. Other improvements include the indoor air conditioning system, construction of running and bicycling tracks in the areas surrounding Bangchak oil refineries, and construction of gyms, meditation rooms and club areas to promote relationships within the organization, with care and creativity to transform the workplace into an inviting place for work-life integration.

### Happiness Area 2: Happy DNA: Development in Happiness under i am bcp

- **Promotion of a Sense of Ownership According to i am bcp:** From the company has plan to review the i am bcp value and has promoted the participation of all employees and executives within the organization in redesign the new values of the organization and specify desirable behaviors under the core value journey check-up plan.
- **Communication and Development of Tools to Support Display of Behaviors:** The i am bcp core value was launched to promote understanding and supporting display of behaviors, with i am bcp points serving as a tool for mobilization.

### Happiness Area 3: Happy Me: Care with Happiness

- On welfare development (GRI 401-2), the company arranged to provide the following benefits to its employees:
  1. Medical treatment expenses for employees and their families (inpatient and outpatient).
  2. Medical expenses for parents of employees (inpatient and outpatient).
  3. Dental care for employees and their family members.
  4. Life insurance and accident insurance.
  5. Provident fund/pension fund.
  6. Annual vacation leave and personal leaves.
  7. Financial assistance for children's education.
  8. Financial assistance for children.
  9. Housing loan benefits.
  10. Maternity leave and childcare leaves (GRI 401-3).

Female employees can take leaves with pay for pregnancy check-ups before child delivery, child delivery, and child-rearing, for 98 days. Male employees are entitled to 1 day leave to take care of their spouses during childbirth and take 15 days to provide child-rearing care. For additional information about these entitlements, please refer "Sustainability Statistics" in this report.

Furthermore, the company has implemented a flexible benefit system to outpatient medical treatment costs. This system also allows employees to request for funds for purchasing glasses and gym membership costs. In addition, in 2022, the company added entitlements for clinic medical expenses for families and adjusted outpatient (OPD) treatment entitlements. In cases where an employee has more than one child, they have the right to seek expense reimbursements for both parents. The payment reimbursement system was improved for faster processing, with instant entitlement verification. Furthermore, the company has introduce a policy to give awards to employees based on their work age in order to motivate employees and thank them for their long work with the organization.

### - Employee Healthcare during Normalcy

1. The company places great importance on the healthcare of its employees by continuously supporting their health activities for over 4 years. In 2022, the company developed an application for tracking health records related to diet, exercise, and healthcare missions based on monthly challenges. These challenges are part of health challenge activities aimed at promoting understanding, and encouraging proper healthcare practices among employees.
2. The company has improved psychological healthcare by providing a platform for online consultation with psychologists. This platform enables employees to talk and consult with psychiatrists and psychologists via video calls, ensuring private and secure access at any place and time through their computers or mobile devices .

### - Employee Healthcare during COVID-19

The company continuously issued measures and practice guidelines for care and prevention as follows:

1. The company created ATK vending machines to make it convenient for employees to requisition ATKs when necessary. The company also procured alcohol gel and distributed it to various locations throughout every office. The company campaigned for employees to care for themselves by wearing facemasks and regularly washing their hands.
2. The company developed a system for recording ATK results and reporting results in cases where employees have contracted COVID-19. This enables the company to deliver medications to employees' homes for basic care.
3. The company established quarantine centers equipped with basic self-care equipment such as oximeters, thermometers, and first-aid kits. The company also provides telemedicine for medical consultation during quarantine.
4. The company has sponsored and procured booster vaccination shots for employees and their families, including their parents. The company also maintains a policy to support employees to receiving vaccination without counting their vaccination dates as leave days.
5. The company communicates the current situation to employees through continuous announcements to ensure that employees stay informed about news and situational developments. The company uses every available channel to raise awareness about healthcare among employee and surveys employee travels to risk areas to strictly prevent the spread of the virus in the office.



## Happiness Area 4: Happy Heart

### Heart in Communication

- In 2022, the company held a total of 3 BCP townhall activities in hybrid format to communicate the business direction and various news directly to employees. The events were led by the Group Chief Executive Officer and President (CEO) and the Vice President. In addition, a discussion segment called “Phuttho Phloi Talk” was added for executives to meet with employees, share their experiences, and give unofficial advice. Furthermore, each career path and each business unit also organized its own internal townhall events with themes consistently set according to the situation and to create a relaxed atmosphere between employees and executives.
- The “Short Conversations with PS” are brief articles, about 1 A4 page in length that the CEO wrote to employees via email with a casual tone. These articles were intended to express the CEO’s care for employees, share about work progress, and to provide knowledge about important developments, especially those relating to the organization and employees, over a short time period. On average, there 1 article was written per month.
- The company created a channel for employees to express their opinions or suggestions directly to the CEO without having to identify themselves, called The CEO Box. Every employee could use this channel to share their thoughts. The CEO was the direct receiver of all messages and directly communicated back to employees if they expressed the desire to receive a reply. Communication could be via a townhall session or other means.
- The company focused on hearing employees opinions through the HR Site Visit activity. This activity involved communicating and exchanging opinions about various matters, such as new core values, career path development, performance evaluation criteria, promotions and the review of the criteria for various company benefits to ensure employee understanding. The activity covered matters employees proposed for improvement.
- The company added and created new communication channels to build connections between employees and the organization and for employees to receive news in a timely fashion. These channels include the Proud to be BCP#2 Facebook group, the I AM BCP Everywhere with you official LINE account, and encouraging cards from executives ranked at the level of Executive Vice President and above. The company also organized various activities to encourage employees in their activities.
- The company organized the 12 Months, 12 Activities project to promote employee engagement and participation in the organization with emphasis on recognition of and giving value to employees.

- The company organized the Teatime activity involving high-ranking executives from the level of Executive Vice President and above, and the Managers Meet Staff activity for employees and executives to hold discussions, talk about various issues, exchange perspectives in an unofficial manner, develop understanding about business direction, create inspiration for employees, and promote positive relations between executives and employees.
- The company organized recognition activities to encourage executives and employees to express feelings of mutual gratitude and admiration during various occasions or situations, such as on Congrats Day. On this day, high-ranking executives joined together to congratulate promoted employees and give work directions and expectations that the organization has for employees in order to motivate them. Additionally, employees were recognized for their mission to mitigate the oil spill incident at the buoy for mooring deep sea vessels at sea or oil transfer site (SPM) in Rayong Province.
- The company promoted relations between high-ranking executives and employees through an employee various activities, such as organizing an employee club activity and sending birthday cards to employees.

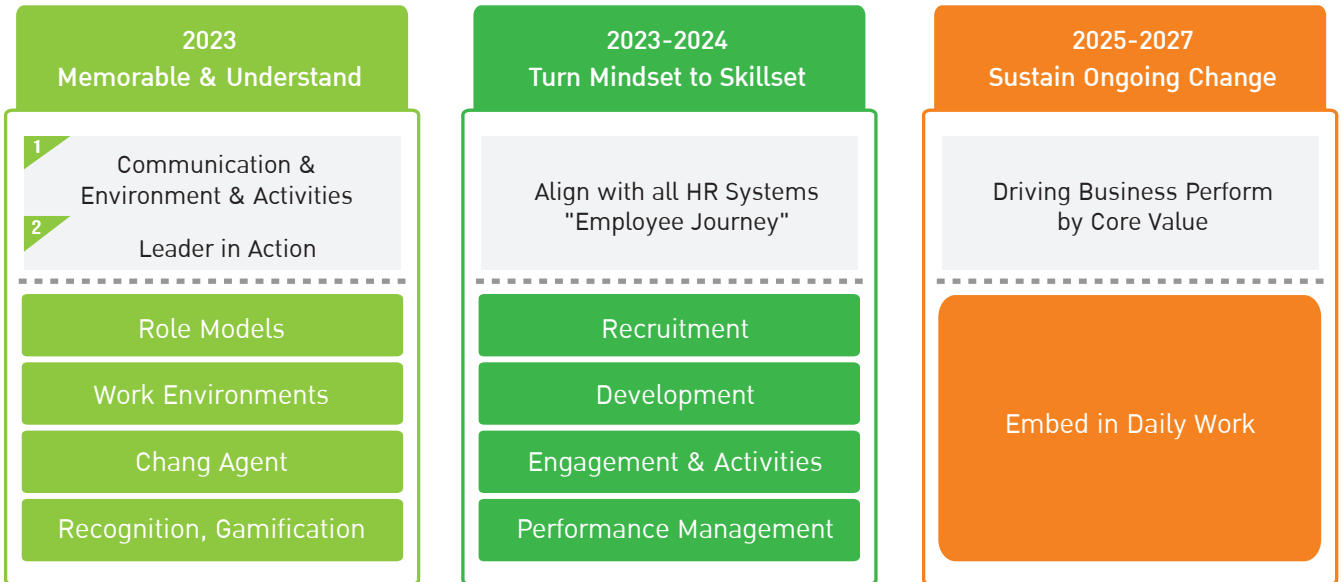
The result of employee engagement survey in 2022, the company received an overall engagement score of 75%, which was 5% higher than that in 2020. The score has continuously increased since the implementation of the 100XHappiness strategy. Furthermore, over 98% of employees participated in completing the survey form, showing their dedication to presenting their solutions to improve the company’s human resources management system.

Additionally, the company received the HR Asia Best Companies to Work For in Asia 2022 award, an international recognition given to the best companies to work for in Thailand and Asia. The company was awarded for providing exceptional employee care under the 100XHappiness strategy, with a goal to become a sustainable organization for 100 years or Bangchak100X as a leader in the energy transition business.

## Future Plans

In the upcoming year 2023, the company will continue to focus on promoting engagement through acknowledgement, understanding, and participation processes. The goal is use the organizational culture as the foundation for promoting engagement, following to the organizational culture change roadmap. Additionally, the company will continue to prioritize efforts in growth, performance assessments and competency.

## Organizational Culture Change Roadmap

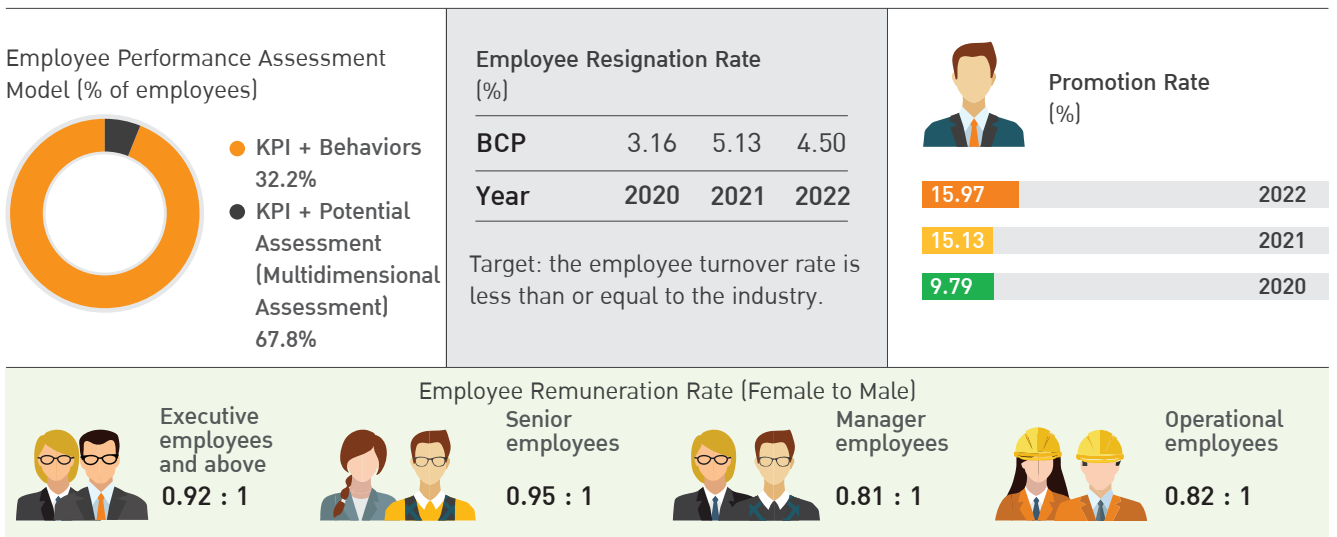


### 4. Employee Retention

The company goes through many processes to get one employee to work with, starting from the process of recruitment, selection, interviewing and development. At each stage of processing, the company has invested resources onto it, both in the form of cash and non-cash. Therefore, if the company has a high rate of turnover, the company will have to face with the loss of resources in recruiting replacement. On the contrary, if the company can retain the competent employee to the business, they will be key factors to drive for the performance in achievement of the company’s vision continuously. Thus, the company gives great importance to employee retention to achieve the goal of 100XHappiness.

### 2022 Goal and Performance

Bangchak has set a goal to take care of and retain employees to continuously ensure high performers along with developing employees to meet the acceptable criteria, including monitoring and improving employees through the Performance Improvement Projects (PIPs).



## Significant Developments

### 1. Performance Appraisal and Compensation Management Key Operations

#### • Performance Appraisal

Since last year, Bangchak started to experiment with a new performance appraisal system. The system is begin used in conjunction with the old appraisal model for managers and above. This year, the company started using the system with employees across the entire organization. By evaluating this new model Bangchak will be able to measure results more clearly. In addition, the company has also begun to adjust KPIs to be more aligned with the organization's objectives to ensure that everyone perceives the importance of their own work that is involved in driving the organization's goals, which is an important factor for transforming the organization into a High Performance Organization (HPO).

Furthermore, potential assessments have been added for manager level employees, whereas before, the company only assessed executive level employees and above. As a result, employees are now directly assessed by their supervisors and supervisors from other agencies working with them to produce insights from the perspectives of other people beside from their own supervisors. In addition, manager level employees are also assessed by their colleagues, and the results obtained are used to accompany future employee development planning.

#### • High-Potential & Fast-Track Promotions

The company will consider past performance assessments alongside potential for growth, the competency in strategic plans, leadership skills, and completion of mandatory courses according to specified levels and makes promotion decisions based on special criteria, such as high-potential and fast-track promotions. Additionally, the company consistently plans employee development consistently with the career path development of employees.

#### • Compensation Management

Appropriate employee compensation management of each level is another important part engagement and becoming a high-performance organization in accordance with The Best Employer guidelines. Each year,

the company will conduct a survey of compensation and welfare benchmark between petroleum industries and the related industries, including the surrounding environment to review and improve compensation criteria. There is an ongoing review and development of compensation scheme and criteria so the company can manage compensation in consistent with the trend of needs from the new generation employees. Accordingly, compensation surveys have allowed the company to have a competitive compensation structure for employees on every level while offering a higher value than the minimum wage (GRI 202-1 a).

Employee compensation is set through an annual performance management system that is based on the organization's objectives. These objectives are divided into two factors: personal key performance indices (KPIs) and desirable work behaviors. These factors are assessed directly by work supervisors and through potential assessments performed by other colleagues aside from direct supervisors. This ensure that employees receive opinions and recommendations to improve work, in addition to receiving assessments from their direct supervisors. This approach has made it possible to obtain assessment results that can be used to create more effective development plans.

Accordingly, the company promotes an equitable workplace with diverse participation in terms of gender, age, religion, ethnicity, and other dimensions of work. Accordingly, when assessing performance and growth potential, and setting of compensation, the company consider primarily the knowledge, abilities, and work expectations at each level.





## Community and Social Development

### Significance

Bangchak operate its business according to its founding mission to continuously contribute to the well-being of Thai society both local level and national level by using the Green Society strategy to address social problems and respond to the specific expectations of community. While recognizing potential negative impacts on communities and society, whether on the environment through pollution or on society through the safety of the neighboring communities from the company's principal business operations (oil refineries and gas stations). In 2022, the company has actively driven this mission on both levels as follows:

### 1. Taking Care for Bangchak's neighbors (Disclosure 413-1) Goals and Strategies for 2022-2027

Because oil refineries are important areas of operation of the company (90%) (Disclosure 413-1). The community relations operation classifies the target groups of residents around into 4 sub-target groups in order to respond appropriately to the needs and expectations of each group. Most of the expectations are (1) safe business operation, (2) communicating in advance in the implementation of planned, (3) communicating quickly in case of emergencies, (4) continually organization of activities, (5) including the communities in activities that are beneficial to the communities and society, (6) helping to alleviate problems during COVID-19 pandemic, (7) continuously supporting the quality of life and the economy after COVID-19 is resolved, and before economic recovery, could include initiatives such as providing health examinations, glasses purchases, and supporting ways for communities to generate income, etc., and (8) additional promotion in environmental areas, such as supporting for community waste-sorting program, etc.

	 Community	 Family	 Schools	 Condos
Population Estimate	10 communities in Bang Na/Phra Khanong. 1 military flat. 1 Bang Nam Phueng Sub-district, Phra Pra Daeng Distrit, Samut Prakan. 17,885 people.	5,098 households that are members of Khrop Khrua Bai Mai Pamphlet. 5,098 people.	19 schools in Bang Na District, Phra Khanong, and Bang Nam Phueng Sub-district. 14,363 people.	29 projects around oil refinery. 6,316 people.
Activity Participants (amount/Percentage*)	81,119 people. 76.23%	5,342 people. 5.02%	16,826 people. 15.82%	3,120 people. 2.93%
Social Investments 16.60 million baht (Development Budget / Donations Budget)	Development Budget: 69.58%. Donation Budget: 3.91%	Development Budget: 7.83%.	Development Budget: 11.45%. Donation Budget: 3.62%	Development Budget: 3.61%.

\*Percentage of all participants in community relations activities in year 2022 = 106,407 (with repeat counting).

Bangchak's community relation comprise of eight areas: safety, education, sports, quality of life, environment, community relations and culture preservation, economic improvement, and corporate social responsibility. In 2022, over 166 activities were organized with more than 106,407 people benefiting from activities.

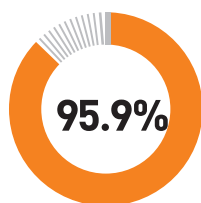
Goals in 2022		Community Relations Strategy
1. Evaluating of community engagement assessment	≥ 86%	<ul style="list-style-type: none"> <li>Organize activities that consistently meet the needs of community, creating friendliness, usefulness and safety.</li> <li>Promote communication with reach, sincerity, and consistency by using a variety of media and communications channels appropriately and in a way that reaches target groups.</li> </ul>
2. Evaluating of safety confidence	≥ 86%	
3. Friendliness and helpfulness assessment	≥ 86%	
4. Benefits assessment results	≥ 86%	
5. Complaints from the wider community:	0 complaints.	
6. Satisfaction rate of participants in the community	≥ 90%	

### 2022 Performance

Bangchak received performance assessment results covering four areas: friendliness, benefits, safety, and engagement. According to the graph, the figures for each year show a trend of continuous increases since year 2019.



Satisfaction rate of participation in the company's community.



No widespread complaints from surrounding communities.



### Community Communication

The company has provided appropriate communication channels for various groups living in the areas surrounding Bangchak's oil refineries consisting of multiple channels for a total of 332 times for 43,662 people, 10 communities, 5,098 households, 19 schools and 29 condominiums as follows:

- Direct communication with community relations personnel who visit the communities or via telephone conversation.
- Continuously organizing community relations activities.
- LINE groups for community committee, condominium residents, and teachers/instructors in schools in the communities around oil refinery.
- Community and condominium public announcement boards.
- Khrop Khrua Bai Mai pamphlet subscribers and Bangchak Khrop Khrua Bai Mai Facebook page for Khrop Khrua group.

Media/Communication Channels	Communication with Stakeholders				Resp.	Status
	Target Group					
	Community	Families	Condominiums/ Military Flats	Schools		
1. Loudspeakers.	✓				CAF Co. with MSD	Continuous–depending on activity/event.
2. Printed media.					CAF	
– Khrop Khrua Bai Mai Pamphlet (book/e–book format).		✓	✓ (Condominiums only)			Every 2 months.
– Posters, banners, leaflets, stickers/calendars, BCP contact telephone numbers and importantly	✓	✓	✓	✓		Depending on activity/event/year.
3. Online media/social media.					CAF	
– LINE group (work coordination)	✓		✓	✓		Continuous–depending on activity/event.
– Khrop Khrua Bai Mai Facebook group.		✓				Continuous–depending on activity/event.
4. People media					CAF Co. with Stakeholders.	
– Corporate relations personnel (local visits/telephone calls/emails/others).	✓	✓	✓	✓		Depending on activity/event
– Work coordination through community chairmen/directors.	✓					Depending on activity/event
– Coordination through condominium juristic persons/civil servants overseeing military flats (residential housing buildings under the Office of the Permanent Secretary for Defense).			✓			Depending on activity/event
– Work coordination through school executives/teachers.				✓		Depending on activity/event
5. Other						
– Bangchak Customer Call Center.	✓	✓	✓	✓	CAF Co. with CMD	Depending on activity/event
– Air quality display monitors.	✓	✓	✓	✓	CAF Co. with	Depending on activity/event
– Community relations activities	✓	✓	✓	✓	ECD&MSD CAF	Depending on activity/event

## Beneficial Activities for Communities and Society in 2022

### Economic:

#### 1. Dontri Pansuk” Project

This project was launched in 2022 when the intensity COVID–19 diminished and the government’s monitoring and preventative measures were relaxed, making it possible to organize to gatherings of people according to regulations and control measures. The purpose of this project was to support musicians and singers who were among the initial group to be hit by different Covid–related measures, leading them to lose their constant source of income. Therefore, the project was launched to hire and provide income to musicians and singers at CSR events on the national level. The project was implemented in collaboration with the Musicians Association of Thailand under Royal Patronage, sponsoring artists, musicians, and singers to perform at Bangchak gas stations in suitable locations in the Bangkok Metropolitan

Region and the rest of the nation such as at Si Nakharin Branch, Phatthanakan 34 Branch, Kanchanaphisek KM. 41 Branch, etc. In addition, on the community relations level, artists, musicians, and singers living in communities near Bangchak oil refinery and the company were sponsored to hold performances at Bangchak Sukhumvit 62 gas station from 15 January to 13 March 2022.

In 2022, the “Dontri Pan Suk” project was able to generate revenues of 60,000 baht/100 people for the participating artists, musicians, and singer thereby helping artists, musicians and singers who participated in the project to earn income again and make use of it in managing various matters in their living and daily life, including supporting their families through paying rent, tuition for their children, repairing their homes, etc.



**2. “Bangchak Dee Tor Jai” Project  
(to support locally owned shops in community)**

This project supported locally owned stores and in the communities around oil refinery during COVID-19 outbreaks by ordering food and snack as well as supporting products, handicrafts and various services such as renting community vans to be used in the company’s various activities. As a result, community stores and entrepreneurs were able to earn income during the spread of COVID-19 on 30 occasions 130 people for a total value of 835,637 baht.

**Quality of Life:**

**“Bangchak Huang Yai Su Phai COVID-19” Project**

The COVID-19 situation has impacted both the quality of life and economy of many families in the communities . To lend a helping hand, Bangchak launched projects and special activities during COVID-19 to support the neighbors around the refinery as follows:

- **Distribution of facemasks, hygienic masks, home use ATKs, liquid alcohol, alcohol gel for hand-cleansing, trash bags for hazardous wastes (red trash bags), and (clean) drinking water.** In total, the company distribute 20,000 face masks, 18,000 home use ATKs, over 5,000 liters of liquid alcohol, 6,000 bottles of hand-cleansing alcohol gel, 12,000 hygienic mask boxes, 5,000 hazardous waste bags (red trash bags) and 5,000 bottles of (clean) drinking water to community residents, condominiums, families, school personnel/ students and government agencies around oil refineries to support neighbors with equipment for preventing disease outbreaks along with necessities to reduce risk of infection and for appropriate management of contagious wastes.

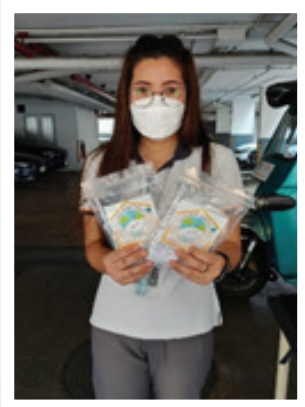
- **Pan Suk Bags Bangchak Happiness Bag to School**

The company donated Bangchak Happiness Bags to school in communities around oil refineries. The goal was to motivate students during semester closures caused by COVID-19 situation, and to ease the burden of parents who would otherwise need to procure learning supplies, stationery and face masks for children. Each sets included cloth bags for holding items, face masks, and a stationery sets consisting of pencils, erasers, rulers, pens, correction fluids, and coloring pencils. Additionally, each set contained Vitamin C supplements to help enhance students’ immunity against COVID-19. In total, the company donated to students from 19 schools based on the total number of students or a total of 13,363 people (sets).

- **Bangchak Happiness Kit for Teacher**

Bangchak Happiness Kits were distributed to teachers executives, and schools workers who caring for and teaching students during the COVID-19 pandemic, whether online or on-site. These kits featured water-proof fabric bags for carrying masks, items and COVID-19 prevention equipment such as cloth face masks and portable alcohol spray. In total the company donated to teachers, executives and personnel from 19 schools for a total of 1,000 people (kits).







**Safety**

**Accident Evacuation Drills, Fire Evacuation Drills, Firefighting Training, First-aid Training, and Basic Life-saving Techniques**

Every year Bangchak organized emergency evacuation drills in the event of an a accidents as well as providing training to provide knowledge in the use of basic fire extinguishing equipment to teachers, students and personnel at school along with the residents of condominiums around oil refineries.

In 2022, Bangchak organized an emergency evacuation drills and provided training and knowledge in the use of basic fire extinguishers, and how to provide first-aid/perform basic life-saving techniques such as CPR, and how to save a person from choking to 8 communities, 7 schools, and 22 condominiums around the oil refineries in Phra Khanong-Bang Na Districts to ensure that teachers, students and personnel at school and condominium residents have knowledge and understanding. In addition to being prepared to handle potential fires, disasters and accidents. Accordingly, the drills were held 30 times to the participation of 8,705 people.



**Environment:**

**“Bangchak Huang Yai Chumchon” Project to Alleviate Dust Problems**

With care for the neighbors around refinery, the company participated in alleviating problems caused by PM 2.5 by donating 20,000 N95 masks to the community residents in Phra Khanong-Bang Na Districts and Bang Nam Phueng Sub-district, as well as condominium residents, school personnel/students and government agencies surrounding the refineries. This initiative aims to reduce the impact of PM 2.5 and provide protection for those living and working in the area.

## Education:

### Rak Pan Suk Junior Project

The company collaborated with Chemicals SGC and the Bai Mai Pan Suk Foundation to launch the Rak Pan Suk Junior project. This project focuses on waste management and establishing waste bank, utilizing the 3Rs waste management principle and the circular economy principle in schools. The project was implemented at the CSR level nationwide, with schools from all over the country applying to participate, as well as on local community relations level with the schools around Bangchak oil refineries in Phra Khanong District, Bang Na District and Bang Nam Phueng Sub-district, Phra Pra Daeng District, Samut Prakan Province, or a total of 11 schools.

In 2022, one lecture was organized to provide participating schools with knowledge on how to implement the project, and learning materials project implementation equipment were donated, including green fermentation bins and green cones along with budgetary support for running the project. School visits were conducted on 1 occasion to follow-up on implementation. The follow-up found that the schools properly prepared the learning bases chosen by each school, and that the students were following the project's guidelines effectively. Actions were taken, such as crating a system to sort wastes according to the 3Rs principle, recycling of milk boxes, using of composting barriers to produce organic fertilizer from falling leaves, and the cultivation of household vegetables at the "Ru Pho Phak Phak" learning station, etc. Accordingly, it is estimated up to 2,630 kgCO<sub>2</sub>e of wastes were managed according to the guidelines of the project up to the present or in the project's first year.

### Environmental Learning Schools for Sustainable Development (Eco-Schools)

Bangchak, together with the Department of Environmental Quality Promotion, Phra Khanong District Office and Bang Na District Office, has launched the Environmental Learning Schools for Sustainable Development ("Eco-Schools") project. The aim of this project is to support executives and teachers in the subjects of science and the environment along with other related systems from 11 schools around the refinery in learning how to develop programs and activities to provide systematic environmental education, including science and other related subjects. The project has the following goals:



- Executives and teachers should be able to successfully apply environmental knowledge in actual teaching programs.
- Schools should continuously develop personnel and students in environmental learning according to the government's policies and global trends.
- Personnel, students and schools should gain knowledge and understanding, and coexisting sustainably with the environment, communities, and society with greater happiness.

In 2022, the company worked continuously to improve its performance by organizing knowledge exchange activities. These activities involved summarizing the results and extracting learning lessons from activities that took place in 2021. The company then presented and monitored the school performance according to project work plans on three occasions during the New Normal. The online presentation and follow-up format were used for this purpose. During 2022, the participating school prepared programs, projects, and activities for students. They also implemented actual learning projects and activities with outcome measurements in the education system. These programs were developed consistently with the school openings during COVID-19. In the 2022 academic year, when full on-site education resumed beginning in Semester 1/2022 in all 11 schools. The efforts of the schools resulted in the creation of 11 programs, projects, and activities that included direct environmental study programs, school waste management programs, and school wastewater management programs, etc.

**Relations:**

**Support for Community Activities/Events**

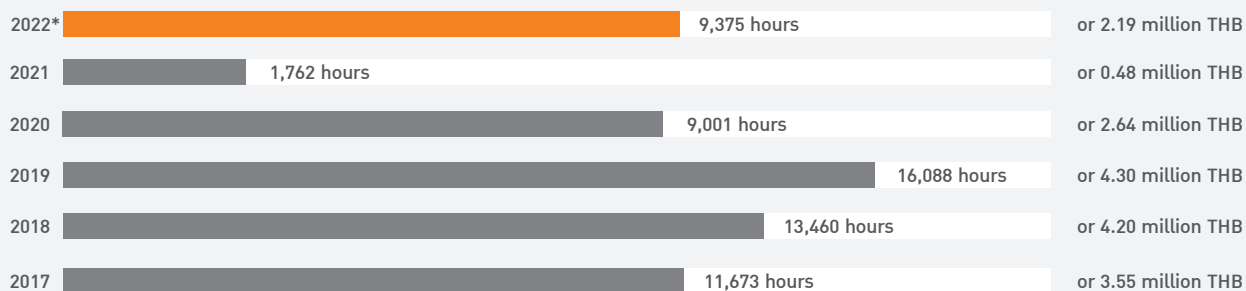
Bangchak has continuously supported activities and events that benefit communities and the public in area around Bangchak’s refinery. In 2022, the company supported several initiatives, including the “Happy Families Prevent Depression” activity, the repair of community lights, trimming of trees obstructing traffic, and a volunteer activity to clean the water courses intersecting Khlong Bang Chak. Additionally, the company donate sporting equipment such as hats and arm bands for pétanque and other activities, including cheerleading activities at student sports events in schools in Bangkok.

The company also sponsored the Chang Noi Games for schools in Phra Khanong District and Bang Na District, as well as the annual Kathin ceremonies for temples in community relations areas. Finally, the company sponsored community sports activities such as Bang Nam Phueng Community Sports and Bang Nam Phueng Games, etc.



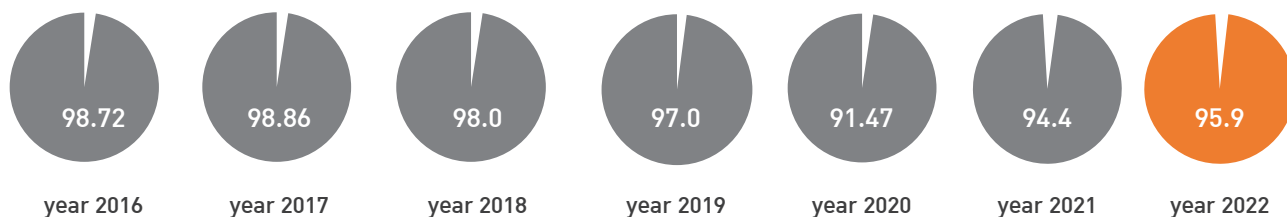


### Total Volunteer Work Hours of Employees around Refineries (Hours/THB)



\* Due to the COVID-19 situation, the company was required to change the format for its activities.

### Satisfaction for Community Relations Activities around Refineries (%)



## Receiving Complaints

In 2022, Bangchak's refinery and the company continued to prepare to handle complaints according to standards and procedures, while also implementing preventative measures to minimize the chances of incidents and complaints occurring at any level. Although there were no widespread or general complaints during this period, the company remains committed to seeking prevention methods and ways to prevent future occurrences. To maximize effectiveness and minimize environmental impacts, the company continued to use the enclosed ground flare system in 2022, as it did in 2021, to prevent the burning of excess raw materials during the production process. Additionally, the company installed backup power supply systems for loudspeaker systems to ensure that community announcements can still be made during power outages. Bangchak also operated projects aimed at obtaining approval for the installation of additional power production and management systems inside its refineries. This initiative is part of the company's ongoing efforts to enhance stability in its production processes.

## Ongoing Projects

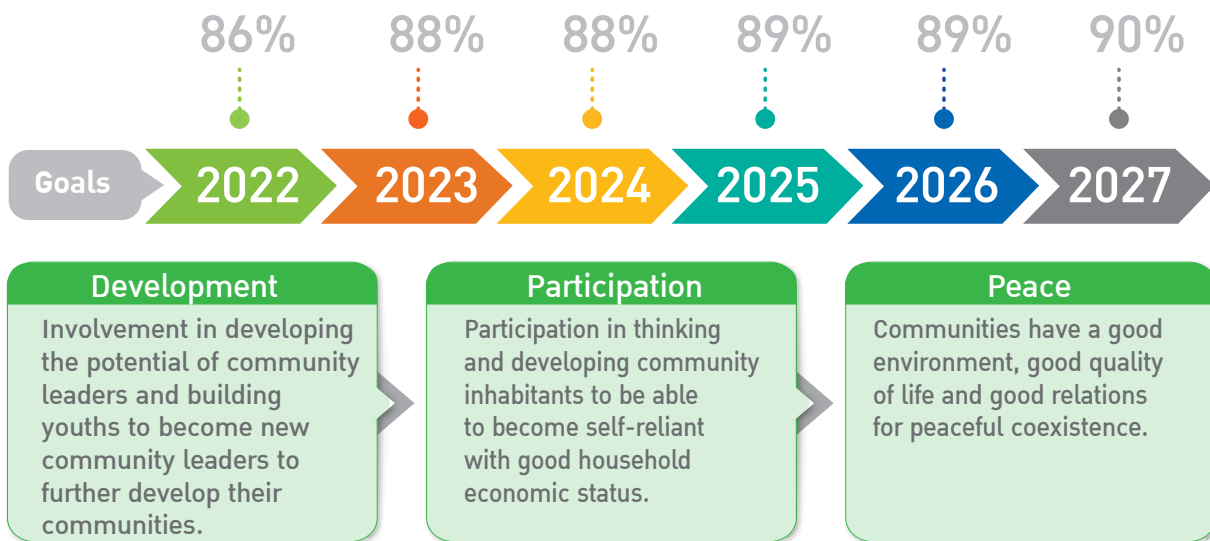
Area	Expectation	Ongoing Project
Safety 	<ul style="list-style-type: none"> <li>– Believe in the safety of oil refineries.</li> <li>– Have safety immunity and able to deal with emergencies from situation or disasters.</li> </ul>	<ul style="list-style-type: none"> <li>– Training for emergency plans and firefighting drills for schools/condominiums, Year 18<sup>th</sup>.</li> <li>– Provide fire extinguisher and equipment, Year 18<sup>th</sup>.</li> </ul>
Economy 	<ul style="list-style-type: none"> <li>– Making money and providing opportunities for people in the community using knowledge and abilities to create beneficial work for themselves and their families.</li> <li>– Financial management and investment knowledge promotion.</li> <li>– Support and sponsoring of the forming of groups for economic development and community enterprises with the aim of developing them into enterprises for society.</li> </ul>	<ul style="list-style-type: none"> <li>– Community enterprises make extra money, increasing business potential, expand support and group integration to establish more professional groups (Community Enterprise Project Year 7<sup>th</sup>).</li> <li>– Support of use of community products and services in company activities to distribute income in communities (Year 18<sup>th</sup>).</li> <li>– Opportunities for community restaurants to sell food in the cafeteria of the headquarters without charge in order to generate income for communities.</li> </ul>
Environment 	<ul style="list-style-type: none"> <li>– Aware of environmental problems and worthwhile use of resources.</li> <li>– Development of environmental learning in the educational/learning system.</li> <li>– Promoting conscience and good behaviors regarding the environment.</li> </ul>	<ul style="list-style-type: none"> <li>– Sen Thang Hing Hoi, Path of Conservation Project, Year 9<sup>th</sup></li> <li>– Our Khung Bangkachao Project, Year 5<sup>th</sup>.</li> <li>– Phueng Chan, Bang Nam Phueng Refinery Project, Year 4<sup>th</sup>.</li> <li>– Environmental Learning Schools for Sustainable Development (Eco-Schools) Project, Year 3<sup>rd</sup>.</li> </ul>
Quality of Life 	<ul style="list-style-type: none"> <li>– Enhancing quality of life, physical health and psychological health.</li> </ul>	<ul style="list-style-type: none"> <li>– Khrop Khrua Diao Kan Project, Year 30<sup>th</sup>.</li> <li>– Yaowachon Khon Di Bangchak Project, Year 7<sup>th</sup>.</li> <li>– Bangchak Huang Yai Su Phai COVID-19, Year 3<sup>rd</sup>.</li> </ul>
Education 	<ul style="list-style-type: none"> <li>– Age-appropriate learning and development among children. Proper grooming and behavior.</li> </ul>	<ul style="list-style-type: none"> <li>– Bangchak Youth Scholarship Project, Year 18<sup>th</sup>. (In 2022, scholarships were increased to 850 scholarships from 631 scholarships to ensure consistency, provide access and reduce expenses for students and parents in the face of the current economic situation and inflation).</li> <li>– Teacher and School Potential Development Project, Year 18<sup>th</sup>.</li> </ul>
Sports 	<ul style="list-style-type: none"> <li>– Drug-free living among the youth.</li> <li>– Able to make money/ income when there is opportunity.</li> <li>– Having opportunity for good education from sports.</li> </ul>	<ul style="list-style-type: none"> <li>– Bangchak Youth Football Club Year 15<sup>th</sup>.</li> </ul>
Relationship-Building and Preservation of Culture and Traditions 	<ul style="list-style-type: none"> <li>– Strengthen good relations between refineries and surrounding communities.</li> </ul>	<ul style="list-style-type: none"> <li>– Khrop Khrua Bai Mai Pamphlet, Year 16<sup>th</sup>.</li> <li>– Phuean Ban Condo Project, Year 10<sup>th</sup>.</li> </ul>



## Future Plans

The company focuses on the participation in caring for the communities around the refinery in parallel with its business operating and part of the plan is identifying potential young leaders in the community and providing them with opportunities to further grow and become self-reliant with good and establish a better life. For the work plans in 2023 and beyond, the company aims to continue its operations in all area while striving for success with the help of assistance and support. The goal is to promote financial stability and sustainable economic development and neighboring groups, through initiatives such as by developing community enterprises and social enterprises.

### Community Relations Goals for 2022-2027



## Supporting the Society

In order to respond to the BCP316 Network plan, social activities are focused on achieving Sustainable Development Goal (SDGs) No. 13 Climate Action, beginning with employee participation within the organization. Accordingly, employees are encouraged to exhibit environmentally responsible behaviors in their daily life, such as properly sorting trash, using green energy, and reducing electricity usage (climate action behaviors). These climate action behaviors have been included as key performance indicator assessments (KPIs) for employee assessments, in addition to corporate social activity (CSR activity).

The BCP316 Network plan aims to achieve carbon neutrality by year 2030 and to become a net zero GHG emission organization by year 2050. To achieve this goal, CSR activities have been modified to align with the development of natural carbon dioxide absorbers and reservoirs in land and marine ecosystems (C: conserving nature and society) by reducing 10% of all of the organization’s greenhouse gas emissions. As such, Bangchak Group has begun to study and create work plans in green and blue carbon in various forms, with the aim of integrating community and social development efforts through engagement with various stakeholders including customers, communities, government agencies, academics, and non-governmental organizations. The goal is to support a sustainable way of life of the people through four key formats as follows:



Format	Land Ecosystem Development (Green Carbon)		Marine Ecosystem Development (Blue Carbon)	
	Reforestation	Community Forest Conservation	Mangrove Planting-Conservation	Sea Grass Studies
Area of Operation	Prachin Buri/ Chachoengsao	Chiang Mai	Samut Sakhon/ Samut Songkhram	Trat
Amount (Rai)	3,172 rai	2,650 rai	300 rai	22.3 rai of study area.
Duration (years)	10 years	6 years	10 years	5 years
Key Partners	Royal Forest Department	Community forest committees and Mae Fa Luang Foundation	Department of Marine and Coastal Resources	Coral Conservation Group/ Koh Mak Sub-district Administrative Organization/ Designated Areas for Sustainable Tourism Administration and Kasetsart University.
Guidelines	Plant, nourish, conserve and restore forest areas to absorb greenhouse gases in accordance with government's carbon credit sharing rules.	Manage forest carbon credit to develop community potential in forest conservation and fund management for sustainable improvement in quality of life.	Plant, nourish, conserve and restore forest areas to absorb greenhouse gases in accordance with government's carbon credit sharing rules.	Study feasibility of using seagrass to store greenhouse gases, find solutions to restore sea grass sources/produce sea grasses.
Activities in 2022	Received approval/ prepared sites.	Developed an understanding with communities and provided training on processes, as well as how to measure and assess the current carbon credit.	Received approval/ prepared sites.	Developed an understanding and cooperation with partners on Phase 1 research findings, which include the factors for selecting capable areas for sea grass restoration, as well as areas/ measurement and assessment of soil carbon accumulation where sea grass is located.
Work Plans for 2023	Cultivation and maintenance work. T-VER registration.	T-VER registration./ Forest-jobs fund management.	Cultivation and maintenance work. T-VER registration	Work to develop techniques for measuring carbon./Survey of capable sites./Sea grass production./Trial cultivation of sea grass in capable area and survival rate.
Project Goals	Increase forest areas and ownership of carbon credit resulting from related activities.	Conserve forests, reduce forest fires in water source forests to reduce PM 2.5, and improve the well-being of communities near forests. Additionally, receive carbon credit from community forests.	Increase forest areas and ownership of carbon credit resulting from related activities.	Explore sustainable tourism community models, low-carbon destinations, and suitable model for using seagrass sites to absorb greenhouse gases in Thailand.

### Koh Mak, the Path to Low-Carbon Destination

Bangchak Group began work at Koh Mak by sponsoring a project to study the feasibility of the use of sea grass in collaboration with the Department of Fisheries of Kasetsart University, and through local visits to reveal the potential of communities and strong collaboration with partner agencies, such as the Designated Areas for Sustainable Tourism, which aims to drive and push for Koh Mak to become a model for sustainable tourism consistently with the Global Sustainable Tourism Criteria. Thus, Bangchak Group expressed interest in expanding the project to transform it to a low-carbon destination through collaborating with 5 agencies: Koh Mak Sub-district Administrative Organization, Ban Ao Nit Mixed Agriculture Community Enterprise, the Designated Areas for Sustainable Tourism Administration (Public Organization) DASTA, Kasetsart University, and Thailand Greenhouse Gas Management Organization (Public Organization), TGO The work plan is set for 3–5 years and includes studies on greenhouse gas emissions from important activities, reducing greenhouse gas emissions in daily living (waste management, clean energy use, transportation, etc.) and rehabilitating and conserving land and marine ecosystems. In 2022, Koh Mak became certified as The Green Destination TOP 100 of the World with the support of DASTA and the people of Koh Mak. This is an important success in developing

sustainability work in other dimensions, which Bangchak Group will sponsor in work structured manner to build the BCG Economy.

### **Carbon Markets Club**

In order to promote exchanges of carbon credit management techniques and trading practice in the Thai market and increase awareness, Bangchak Group and 11 founding partners expanded their work and started accepting membership applications from organizations and individuals to join the network. Currently, there are members from 53 organizations and 150 people. In 2022, they supported the trading of carbon credit and certificates for digital renewable energy production, resulting in a reduction of greenhouse gas emissions by over 400,000 tons of carbon dioxide equivalents.

### **Annual Environmental Seminar Year 12<sup>th</sup>: Energy Security and Carbon Sequestration**

This event was organized to raise awareness in society. Bangchak Group holds an environmental seminar every year, covering issues consistent with changes in the world and business, to reaffirm the period of transition from fossil energy toward clean energy, which requires both time and capital, not to mention the use of appropriate technology. Tax mechanisms (taxonomy) or categorization of business investments that reduce carbon emissions and that are environmentally friendly are being used as important factors for more swiftly pushing for the energy transition, while generating greater value in investments that reduce carbon emissions and promoting greater investments through various resource privileges in the private sector, in line with the new vision of “crafting a sustainable world with evolving greenovation” of Bangchak Group. Thus, the company gives importance to establishing balance among the 3 energy challenges, namely, energy security, energy affordability and environmental sustainability to ensure balance among the energy sources used in the world that contribute to carbon dioxide emissions while maintaining the environment and ensuring sustainability in the world.

### **“Phuet Phan Pan Suk” Project**

This project was organized to commemorate the 90<sup>th</sup> birthday anniversary of Her Majesty the Queen Mother Sirikit and National Mother’s Day on 12 August 2022. Accordingly, Bangchak Group launched the “Phuet Phan Pan Suk” project as another collaboration with multiple sectors involved in environmental conservation in Bangkok and the Expressway Authority of Thailand, the Royal Forest Department, Bang Nam Phueng Sub-district Administrative Organization, among other, to add green spaces. The project also aims to support communities around oil refineries, executives, and company employees, as well as the general public by planting trees. The goal was to increase green spaces, reduce dust and carbon dioxide by natural means while promoting ecological balance.

On the social dimension, Bangchak Group continues to work regularly to support communities. They have helped purchase overproduced goods in the market that are suffering from low prices to process them into gifts for customers. These were “dry-baked longan and Nuan Chai plum” products that were processed from plums (mountain cherries) to alleviate the suffering of farmers while boosting their income. In addition, Bangchak Group designed community care processes for neighbors of Bangchak gas stations. Key communities were chosen, and strategies were implemented to cover 4 work areas that reflect the model for safe and high quality gas stations to serve as environmentally and socially-beneficial models, with implementation and monitoring of progress and assessment of outcomes taking place monthly.

### **Education**

On the occasion of the 5<sup>th</sup> anniversary of the founding of Bai Mai Pan Sook Foundation, which has led to the development of educational activities alongside partners, 3 important projects were launched. These are the “An Khian Rian Sanuk Pan Dek Jew Pen Dek Jaew Project”, Rak Pan Suk Junior Project”, and “Solar Pan Suk Project.” These projects aim to emphasize the foundation of sustainability by developing youths academically and environmentally in line with the UN Sustainable Development Goal No. 4 Quality Education, which is the primary objective. They aim to drive consistent implementation with sustainable development and national policy according to the BCG Economy Model covering over 15,000 youths from nearly 200 schools in 52 provinces nationwide.

Table Showing Percentages and Proportion of Costs in Business Activities and Processes to Support Society in 2022

Type of Philanthropy Activities	Percentage of Total Cost
Public donations	2.83
Social investments	11.72
Business processes to respond to society	85.45

Type of Contribution	Total amount in Million THB.
• Money	214.68
• 9,375 hours of volunteer employees	2.19
• Organization items/products	4.47
• Management	14.70
Total	235.75

### Future Plan for Community and Social Development Caring for Society

Bangchak, as part of the BCP316 NET plan, has establish a path towards achieving sustainability. Consequently, social projects are being prioritized to reduce emissions and increase sequestration of greenhouse gases. This includes implementing various methods measure and certify carbon. To achieve this, internal work processes need to be developed, employees need to be trained for greater expertise; and business feasibility studies must be conducted with greater consistency with greenovation goals.

### Spill Prevention and Management

The company understands the impacts of spills of raw materials and products in the petroleum refinery industry, which can lead to economic, social, and environmental impacts such as damage to raw materials and products, impacts on the health and safety of operational employees, and communities, and chemical contamination in the soil and waterways at an incident sites. Therefore, the company is determined to reduce risk of spills and has create measures for effectively handling emergencies caused by spills covering the entire company value chain from crude oil transportation to refinery and transportation of oil products for storage in oil terminal and service stations as follows:

- Select oil tankers that feature ship inspection and assessment systems that meet the specifications and standards of the petroleum industry.
- Establish transportation safety measurements from ship acceptance to use of tug boats for directing vessels in and out of ports at the same plane as the port and attaching ship ropes according to standards before transferring oil and installing booms around vessels to prevent oil spills in waterways and to keep oil within a confined area for rapid collection and restoration, a connection of hoses with ships and constant monitoring during pump operation.
- Establish prevention and mitigation plans in case of oil spills with annual emergency drills and give opportunities for the community to observe.
- Prepare emergency equipment and hold training sessions on how to use oil removal equipment and give opportunities for the community to observe.
- Develop the capabilities of personnel in responding to situations by participating in training and holding joint training operations continuously with other parties involved such as the government and other companies in the petroleum industry.
- Develop and improve safety technologies for equipment, systems and tools continuously in line with the Oil Company International Marine Forum (OCIMF) such as improvement of port-side fire-extinguishing systems to ensure that they are modern, and additional CCTV installations.
- Design oil tanks and oil hoses and install equipment according to international standards such as automatic tank gauges and overflow alarm systems to measure the level of oil and to prevent oil overflows, and design areas to be able to contain oil in cases of spills (containment dikes), along with gas detector systems and prevention and surveillance



measures and emergency monitoring measures during work such as CCTV systems and shift area patrols and stock oil transfer monitoring.

- Establish work processes and provide training to related operators.
- Follow plans for a system, work, and equipment inspection (PM) at appropriate times.
- Identify indicators and assessments of risk areas that have the potential to lead to spills (LOPC) in each area along with control and prevention measures and continuously monitor the effectiveness of the measures and inspect safety in production and analyze and present corrective and prevention guidelines to prevent recurrence.
- Commissioned an oil spill clean-up vessel, named “Si Thararak 8” stationed at Bangchak’s refineries. The vessel can eliminate up to 10,000 liters of oil residues from the side collecting boom system and belt skimmer. The vessel also has a fire-extinguishing system for enhanced safety during emergencies along with an on-board meeting room for convenient planning and actions in line with officials’ missions. In addition to managing oil spills in the Chao Phraya River area where the refineries are located, the vessel can support the oil residue removal effort of the government and the Oil Industry Environmental Safety Group Association (IESG) of which Bangchak is a member, in addition to providing support during floods or other emergencies upon request. In 2022, the vessel participated in a mission to mitigate the impacts of an oil spill at a single point mooring site or oil transfer site (SPM) at sea in Rayong Province. Ten officials and oil spill removal operators participated in the mission.

The company continuously reports its performance to the working committee on monitoring activities and risk assessments to report to the organization’s risk management committee every month to ensure confidence that the company has the determination to manage work with quality and safety. Due to the company’s effort in preventing and managing oil spills and chemical spills in the places of operation, no significant oil or chemical spills occurred, thus creating confidence about safety and environmental quality protection for the communities around the oil refineries and ports.

Oil and Chemical	2018	2019	2020	2021	2022
- Number of case related to significant oil and chemical spills (more than 100 Barrels/time) (Case)	0	0	0	0	0
- Volume of significant oil and chemical spills with more than 100 Barrels/time (Barrel)	0	0	0	0	0
- Number of cases related to oil and chemical spills (more than 1 barrels / time Case)	3	2	3	0	0
- Volume of significant oil and chemical spills with more than 1 barrels / time (Barrel)	141	4	11	0	0
- Data coverage as percentage of annual production (MMBOE)	100	100	100	100	100

## Sustainability Performance Statistics

### Economic Performance

Revenue							
Indicators	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 201-1	Revenue						
	- Sales and Services	Million THB	192,025.32	190,488.59	136,450.29	199,417.00	312,202.37
	- Total Revenue	Million THB	193,340.41	190,983.67	136,982.82	200,695.74	314,056.07
	- Net Profit	Million THB	3,234.70	2,488.49	- 5,769.98	9,844.72	15,152.48
	- EBITDA	Million THB	10,201.00	8,709.00	4,104.00	25,818.00	44,724.00

Expenditure for Income distribution to stakeholders							
Indicators	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 201-1	Expenditure for Income distribution to stakeholders						
	- Operating expenses	Million THB	180,594.37	180,256.90	132,122.13	175,744.43	265,933.70
	- Interest expenses paid to financial institution creditors and debentures	Million THB	1,559.06	1,839.24	2,050.58	2,395.39	2,975.74
	- Tax payment to government and local authorities	Million THB	194.45	258.46	20.44	20.13	1,229.97
	- Financial supports for membership of associations	Million THB	3.34	3.28	5.35	2.72	3.20
	- Community and social development	Million THB	36.00	34.00	21.67	27.74	25.68
	- Donation to society and schools	Million THB	62.94	64.60	22.62	16.00	6.20
	- Dividend payment to shareholders	Million THB	3,090.52	1,759.84	742.55	2,672.18	4,260.85
	- Dividend payment to shareholders (Baht/Share)	Million THB	1.35	0.80	0.40	2.00	2.25
	- Wages and employee benefits	Million THB	3,310.33	3,609.11	3,401.92	4,572.62	6,302.61

Supply chain management							
Indicators	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 204-1	Supply chain management						
	- Local purchases of goods and services*	Million THB	4,424	2,764	1,846	1,814	5,688
	- Percentage of Local purchases of goods and services*	Percentage	98	98	97	98	93

\*Local purchasing in Thailand, exclude raw materials and crude oil

## Corporate Income Tax (Bangchak Corporation Public Company Limited) (Unit : Million THB)

Tax Jurisdiction	Revenue									Profit / (Loss) before Income Tax			Income Tax Paid (on a Cash Basis)			Income Tax Accrued - Current Year		
	Related Party			Unrelated Party			Total			2020	2021	2022	2020	2021	2022	2020	2021	2022
	2020	2021	2022	2020	2021	2022	2020	2021	2022									
Thailand	42,073	57,899	73,173	116,466	149,192	237,935	158,539	207,091	311,108	(7,330)	11,239	21,173	(14)	275	1,192	103	19	115
Japan	113	675	571	221	953	1,048	334	1,628	1,619	(156)	(220)	(55)	(6)	16	(6)	-	19	82
Singapore	24,418	29,520	76,827	19,225	42,643	53,684	43,643	72,164	130,511	(3,838)	1,350	808	21	46	41	27	47	149
Philippines	-	-	-	-	-	-	-	-	-	(378)	-	-	-	-	-	-	-	-
Australia	51	-	-	-	-	-	51	-	-	(133)	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-	64	-	(5)	6	-	-	-	-	-
British Virgin Islands	346	-	-	-	-	-	346	-	-	-	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	24,720	-	-	24,720	-	-	11,787	-	-	8,273	-	-	1,683
Taiwan	-	-	12	-	-	-	-	-	12	-	-	(37)	-	-	-	-	-	-
Laos	-	-	7	907	35	1,180	907	35	1,187	323	13	80	-	-	38	4	1	1

## Customer Relationship Management and Responsibility

Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 102-43 GRI 102-44	<b>Customer Satisfaction</b>						
	<b>End users at Service Stations</b>						
	- Customer Satisfaction : End Users	percentage	85.80	86.60	88.10	87.45	87.83
	- Net Promotor Ranking (NPS)	Ranking	Ranking 1st (Joint)	Ranking 1st (Joint)	Ranking 1st (Joint)	Ranking 1st (Joint)	Ranking 1st (Joint)
	- Net Promotor Score (NPS)	percentage	71.50	76.10	81.30	77.50	73.50
	<b>Industrial Customers</b>						
- Customer Satisfaction : Industrial Customers	percentage	82.00	87.00	83.30	91.50	91.00	
GRI 417-3	<b>Incidents of non-compliance concerning marketing communications</b>						
	- Significant Case of Customers data breach	case	0	0	0	0	0
	- Significant Case of Non-compliance in marketing communication laws	case	0	0	0	0	0
GRI 419-1	<b>Non-compliance with laws and regulations in the social and economic area</b>						
	- Number/Monetary Value of significant fines associated with economic and social law	case	0	0	0	0	0







Business units			Refinery Business					M-Tower and Regional office					Marketing Business				
Indicators	Material Aspects	Unit	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
GRI 305-3 Scope 3	Other relevant indirect GHG emission (SCOPE 3)																
	Other relevant indirect GHG emission (SCOPE 3)																
	Upstream																
	- Purchased goods and services																
	- Crude oil transportation																
	- Upstream transportation and distribution																
	- Use of municipal water																
	- Waste transportation																
	- Business travel																
	- Employee commuting																
	Downstream																
	- Product transportation																
	- Processing of sold products																
	- Use of sold products																
	- End-of-life treatment of sold products tCO2e																
- Franchises																	
GRI 305-3 Scope 3	Other relevant indirect GHG emission (SCOPE 3)																
	Other relevant indirect GHG emission (SCOPE 3)																
	Upstream																
	- Purchased goods and services																
	- Crude oil transportation																
	- Upstream transportation and distribution																
	- Use of municipal water																
	- Waste transportation																
	- Business travel																
	- Employee commuting																
	Downstream																
	- Product transportation																
	- Processing of sold products																
	- Use of sold products																
	- End-of-life treatment of sold products tCO2e																
- Franchises																	
GRI 305-5	Reduction of GHG emissions																
	Total estimated annual CO <sub>2</sub> savings																

Remarks:

- Bangchak Corporation Public Company Limited (Refinery Business, M-Tower and Regional office and Marketing Business) firstly disclosed GHG emission scope 3 in 2021.
- 1. The report of GHG emissions scope 3 data are calculated by using the BCP GHGs calculation tool in accordance with IPCC 2006
- 2. The calculation of scope 3 GHG emissions from upstream and downstream uses emission factor values from Energy Policy and Planning Office, Ministry of Energy and Thailand Greenhouse Gas Management Organization's emission factors and Thai National LCI Database, TIS-MTEC-NSTDA (with TGO electricity 2016-2018).
- 3. Conversion of fuel to energy by applying heating value provided by the Department of Alternative Energy Development and Efficiency.
- 4. Global Warming Potential (GWP) values are based on the Fourth Assessment Report (AR4) of the Greenhouse Gas Protocol.
- 5. The ratio of GHG emission scope 3 is compared with scope 1 and scope 2, and evaluated using the value at 0.5% which are considered on the borderline of statistical significance. The value which is not reach 0.5% will not be reported in GHG emission scope 3.
- 6. The production transportation reported from the refinery is the transport of finished petroleum products but excludes heavy fuel oil, and lubricant products.
- 7. Upstream crude oil transportation does not include crude oil transportation from oversea.
- 8. Reduction of GHG emissions are calculated from energy saving activities which implement during year 2022.

Air Emission								
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022	
GRI 305-7	<b>Air Emission</b>							
	<b>Nitrogen oxides (NO<sub>x</sub>)<sup>/1</sup></b>							
	NO <sub>x</sub> (Combustion)		ton	644.00	236.41	280.00	458.88	506.11
	Control Limit (not exceed)		ton				1,000.00	1,000.00
	Intensity NO <sub>x</sub>		ton / thousand tons crude	0.120	0.044	0.060	0.099	0.087
	<b>Sulfur Dioxide (SO<sub>2</sub>)<sup>/1</sup></b>							
	SO <sub>2</sub> (Combustion)		ton	24.00	32.10	27.00	53.48	45.25
	Control Limit (not exceed)		ton				1,000.00	1,000.00
	Intensity SO <sub>2</sub>		ton / thousand tons crude	0.004	0.006	0.010	0.012	0.008
	<b>Total Suspended Particulate (TSP)<sup>/1</sup></b>							
	TSP PM10 (Combustion)		ton	5.00	11.43	3.00	3.50	7.54
	Control Limit (not exceed)		ton					386.00
	Intensity TSP		ton / thousand tons crude	0.001	0.002	0.002	0.001	0.001
	<b>Hydrogen sulfide (H<sub>2</sub>S)<sup>/1</sup></b>							
	H <sub>2</sub> S (SRU/TGTU Stack)		ton	14.30	0.69	4.00	4.37	2.22
	Control Limit (not exceed)		ton					65.59
	Intensity H <sub>2</sub> S		ton / thousand tons crude	0.003	0.000	0.000	0.001	0.000
	<b>Volatile Organic Compound (VOC)<sup>/2/3/4</sup></b>							
	VOC Inventory <sup>/2/3</sup>		ton	520.84	371.51	417.61	341.47	480.21
	Fugitive VOC <sup>/4</sup>		ton	2.47	2.50	2.51	2.53	2.99
	Control Limit (not exceed)		ton				500.00	500.00
	Intensity Fugitive VOCs		Ton/Thousand Tons crude	0.001	0.002	0.002	0.001	0.001
	<b>Flared Hydrocarbon<sup>/5</sup></b>							
	Flared hydrocarbon		KL	1,777.00	2,472.90	1,174.30	2,311.28	1,327.24
	Flared hydrocarbon		ton CU.M. (Gas)	0.245	0.374	0.167	0.575	0.272
	Flared hydrocarbon per total product produced		ton CU.M. (Gas) / million barrel oil equivalent	0.006	0.009	0.002	0.015	0.003
	<b>Vented Hydrocarbon</b>							
	Vented hydrocarbon		ton CU.M. (Gas)	N.A.	N.A.	N.A.	N.A.	N.A.
Vented hydrocarbon per total product produced		ton CU.M. (Gas) / million barrel oil equivalent	N.A.	N.A.	N.A.	N.A.	N.A.	

/1 Calculated from production capacity using a third-party entity

/2 Include VOC inventory from combustion, flare, tank, marketing and terminal, and wastewater

/3 Use emission factors from AP 42-US EPA, for VOC inventory calculation from combustion, flare, and marketing and terminal. Tank 4 program and Water 9 program are used as tools for VOC inventory calculation from tank and wastewater respectively.

/4 Calibrated measurement tools

/5 Including Flared hydrocarbon from Plant 2, 3, 4

Water Management							
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022
Total water withdrawal by source (excluded brine water from Crude oil extraction)							
	Total water withdrawal by source (excluded brine water from Crude oil extraction)	Million cubic meters	2.381	2.697	2.495	2.411	2.344
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	N/A	N/A	2.395	2.294	2.334
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	N/A	N/A	0.1	0.117	0.010
	Total water withdrawal by source (included brine water from Crude oil extraction)	Million cubic meters	2.381	2.697	21.325	2.444	2.383
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.008	0.030	2.395	2.294	2.334
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	18.930	0.150	0.049
	Total surface water withdrawal (From Chao Phraya River) <sup>1</sup>	Million cubic meters	0.103	0.200	0.185	0.197	0.147
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>1/6</sup>	Million cubic meters	N/A	N/A	0.085	0.080	0.136
	- Other water > 1000 mg/L Total Dissolved Solids <sup>1/6</sup>	Million cubic meters	N/A	N/A	0.1	0.117	0.010
	Total groundwater withdrawal <sup>2</sup>	Million cubic meters	0.0080	0.030	0.270	0.112	0.440
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>2/6</sup>	Million cubic meters	0.0080	0.030	0.270	0.112	0.440
	- Other water > 1000 mg/L Total Dissolved Solids <sup>2/6</sup>	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total seawater withdrawal	Million cubic meters	N/A	N/A	N/A	N/A	N/A
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	N/A	N/A	N/A	N/A	N/A
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	N/A	N/A	N/A	N/A	N/A
	Total produced water withdrawal (from Crude oil extraction, processing or Raw material) <sup>3</sup>	Million cubic meters	N/A	N/A	18.830	0.033	0.039
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>3/6</sup>	Million cubic meters	N/A	N/A	0	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids <sup>3/6</sup>	Million cubic meters	N/A	N/A	18.830	0.033	0.039
	Total third-party water withdrawal (municipal water supplies) <sup>4</sup>	Million cubic meters	2.270	2.467	2.040	2.101	1.757
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>4/6</sup>	Million cubic meters	N/A	N/A	2.04	2.101	1.757
	- Other water > 1000 mg/L Total Dissolved Solids <sup>4/6</sup>	Million cubic meters	N/A	N/A	0	0.000	0.000
	Total water withdrawal in water stressed areas	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total surface water withdrawal (From Chao Phraya River)	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total groundwater withdrawal	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total seawater withdrawal	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total produced water withdrawal (from Crude oil extraction, processing or Raw material)	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	Total third-party water withdrawal	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Freshwater ≤ 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Other water > 1000 mg/L Total Dissolved Solids	Million cubic meters	0.000	0.000	0.000	0.000	0.000

Total volume of water discharge in all areas								
Total volume of water discharge in all areas		Million cubic meters	0.900	0.772	0.727	0.828	0.899	
Total water discharge from Refinery <sup>/5</sup>		Million cubic meters	0.900	0.772	0.725	0.827	0.897	
Surface water		Million cubic meters	0.900	0.772	0.725	0.827	0.897	
Groundwater		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
Seawater		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
Third-party water		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
Total water discharge from M-Tower <sup>/5</sup>		Million cubic meters	0.000	0.000	0.002	0.001	0.002	
Surface water		Million cubic meters	N/A	N/A	0.000	0.000	0.000	
Groundwater		Million cubic meters	N/A	N/A	0.000	0.000	0.000	
Seawater		Million cubic meters	N/A	N/A	0.000	0.000	0.000	
Third-party water		Million cubic meters	N/A	N/A	0.002	0.001	0.002	
Water discharge by freshwater and other water (Refinery) <sup>/5</sup>								
- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>/5 /6</sup>		Million cubic meters	N/A	N/A	0.176	0.206	0.101	
- Other water > 1000 mg/L Total Dissolved Solids <sup>/5 /6</sup>		Million cubic meters	N/A	N/A	0.551	0.621	0.796	
Water discharge by freshwater and other water (M-Tower)								
- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>/6</sup>		Million cubic meters	N/A	N/A	0.000	0.001	0.0015	
- Other water > 1000 mg/L Total Dissolved Solids <sup>/6</sup>		Million cubic meters	N/A	N/A	0.001	0.000	0.000	
Water discharge by freshwater and other water in water stressed areas		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
- Freshwater ≤ 1000 mg/L Total Dissolved Solids <sup>/6</sup>		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
- Other water > 1000 mg/L Total Dissolved Solids <sup>/6</sup>		Million cubic meters	0.000	0.000	0.000	0.000	0.000	
GRI 303-5 (2018)	Total water consumption (excluded brine water from Crude oil extraction) = Total water withdrawal (excluded brine water from Crude oil extraction) - Total volume of water discharged in all area							
	- Total water consumption (Excluded brine water from crude oil extraction)		Million cubic meters	1.481	1.926	1.768	1.582	1.445
	Water consumption (Target)		Million cubic meters				2.349	2.057
	- Total water consumption in water stressed area.		Million cubic meters	0.000	0.000	0.000	0.000	0.000
	- Change in water storage, if water storage has been identified as having a significant water-related impact.		Million cubic meters	0.000	0.000	0.000	0.000	0.000
GRI 303-4d. (2018)	Effluents from the Refinery							
	COD		ton	39.02	53.31	33.22	28.98	33.53
	BOD		ton	4.76	7.32	6.53	4.85	5.76
	Oil and Grease		ton	4.52	2.22	2.17	2.48	2.69
	TSS		ton	11.15	8.23	4.54	4.87	5.63
	TDS		ton	791.03	1,125.09	973.23	1,100.98	1,273.38
	Sulfide		ton	0.904	0.341	0.094	0.261	0.448
	Mercury		ton	0.001	0.000	0.001	0.001	0.001
	Effluents from Bangchak Head Office at M Tower							
	COD		ton	N/A	N/A	N/A	N/A	N/A
	BOD		ton	N/A	N/A	0.007	0.003	0.003
	Oil and Grease		ton	N/A	N/A	0.002	0.002	0.002
	TSS		ton	N/A	N/A	0.017	0.017	0.019
	TDS		ton	N/A	N/A	0.550	0.285	0.324
Sulfide		ton	N/A	N/A	0.002	0.001	0.002	
Mercury		ton	N/A	N/A	N/A	N/A	N/A	

- In 2020, Bangchak started to report water and effluents according to GRI 303 (2018). The previous data in 2018 -2019, were recategorized where possible to report as per new criteria. The data in 2018 - 2019 which not meet the new criteria will be replaced by N/A.

**Remark**

/1 The volume of total surface water withdrawal is collected from pump capacity or tank volume.

/2 The volume of total groundwater withdrawal is collected from meter reading.

/3 The volume of total produced water withdrawal from crude oil extraction, processing or raw material is calculated from the ratio of oil / brine water.

/4 The volume of total 3rd party water withdrawal is collected from invoices.

/5 The volume of total water discharged is collected from flowmeter reading.

/6 Characteristics of water is collected from analysis result from 3<sup>rd</sup> party laboratory which is licensed by Department of Industrial Works.

Industrial Waste Management (Refinery)							
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 306-3	Routine waste						
	Total waste generated						
	Hazardous waste <sup>/1</sup>	Metric tons/year	2,808.28	2,023.00	2,671.00	1,414.61	957.76
	Percentage of hazardous waste	%	17.99%	33.81%	84.58%	48.10%	55.37%
	Non-hazardous waste <sup>/1</sup>	Metric tons/year	220.21	158.00	388.00	267.06	145.20
	Percentage of non-hazardous waste	%	1.41%	2.64%	12.29%	9.08%	8.39%
	Non-routine waste						
	Hazardous waste <sup>/1</sup>	Metric tons/year	0.00	0.00	0.00	0.00	626.68
	Percentage of hazardous waste	%	0.00%	0.00%	0.00%	0.00%	36.23%
	Non-hazardous waste <sup>/1</sup>	Metric tons/year	0.00	0.00	0.00	0.00	0.00
	Percentage of non-hazardous waste	%	0.00%	0.00%	0.00%	0.00%	0.00%
	Hazardous waste from oil and chemical spill clean-up <sup>/2</sup>	Metric tons/year	0.00	0.00	0.00	0.00	0.00
	Percentage of hazardous waste from oil and chemical spill clean-up	%	0.00%	0.00%	0.00%	0.00%	0.00%
	Construction waste <sup>/2</sup>	Metric tons/year	10,582.61	3,696.27	97.00	0.00	0.00
	Percentage of construction waste	%	67.80%	61.77%	3.07%	0.00%	0.00%
	Hazardous waste for turnaround maintenance <sup>/2</sup>	Metric tons/year	1916.35	106.00	1.77	1,204.12	0.00
	Percentage of hazardous waste for turnaround maintenance	%	12.28%	1.77%	0.06%	40.95%	0.00%
	Non-hazardous waste for turnaround maintenance <sup>/2</sup>	Metric tons/year	81.55	1.00	0.02	55.01	0.00
Percentage of non-hazardous waste for turnaround maintenance	%	0.52%	0.02%	0.00%	1.87%	0.00%	

<sup>/1</sup> Weight from waste manifest

<sup>/2</sup> Estimate from volume of waste sent to disposal based on calculation of number of bags per container and average weight per bag /container.

GRI 306-3	Total waste generated <sup>/1</sup>	Metric tons/year	15,609.37	5,984.87	3,161.27	2,940.80	1,729.64
	- Total hazardous waste	Metric tons/year	4,725.01	2,128.90	2,676.61	2,618.73	1,584.44
	- Total non-hazardous waste	Metric tons/year	10,884.37	3,855.97	484.66	322.07	145.20
	Industrial waste diversion rate from landfilling	%	100.00%	99.75%	100.00%	100.00%	100.00%
	- Reuse and recycling	%	30%	10%	26%	47%	57%
	- Other recovery operation methods	%	68%	62%	2%	9%	8%
	- Energy recovery (Alternative fuel/ Fuel blending)	%	2%	28%	72%	44%	36%
	- Incineration without energy recovery	%	0.28%	0.01%	0.04%	0.22%	0.01%
	- Other disposal operation	%	0.00%	0.00%	0.00%	0.00%	0.00%
	- Landfilling	%	0.00%	0.25%	0.00%	0.00%	0.00%
GRI 306-3	Total hazardous waste - diverted from disposal and directed to off-site disposal <sup>/1</sup>	Metric tons/year	4,725.01	2,128.90	2,676.61	2,618.73	1,584.44
GRI 306-4	Hazardous waste - diverted from off-site disposal <sup>/1</sup>	Metric tons/year	4320.73	570.54	484.94	1,462.86	991.38
	- Reuse	Metric tons/year	0.00	0.00	0.00	0.00	0.00
	- Recycling	Metric tons/year	4,320.73	570.54	484.94	1,220.57	856.42
	- Recovery (reclamation, regeneration of metal and metallic compounds)	Metric tons/year	0.00	0.00	0.00	242.29	134.96
GRI 306-5	Hazardous waste - off-site disposal	Metric tons/year	404.28	1,558.36	2,191.67	1,155.87	593.06
	Target - off-site disposal hazardous waste	Metric tons/year				1,700.00	1,530.00
	- <sup>DW</sup> Energy recovery (alternative fuel/ fuel blending)	Metric tons/year	360.28	1,543.00	2,190.40	1,149.29	592.95
	- Incineration without energy recovery	Metric tons/year	44.00	0.40	1.27	6.58	0.11
	- Landfilling	Metric tons/year	0.00	14.96	-	0.00	0.00
	- Other disposal operations*	Metric tons/year	0.00	0.00	0.00	0.00	0.00
GRI 306-3	Total non-hazardous waste - diverted from disposal and Directed to off-site disposal <sup>/1</sup>	Metric tons/year	10,884.37	3,855.97	484.66	322.07	145.20
GRI 306-4	Non-hazardous waste - diverted from off-site disposal <sup>/1</sup>	Metric tons/year	10,884.37	3,701.82	395.72	184.26	123.77
	- Reuse	Metric tons/year	0.00	0.00	0.00	0.00	0.00
	- Recycling	Metric tons/year	301.76	5.55	321.96	166.28	56.06
	- Other recovery operation (other recovery unlisted materials)	Metric tons/year	0.00	0.00	0.00	17.98	0.00
	- Other recovery operation (land reclamation: using construction waste)	Metric tons/year	10582.61	3,696.27	73.76	0.00	0.00
	- Sorting	Metric tons/year	10582.61	3,696.27	73.76	0.00	67.71
	- Composting	Metric tons/year					0.00
GRI 306-5	Non-hazardous waste - off-site disposal	Metric tons/year	-	15 15	88.94	137.81	21.43
	Target - off-site disposal non-hazardous waste	Metric tons/year				160.00	150.00
	- Energy recovery (alternative fuel/ fuel blending)	Metric tons/year	-	154.15	88.94	137.81	21.43
	- Incineration without energy recovery	Metric tons/year	-	0.00	0.00	0.00	0.00
	- Landfilling	Metric tons/year	0.00	0.00	0.00	0.00	0.00
	- Other disposal operations*	Metric tons/year	0.00	0.00	0.00	0.00	0.00

\* Declaration for hazardous waste direct to disposal

According to Department of Industrial Works (DIW), Bangchak refinery have complied with DIW's Announcement of Waste processor B.E. 2550, Best Practice of Waste Management and Disposal B.E. 2551 and Hazardous Substance Act. 2535 and the waste management have been classified and managed according to Notification of Ministry of Industry Re: Industrial Waste Disposal B.E. 2548 (2005). Waste management can be classified into 8 methods as follows: Method 01 Sorting, Method 02 Storage, Method 03 Reuse, Method 04 Recycle, Method 05 Recovery, Method 06 Treatment, Method 07 Disposal, and Method 08 Others.

Industrial Waste Management (Refinery)							
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022
*DIW	Hazardous waste - Off-site disposal <sup>1</sup>	Metric tons/year	404.28	1543.40	2,191.67	1,155.87	593.06
04	- Recycle (042, 041, 044 and 049)	Metric tons/year	360.28	1543.00	2190.40	1149.29	592.95
	- 041: Use as fuel substitution or burn for energy recovery						
	- 042: Fuel blending						
	- 044: Use as co-material in cement kiln or rotary kiln						
07	- Disposal (075: Incineration in hazardous waste incinerator)	Metric tons/year	44.00	0.40	1.27	6.58	0.11

<sup>1</sup> Disposal methods and quantity from DW waste disposal permit documents and manifests

Office Waste Management							
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022
GRI 306-3	Total waste generated <sup>1</sup>	Metric tons/year					55.32
	- Total hazardous waste	Metric tons/year					0.15
	- Total non-hazardous waste	Metric tons/year					55.17
	Total hazardous waste - diverted from disposal and directed to off-site disposal <sup>1</sup>	Metric tons/year					0.15
GRI 306-4	Hazardous waste - diverted from off-site disposal	Metric tons/year					0.00
	- Reuse	Metric tons/year					0.00
	- Recycling	Metric tons/year					0.00
GRI 306-5	- Recovery (reclamation, regeneration of metal and metallic compounds)	Metric tons/year					0.00
	Hazardous waste - off-site disposal	Metric tons/year					0.15
	- Energy recovery (Alternative fuel/ Fuel blending)	Metric tons/year					0.00
	- Incineration without energy recovery	Metric tons/year					0.00
GRI 306-3	- Landfilling	Metric tons/year					0.00
	- Other disposal operations*	Metric tons/year					0.15
	Total non-hazardous waste - diverted from disposal and directed to off-site disposal <sup>1</sup>	Metric tons/year					55.17
	GRI 306-4	Non-hazardous waste - diverted from off-site disposal	Metric tons/year				
- Reuse		Metric tons/year					0.00
- Preparation for Reuse		Metric tons/year					5.57
- Sorting		Metric tons/year					0.00
- Composting		Metric tons/year					10.39
GRI 306-5	Non-hazardous waste - off-site disposal	Metric tons/year					39.21
	- Energy recovery (Alternative fuel/ Fuel blending)	Metric tons/year					0.36
	- Incineration without energy recovery	Metric tons/year					0.00
	- Landfilling	Metric tons/year					38.85
	- Other disposal operations*	Metric tons/year					0.00

\*Office hazardous which is batteries is stored and waited for authorized disposal vendor to collect

Environment Compliance							
GRI 307-1	- Number/monetary value of significant fines associated with environment law violation	cases	0	0	0	0	0

Social Performance

Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
GRI 2-7 and GRI 401-1	Employment											
	Employee* (Persons) The company has an exclusive full-time employment policy. There are no temporary, part-time, self-employment and no seasonal difference in manpower.											
	<b>By gender</b>											
	Total employees	persons / %	1,254	100.00	1,251	100.00	1,230	100.00	1,103	100.00	1,098	100.00
	Male	persons / %	881	70.26	868	69.38	854	69.43	759	68.81	752	68.49
	Female	persons / %	373	29.74	383	30.62	376	30.57	344	31.19	346	31.51
	<b>By religion</b>											
	Total employees	persons / %	1,254	100.00	1,251	100.00	1,230	100.00	1,103	100.00	1,098	100.00
	Buddhism	persons / %	1205	96.09	1204	96.24	1182	96.10	1060	96.10	1055	96.08
	Christian - Catholic	persons / %	27	2.16	22	1.76	24	1.95	19	1.72	20	1.82
	Islam	persons / %	21	1.67	23	1.84	22	1.79	20	1.82	21	1.91
	Others	persons / %	1	0.08	2	0.16	2	0.16	4	0.36	2	0.18
	<b>By generation</b>											
	Total employees	persons / %	1,254	100.00	1,251	100.00	1,230	100.00	1,103	100.00	1,098	100.00
	Baby Boom	persons / %	42	3.35	36	2.88	22		14	1.26	8	0.73
	Generation X	persons / %	550	43.86	541	43.25	533	43.33	451	40.89	450	40.98
	Generation Y	persons / %	632	50.40	625	49.96	626	50.89	585	53.04	584	53.19
	Generation Z	persons / %	30	2.39	49	3.92	49	3.98	53	4.81	56	5.10
	<b>By level</b>											
	Level 10-14: Executive up	persons / %	151	12.04	158	12.63	161	13.09	158	14.32	169	15.39
	Male	persons / %	103	8.21	103	8.23	103	8.37	97	8.79	102	9.29
	Female	persons / %	48	3.83	55	4.40	58	4.72	61	5.53	67	6.10
	Level 8-9: Senior Officer	persons / %	224	17.86	235	18.78	234	19.02	231	20.94	243	22.13
	Male	persons / %	138	11.00	147	11.75	150	12.20	148	13.42	154	14.03
	Female	persons / %	86	6.86	88	7.03	84	6.83	83	7.52	89	8.11
	Level 5-7: Officer	persons / %	461	36.76	462	36.93	454	36.91	390	35.36	382	34.79
	Male	persons / %	278	22.17	270	21.58	263	21.38	227	20.58	225	20.49
	Female	persons / %	183	14.59	192	15.35	191	15.53	163	14.78	157	14.30
	Level 1-4: Operator	persons / %	418	33.33	396	31.65	381	30.98	324	29.37	304	27.69
	Male	persons / %	362	28.87	348	27.82	338	27.48	287	26.02	271	24.68
	Female	persons / %	56	4.47	48	3.84	43	3.50	37	3.35	33	3.01
	<b>By age group</b>											
	Less than 30 years old	persons / %	328	26.16	287	22.94	205	16.67	154	13.96	126	11.48
	30-50 years old	persons / %	810	64.59	827	66.11	875	71.14	809	73.35	804	73.22
	More than 50 years old	persons / %	116	9.25	137	10.95	150	12.20	140	12.69	168	15.30
	<b>By Area</b>											
	Head office	persons / %	544	43.38	545	43.57	533	43.33	476	43.16	492	44.81
	Refinery	persons / %	634	50.56	630	50.36	620	50.41	551	49.95	528	48.09
	North District	persons / %	9	0.72	10	0.80	9	0.73	10	0.91	10	0.91
	Central District	persons / %	49	3.91	49	3.92	49	3.98	46	4.17	47	4.28
	North-East District	persons / %	10	0.80	9	0.72	11	0.89	12	1.09	12	1.09
	South District	persons / %	8	0.64	8	0.64	8	0.65	8	0.73	9	0.82
	<b>By race</b>											
	Asian	%								99.91		99.91
	White	%								0.09		0.09
	Black /African American	%								0.00		0.00
	Hispanic or Latino	%								0.00		0.00

Indicators	Material Aspects	Unit	2018	2019	2020	2021	2022
BCP Indicators	Diversity of employees						
	Percentage of women share of total workforce	%		30.62	30.57	31.19	31.51
	Percentage of women in all management position (Junior,middle and Top management) - Level 8-14	%		36.39	35.95	37.79	37.96
	(Percentage of females in junior management positions, i.e. first level of management) - Level 8-9	%		37.47	35.90	35.93	37.96
	Percentage of females in top management positions : Maximum two levels away from the CEO - Level 13-14	%		39.13	41.67	36.36	43.48
	Percentage of females in management positions in revenue generating functions (excluding support functions such as HR, IT, Legal etc.)	%		22.58	22.44	24.15	26.52
	Percentage of females in management position under STEM (Science Technology Engineering and Mathematics) functions	%		27.60	26.45	24.64	27.14
	Percentage of workforce based on other minority group - people with disability	%		1.00	1.00	1.00	1.00
LGBTQI+	%				1.79	Survey result : The assessee did not wish to disclose	Survey result : The assessee did not wish to disclose

Social Performance													
Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022		
			Persons	%	Persons	%	Persons	%	Persons	%	Persons	%	
GRI 401-1	Employees' Turnover												
	Turnover rate	%	3.55		5.36		3.16		5.13		4.50		
	By gender												
	Male	persons / %	27	58.70	52	74.29	25	64.10	37	64.91	25	51.02	
	Female	persons / %	19	41.30	18	25.71	14	35.90	20	35.09	24	48.98	
	By age group												
	Less than 30 years old	persons / %	20	43.48	39	55.71	18	46.15	27	47.37	20	40.81	
	30-50 years old	persons / %	25	54.35	27	38.57	17	43.59	28	49.12	26	53.06	
	More than 50 years old	persons / %	1	2.17	4	5.71	4	10.26	2	3.51	3	6.12	
	By level												
	Level 10-14: Manager up	persons / %									6	12.24	
	Level 5-9: Officer, Senior Officer	persons / %									38	77.55	
	Level 1-4: Operator	persons / %									5	10.20	
	By race												
	Asian	persons / %									49	100.00	
	White	persons / %									0	0.00	
	Black: African American	persons / %									0	0.00	
	Hispanic or Latino	persons / %									0	0.00	
	New Employees												
	By gender												
	Male	persons / %	46	68.66	45.00	60.81	19.00	63.33	21.00	48.84	28	49.12	
	Female	persons / %	21	31.34	29	39.19	11	36.67	22	51.16	29	50.88	
	By age group												
	Less than 30 years old	persons / %	37	55.22	55	74.32	24	80.00	24	55.81	30	52.63	
	30-50 years old	persons / %	27	40.30	16	21.62	6	20.00	17	39.53	26	45.61	
	More than 50 years old	persons / %	3	4.48	3	4.05	0	0	2	4.65	1	1.75	
	By level												
	Level 10-14: Manager up	persons / %									9	15.79	
Level 5-9: Officer, Senior Officer	persons / %									46	80.70		
Level 1-4 : Operator	persons / %									2	3.51		
By race													
Asian	persons / %									57	100.00		
White	persons / %									0	0.00		
Black: African American	persons / %									0	0.00		
Hispanic or Latino	persons / %									0	0.00		
GRI 401-3	Parental leave												
	Employees that were entitled to parental leave (female)	Person										346	100.00
	Employees took parental leave (female) (percentage per female employees that were entitled to parental leave) <sup>1</sup>	person / %	5	0.40	7	0.56	4	0.33	8	0.73	4	1.16	
	Employees took parental leave (female) (percentage per total employees that were entitled to parental leave)	person / %										4	0.36
	Employees that were entitled to parental leave (Male)	Person										752	100.00
	Employees took parental leave (Male) (percentage per female employees that were entitled to parental leave) <sup>1</sup>	person / %										16	2.13
	Employees took parental leave (Male) (percentage per total employees that were entitled to parental leave)	person / %										16	1.46
	Employees that returned to work after parental leave (female) <sup>2</sup>	person / %	5	100.00	7	100.00	4	100.00	8	100.00	4	100.00	
	Employees that returned to work after parental leave (male)	person / %										16	100.00
	Employees that returned to work after parental leave that were still employed 12 months after their return to work (female)	person / %										4	100.00
Employees that returned to work after parental leave that were still employed 12 months after their return to work (male)	person / %										16	100.00	

Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
GRI 404-1	Employee development (training hours / person / year)											
	Total training hour	hour	57,487.00		56,448.50		28,650.27		30,869.65		31,951.70	
	Total average training hour	hour	45.88		45.12		23.29		27.99		29.08	
	Average amount spent on training and development per FTEs (DISJ/CSA)	Thai Baht	47,048.98		28,120.00		8,717.66		14,447.45		15,930.68	
	By gender											
	Male	hour	43.07		42.82		21.05		29.03		31.97	
	Female	hour	52.65		50.35		28.18		25.69		22.80	
	By level											
	Level 10-14: Manager up	hour	56.66		52.33		45.15		53.66		25.08	
	Level 5-9: Officer, Senior Officer	hour	58.09		56.35		24.03		24.87		27.11	
	Level 1-4 : Operator	hour	22.34		22.48		12.53		21.46		35.36	
	By business category											
	President & Chief Executive Officer (PS)	hour	104.29		56.45		38.45		31.84		26.18	
	Corporate Sustainability Development and Strategic Synergy (CSBU)	hour	159.56		102.23		46.99		-		14.55	
	Corporate Management and Organization Development (MDBU)	hour	73.22		71.68		37.00		23.47		25.23	
	Accounting and Finance (AFBU)	hour	71.06		67.65		18.85		27.00		46.10	
	Marketing Business Group (MKBG)	hour	43.83		44.35		15.58		29.56		13.05	
	Refinery Business Group (RFBG)	hour	30.63		30.63		21.82		28.09		37.22	
	Best Employer Score	%	67.00		56.00		56.00		N/A		N/A	
	Employee Engagement Score	%	69.00		62.00		63.00		70.00		75.00	
	Labour and Human rights Complaints	case	0		0		0		0		0	
	Harassment and Discrimination Complaints	case	0		0		0		0		0	



Social Performance												
Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
GRI 405-2	Ratio of basic salary and remuneration of women to men <sup>2</sup>											
	By gender											
	Basic salary base	ratio							1.00	0.86	1.00	0.85
	Total remuneration base	ratio									1.00	0.93
	By age group (Basic salary base)											
	Less than 30 years old	ratio							1.00	0.75	1.00	0.80
	30-50 years old	ratio							1.00	0.83	1.00	0.82
	More than 50 years old	ratio							0.96	1.00	1.00	0.94
	By age group (Total remuneration base)											
	Less than 30 years old	ratio									0.96	1.00
	30-50 years old	ratio									1.00	0.92
	More than 50 years old	ratio									1.00	0.95
	By religion (Basic salary base)											
	Buddhism	ratio							1.00	0.85	1.00	0.84
	Others	ratio							0.78	1.00	0.87	1.00
	By religion (Total remuneration base)											
	Buddhism	ratio									1.00	0.92
	Others	ratio									0.85	1.00
	By level (Basic salary base)											
	Level 10-14: Executive up	ratio							0.89	1.00	0.92	1.00
	Level 8-9: Senior Officer	ratio							0.98	1.00	0.98	1.00
	Level 5-7: Officer	ratio							0.94	1.00	0.95	1.00
	Level 1-4: Operator	ratio							1.00	0.89	1.00	0.95
	By level (Total remuneration base)											
	Level 10-14: Executive up	ratio									0.92	1.00
	Level 8-9: Senior Officer	ratio									0.95	1.00
Level 5-7: Officer	ratio									0.81	1.00	
Level 1-4: Operator	ratio									0.82	1.00	
By areas (Basic salary base)												
Head office	ratio							0.79	1.00	0.83	1.00	
Refinery	ratio							1.00	0.74	1.00	0.73	
Others (North, Central, North-East and South)	ratio							0.78	1.00	0.77	1.00	
By areas (Total remuneration base)												
Head office	ratio									0.82	1.00	
Refinery	ratio									1.00	0.82	
Others (North, Central, North-East and South)	ratio									0.72	1.00	

Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
GRI 202-1	Ratio of Employee Mean Pay (Basic Salary base) per Legal Minimum Pay (GRI 202-1)	ratio									1/0.69	1/0.73
	Ratio of Contractor Mean Pay (Basic Salary base) per Legal Minimum Pay (GRI 202-1b)	ratio									omission	
GRI 202-2	Percentage of employees at manager level or higher (Level 10-14: Executive up) who are local (Thai nationality)	percentage									99.41	

Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
BCP Indicators	Gender pay gap (male : female)											
	Mean gender pay gap (Basic salary base)	%						-16.97	-15.66	-17.55		
	Median gender pay gap (Basic salary base)	%						-20.29	-18.88	-21.34		
	Mean gender pay gap (Total remuneration base) <sup>3</sup>	%									-8.03	
	Median gender pay gap (Total remuneration base) <sup>3</sup>	%									-2.90	
	Mean bonus gap	%							-14.92	-14.47	-17.31	
Median bonus gap	%							-15.96	-17.83	-18.96		

<sup>/1</sup> Percentage of parental leave in 2022 is reported per total employees because male employees is eligible for 15 days parental leave (previously reported per total female employees)

<sup>/2</sup> Adjust to report per total employees in accordance to GRI 401-3

<sup>/3</sup> Adjust to report per total remuneration in 2022 (previously reported per basic salary)

Occupational Health and Safety Performance												
Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
GRI 403-9	Workers covered by an occupational health and safety management system											
	Total Working Hours											
	- Employees	Hour	2,469,674.80		2,395,054.80		2,344,462.90		1,258,971.00		2,043,251.90	
		Hour	1,806,814.30	662,860.50	1,736,499.30	658,555.50	1,675,031.60	669,431.30	1,149,249.50	109,721.50	1,448,331.30	594,920.60
	- Contractors	Hour	5,459,788.80		6,564,583.52		7,815,554.00		2,810,960.50		1,777,185.50	
		Hour	4,250,297.90	1,209,490.90	4,714,105.12	1,850,478.40	5,959,383.00	1,856,171.00	2,238,417.50	572,543.00	1,401,309.00	375,876.50
	Work-Related Injuries											
	Fatality as a result of Work-Related Injury											
	- Employees	case	0.00		0.00		0.00		0.00		0.00	
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		case/million working hours	0.00		0.00		0.00		0.00		0.00	
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Data Coverage (% of operations)	100		100		100		100		100		
	- Contractors	case	0.00		0.00		0.00		0.00		0.00	
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		case/million working hours	0.00		0.00		0.00		0.00		0.00	
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Data Coverage (% of operations)	100		100		100		100		100		
	Total Recordable Injury Frequency Rate: TRIFR											
	- Employees	case	3		0		1		0		2	
			3	0	0	0	1	0	0	0	2	0
		case/million working hours	1.21		0.00		0.43		0.00		0.98	
			1.66	0.00	0.00	0.00	0.60	0.00	0.00	0.00	1.38	0.00
	Data Coverage (% of operations)	100		100		100		100		100		
	- Contractors	case	6		5		4		4		2	
6			0	5	0	2	2	4	0	2	0	
case/million working hours		1.10		0.76		0.38		1.42		1.13		
		1.41	0.00	1.06	0.00	0.34	0.54	1.79	0.00	1.43	0.00	
Data Coverage (% of operations)	100		100		100		100		100			
Lost-Time Injury Frequency Rate: LTIFR												
- Employees	case	1		0		0		0		0		
		1	0	0	0	0	0	0	0	0	0	
	case/million working hours	0.40		0.00		0.00		0.00		0.00		
		0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Data Coverage (% of operations)	100		100		100		100		100			
- Contractors	case	3		2		2		1		2		
		3	0	2	0	2	0	1	0	2	0	
	case/million working hours	0.55		0.30		0.26		0.36		1.13		
		0.71	0.00	0.42	0.00	0.34	0.00	0.45	0.00	1.43	0.00	
Data Coverage (% of operations)	100		100		100		100		100			
High-Consequence Work-Related Injuries												
- Employees	case	N/A		0		0		0		0		
		N/A	N/A	0	0	0	0	0	0	0	0	
Data Coverage (% of operations)	N/A		100		100		100		100			
- Contractors	case	N/A		0		0		0		1		
		N/A	N/A	0	0	0	0	0	0	1	0	
Data Coverage (% of operations)	N/A		100		100		100		100			
Near Miss Incidents												
Total cases	case	17		35		101		24		12		
- Employees	case	15		19		12		21		8		
- Contractors	case	2		16		1		3		4		
- Data coverage	Data Coverage (% of operations)	100		100		100		100		100		
GRI 403-10	Work-Related Illnesses											
	Occupational Illness Frequency Rate: OIFR											
	- Employees	case	N/A		0		0		0		0	
		case (categorized by genders)	N/A	N/A	0	0	0	0	0	0	0	0
		case/million working hours	N/A		0.00		0.00		0.00		0.00	
			N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fatality case		0		0		0		0		0		
Data Coverage (% of operations)	N/A		100		100		100		100			

Occupational Health and Safety Performance												
Indicators	Material Aspects	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Process Safety Management (PSM)	Process Safety Events											
	Process Safety Events - Tier 1	Event	0	0	0	0	0	0	0	0	0	0
		Event / Million working hours	0	0	0	0	0	0	0	0	0	0
		Data coverage (percentage of operations)	100	100	100	100	100	100	100	100	100	100
	Process Safety Events - Tier 2	Event	0	0	0	0	0	0	0	0	0	0
		Event / Million working hours	0	0	0	0	0	0	0	0	0	0
		Data coverage (percentage of operations)	100	100	100	100	100	100	100	100	100	100
	PSM Assessment Score											
	PSM Assessment Score (2022 Target: 4.0)	score	2.7	3.1	3.3	3.5	4.0					

\*Injuries are excluded first aid in the injury rate (IR) and lost days count begins the scheduled work day after the accident.

Hydrocarbon Spills and Environmental Compliance								
Indicator	Material Aspects	Unit	2018	2019	2020	2021	2022	
GRI 306-3 (2016) Sector standard reference 11.8.2	** 306-3: Significant spills (GRI additional sector recommendations) (**The effluents-related content of the GRI Standard GRI 306: Effluents and Waste 2016 has been superseded by GRI Standard GRI 303: Water and Effluents 2018, and the waste-related content has been superseded by GRI 306: Waste 2020. The spills-related content in GRI 306: Effluents and Waste 2016 remains in effect.)							
	Hydrocarbon spills > 100 barrels per time							
	- Number of case related to hydrocarbon spills (> 100 barrels / time)	case	0	0	0	0	0	
	- Volume of hydrocarbon spills (> 100 barrels / time)	barrel	0.00	0.00	0.00	0.00	0.00	
		liter	0.00	0.00	0.00	0.00	0.00	
	Hydrocarbon spills > 1 barrels per time (but not over 100 barrels)							
	- Hydrocarbon spills > 1 barrels per time (but not over 100 barrels)	cases	3	2	3	0	0	
	- Volume of significant hydrocarbon spills (> 1 barrels / time)	barrels	141.00	4.00	11.00	-	-	
		liters	22,560.00	640.00	1,760.00	-	-	
	- Volume of hydrocarbon > 1 barrel spilled into the environment	barrels	74.00	-	0.00	0.00	0.00	
liters		11,840.00	-	0.00	0.00	0.00		
Sector standard reference 11.8.3	Number of Tier 1 cases related to significant spills (LOPC)	cases	0	0	0	0		
	Number of Tier 2 cases related to significant spills (LOPC)	cases	0	0	0	0		

Process safety performance indicators (Leading and Lagging), such as indicators regarding Tier 1 and Tier 2 loss of primary containment (LOPC), following API RP 754 (American Petroleum Institute Recommended Practice 754) guidelines.

\* LOPC (Loss of Primary Containment) means an unplanned or uncontrolled release of any material from primary containment, including non-toxic and non-flammable materials.

- Tier1 : LOPC Events of Greater Consequence, the count of Tier 1 process safety events is the most lagging performance indicator and represents incidents with greater consequence resulting from actual losses of containment.

- Tier2 : LOPC Events of Lesser Consequence, the count of Tier 2 process safety events represents loss of primary containment events with a lesser consequence, but may be predictive of future, more significant incidents.

# GRI Content Index

statement of use		Bangchak Corporation Public Company Limited has reported in accordance with GRI Standards for the period 1 January 2022 – 31 December 2022				
GRI 1 used		GRI 1: Foundation 2021				
Applicable GRI Sector Standard(s)		GRI 11: Oil and Gas Sector 2021				
GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD REF No.
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
General disclosures						
GRI 2 : General Disclosures 2021	2-1 Organizational details	10				
	2-2 Entities included in the organization's sustainability reporting	6				
	2-3 Reporting period, frequency and contact point	6				
	2-4 Restatements of information	6				
	2-5 External assurance	216				
	2-6 Activities, value chain and other business relationships	16-17				
	2-7 Employees	196				
	2-8 Workers who are not employees	n/a	a, b, c	Information unavailable/incomplete		
	2-9 Governance structure and composition	14-15				
	2-10 Nomination and selection of the highest governance body	AR 198				
	2-11 Chair of the highest governance body	AR 176				
	2-12 Role of the highest governance body in overseeing the management of impacts	22-24, 71-80				
	2-13 Delegation of responsibility for managing impacts	22				
	2-14 Role of the highest governance body in sustainability reporting	46				
	2-15 Conflicts of interest	AR 216				
	2-16 Communication of critical concerns	44				

A gray cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available.

# GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>General disclosures</b>						
GRI 2 : General Disclosures 2021	2-17 Collective knowledge of the highest governance body	AR 199, 354-369				
	2-18 Evaluation of the performance of the highest governance body	AR 200-201				
	2-19 Remuneration policies	AR 191, 203				
	2-20 Process to determine remuneration	AR 191, 203				
	2-21 Annual total compensation ratio	AR 192, 194	a, b, c	Confidentiality constraints	CEO compensation is confidential.	
	2-22 Statement on sustainable development strategy	8-9				
	2-23 Policy commitments	22-23				
	2-24 Embedding policy commitments	22-23				
	2-25 Processes to remediate negative impacts	AR 213-214				
	2-26 Mechanisms for seeking advice and raising concerns	AR 213-214				
	2-27 Compliance with laws and regulations	182, 195, 197				
	2-28 Membership associations	10				
	2-29 Approach to stakeholder engagement	24				
	2-30 Collective bargaining agreements	151				
	<b>Material topics</b>					
GRI 3: Material Topics 2021	3-1 Process to determine material topics	44-46	A gray cell indicates that reasons for omission are not permitted for the disclosure or that a GRI Sector Standard reference number is not available.			
	3-2 List of material topics	46				

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Economic performance</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	64				11.14.1
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	181				11.14.2
<b>Market presence</b>						
GRI 202: Market Presence 2016	202-2 Proportion of senior management hired from the local community	198				11.14.3
<b>Indirect economic impacts</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	64				11.14.1
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	163-179				11.14.4
	203-2 Significant indirect economic impacts	98-100, 163-179				11.14.5
<b>Procurement practices</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	83-87				11.14.1
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	181				11.14.6
<b>Anti-corruption</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	68-70				11.20.1
GRI 205: Anti-corruption 2016	205-1 Operation assessed for risk related to corruption	68				11.20.2
	205-2 Communication and training about anti-corruption policies and procedures	68-70				11.20.3
	205-3 Confirmed incidents of corruption and actions taken	68				11.20.4
	Addition Sector: Contract transparency	AR 62-69				11.20.5
	Additional Sector: The organization's beneficial owners	n/a	Additional Sector Disclosure Requirement of GRI 11.20	Confidentiality constraints	PDPA	11.20.6

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Anti-competitive behavior</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	68-70				11.19.1
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	AR 212				11.19.2
<b>Tax</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	64				11.21.1
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	181				11.21.2
	201-4 Financial assistance received from the government	AR 324, 326				11.21.3
GRI 207: Tax 2019	207-1 Approach to tax	64				11.21.4
	207-2 Tax governance, control, and risk management	64				11.21.5
	207-3 Stakeholder engagement and management of concerns related to tax	64				11.21.6
	207-4 Country-by-country reporting	182				11.21.7
<b>Risk Management</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	71-80				
<b>Information technology and cybersecurity</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	101-104				
	Number of information security breaches/cybersecurity incidents	104				

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Energy</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	109-110				11.1.1
GRI 302: Energy 2016	302-1 Energy consumption within the organization	183-184				11.1.2
	302-2 Energy consumption outside of the organization	n/a	a, b, c	Information unavailable/incomplete		11.1.3
	302-3 Energy intensity	183-184				11.1.4
	302-4 Reduction of energy consumption	109-110				
	302-5 Reductions in energy requirements of products and services	n/a	a, b, c	Not applicable	The gasoline and diesel are considered as commodity product which the energy requirement is similar across the industry	
<b>Water and effluents</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	117-120				11.6.1
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	117-120				11.6.2
	303-2 Management of water discharge-related impacts	117-120				11.6.3
	303-3 Water withdrawal	190-191				11.6.4
	303-4 Water discharge	192-193				11.6.5
	303-5 Water consumption	192-193				11.6.6



## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Biodiversity</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	129-134				11.4.1
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	129-134				11.4.2
	304-2 Significant impacts of activities, products and services on biodiversity	129-134				11.4.3
	304-3 Habitats protected or restored	129-134				11.4.4
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	n/a	a	Information unavailable/incomplete		11.4.5
<b>Emissions, climate adaptation, resilience, and transition</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	111-116				11.1.1, 11.2.1, 11.3.1
GRI 201: Economic Performance 2016	201-2 Financial implications and other risks and opportunities due to climate change	113				11.2.2
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	185-186				11.1.5
	305-2 Energy indirect (Scope 2) GHG emissions	185-186				11.1.6

# GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Emissions, climate adaptation, resilience, and transition</b>						
GRI 305: Emissions 2016	305-3 Other indirect (Scope 3) GHG emissions	187-188			- Reporting boundary for Scope 3 GHG of Upstream transport Via Ship cover only transport in Thailand but does not include oversea transportation. - Reporting scope of Scope 3 GHG of downstream product transportation via truck also does not include transportation of lube oil product.	11.1.7
	305-4 GHG emissions intensity	185-186				11.1.8
	305-5 Reduction of GHG emissions	187-188				11.2.3
	Additional Sector: The organization's approach to public policy development and lobbying on climate change	111-116				11.2.4
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	189				11.3.2
	416-1 Assessment of the health and safety impacts of product and service categories	n/a	a		Information unavailable/incomplete	11.3.3
	OG6: Volume of flared and vented hydrocarbon	189				
<b>Waste, circular economy, asset integrity and critical incident management</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	123-126, 179-180				11.5.1, 11.8.1

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Waste, circular economy, asset integrity and critical incident management</b>						
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	123-126				11.5.2
	306-2 Management of significant waste-related impacts	123-126				11.5.3
	306-3 Waste generated	194-195				11.5.4
	306-3 (2016) Significant spill	200				11.8.2
	306-4 Waste diverted from disposal	194-195				11.5.5
	306-5 Waste directed to disposal	194-195				11.5.6
	Additional sector: Number of Tier 1 and Tier 2 process safety events, and a breakdown of this total by business activity	200				11.8.3
<b>Supplier environmental assessment</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	86-87				
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	86-87				
	308-2 Negative environmental impacts in the supply chain and actions taken	86-87				
<b>Eco-efficiently</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	108-109				
	Eco-efficiency (EBITDA/ Total GHG emissions of RFBG and MKBG)	108-109				

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Employment</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	153-155				11.10.1, 11.11.1
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	197				11.10.2
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	196				11.10.3
	401-3 Parental leave	197				11.10.4, 11.11.3
<b>Labor/management relations</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	158-161				11.10.1
GRI 402: Labor/Management Relations 2016	402-1 Minimum notice periods regarding operational changes	158-161				11.10.5
<b>Occupational health and safety</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	138-144				11.9.1
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	138-144				11.9.2
	403-2 Hazard identification, risk assessment, and incident investigation	138-144				11.9.3
	403-3 Occupational health services	138-144				11.9.4
	403-4 Worker participation, consultation, and communication on occupational health and safety	138-144				11.9.5
	403-5 Worker training on occupational health and safety	138-144				11.9.6
	403-6 Promotion of worker health	138-144				11.9.7

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Occupational health and safety</b>						
GRI 403: Occupational Health and Safety 2018	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	138-144				11.9.8
	403-8 Workers covered by an occupational health and safety management system	138-144				11.9.9
	403-9 Work-related injuries	199				11.9.10
	403-10 Work-related ill health	199				11.9.11
	OGSS: Emergency Preparedness	138-144				
<b>Training and education</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	156-158				11.10.1, 11.11.1
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	197				11.10.6, 11.11.4
	404-2 Programs for upgrading employee skills and transition assistance programs	156-158				11.10.7
	404-3 Percentage of employees receiving regular performance and career development reviews	156-158				
<b>Diversity and equal opportunity</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	153-155				11.11.1
GRI 202 : Market Presence 2016	202-2 Proportion of senior management hired from the local community	198				11.11.2
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	196				11.11.5
	405-2 Ratio of basic salary and remuneration of women to men	198				11.11.6

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Non-discrimination</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.11.1
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	145-151				11.11.7
<b>Freedom of association and collective bargaining</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.13.1
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	145-151				11.13.2
<b>Child labor</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	145-151				
<b>Forced or compulsory labor</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.12.1
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	145-151				11.12.2
<b>Security practices</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.18.1
GRI 410: Security Practices 2016	410-1 Security personnel trained in human rights policies or procedures	n/a	a, b	Information unavailable/incomplete		11.18.2

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	EXPLANATION	
<b>Rights of indigenous peoples</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.17.1
GRI 411: Rights of Indigenous Peoples 2016	411-1 Incidents of violations involving rights of indigenous peoples	145-151				11.17.2
	Additional Sector: List the locations of operations where indigenous peoples are present or affected by activities of the organization	145-151				11.17.3
	Additional Sector: Report if the organization has been involved in a process of seeking free, prior and informed consent (FPIC) from indigenous peoples for any of the organization activities	145-151				11.17.4
<b>Human rights assessment</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	145-151				11.16.1
GRI 413: Local Communities 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	145-151				11.16.2
	412-2 Employee training on human rights policies or procedures	145-151				
<b>Local communities</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	163-179				11.15.1
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	163-179				11.15.2
	413-2 Operations with significant actual and potential negative impacts on local communities	163-179				11.15.3
	Additional Sector: Number and Type of grievances from local communities	163-179				11.15.4

## GRI Content Index

GRI STANDARD/ OTHER SOURCE	DISCLOSURE	LOCATION	OMISSION			GRI SECTOR STANDARD
			REQUIREMENT(S) OMITTED	REASON	ESPLANATION	
<b>Supplier social assessment</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	86-87				11.10.1, 11.12.1
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	86-87				11.10.8, 11.12.3
	414-2 Negative social impacts in the supply chain and actions taken	86-87				11.10.9
<b>Public policy</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	AR 207				11.22.1
GRI 415: Public Policy 2016	415-1 Political contributions	AR 207				11.22.2
<b>Customer health and safety</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	n/a	a, b, c, d, e, f	Information unavailable/incomplete		
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	n/a	a	Information unavailable/incomplete		
<b>Marketing and labeling</b>						
GRI 3: Material Topics 2021	3-3 Management of material topics	88-97				
GRI 417: Marketing and Labeling 2016	417-3 Incidents of non-compliance concerning marketing communications	182				
<b>Topics in the applicable GRI Sector Standards determined as not material</b>						
<b>Topics</b>			<b>EXPLANATION</b>			
GRI 11: Oil and Gas Sector 2021 Topic 11.7 Closure and rehabilitation			There is no any closure and rehabilitation plan in the near future (> 10 years).			



## The Adherence of the Ten Principles of the UN Global Compact

GC Scope or Principle	GC Advanced Level Criteria	Bangchak Approach	Disclose
<b>Scope:</b> Implementing the Ten Principles into Strategies & Operations	Strategy, Governance and Engagement		
	1. The COP describes mainstreaming into corporate functions and business units	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> <li>Sustainability Strategy</li> </ul>	22 47
	2. The COP describes value chain implementation	<ul style="list-style-type: none"> <li>Bangchak Overview</li> <li>Bangchak Value Chain</li> <li>Supply Chain Management</li> </ul>	10 16 83
<b>Principle 1:</b> Businesses should support and respect the protection of internationally proclaimed human rights	Human rights		
	3. The COP describes robust commitments, strategies, or policies in the area of human rights	<ul style="list-style-type: none"> <li>Human Rights</li> </ul>	145
	4. The COP describes effective management systems to integrate the human rights principles		
<b>Principle 2:</b> Businesses should make sure that they are not complicit in human rights abuses	5. The COP describes effective monitoring and evaluation mechanisms of human rights integration		
	Labour		
<b>Principle 3:</b> Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	6. The COP describes robust commitments, strategies, or policies in the area of labour	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> </ul>	22
	<b>Principle 4:</b> The elimination of all forms of forced and compulsory labour	<ul style="list-style-type: none"> <li>Stakeholder Engagement (Employee)</li> </ul>	26
<b>Principle 5:</b> The effective abolition of child labour	8. The COP describes effective monitoring and evaluation mechanisms of labour integration	<ul style="list-style-type: none"> <li>Safety &amp; Occupational Health</li> </ul>	138
		<ul style="list-style-type: none"> <li>Human Rights</li> </ul>	145
<b>Principle 6:</b> The elimination of discrimination in respect of employment and occupation		<ul style="list-style-type: none"> <li>Employee Stewardship</li> </ul>	152
	Environment		
<b>Principle 7:</b> Business should support a precautionary approach to environmental challenges	9. The COP describes robust commitments, strategies, or policies in the area of environmental stewardship	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> </ul>	22
	<b>Principle 8:</b> Businesses should undertake initiatives to promote greater environmental responsibility	<ul style="list-style-type: none"> <li>Environment Performance</li> </ul>	106
<b>Principle 9:</b> Businesses should encourage the development and diffusion of environmentally friendly technologies	11. The COP describes effective monitoring and evaluation mechanisms of environmental stewardship	<ul style="list-style-type: none"> <li>Sustainable Product and Service</li> </ul>	88
		<ul style="list-style-type: none"> <li>Eco-Efficiency</li> </ul>	108
		<ul style="list-style-type: none"> <li>Environmental Accounting</li> </ul>	135

## The Adherence of the Ten Principles of the UN Global Compact

GC Scope or Principle	GC Advanced Level Criteria	Bangchak Approach	Disclose
<b>Principle 10:</b> Businesses should work against corruption in all forms, including extortion and bribery	<b>Anti-corruption</b>		
	12. The COP describes robust commitments, strategies, or policies in the area of anti-corruption	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> </ul>	22
	13. The COP describes effective management systems to integrate the anti-corruption principles	<ul style="list-style-type: none"> <li>Good Corporate Governance and Anti-Corruption</li> </ul>	65
	14. The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption	<ul style="list-style-type: none"> <li>Supply Chain Management</li> </ul>	83
<b>Scope:</b> Take Action in Support of Broaden UN Goals and Issues	<b>UN Goals and Issues</b>		
	15. The COP describes core business contributions to UN Goals and Issues	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> </ul>	22
	16. The COP describes strategic social investments and philanthropy	<ul style="list-style-type: none"> <li>Community &amp; Social Engagement</li> </ul>	163
	17. The COP describes advocacy and public policy engagement	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> </ul>	22
	18. The COP describes partnerships and collective action	<ul style="list-style-type: none"> <li>Principle and conceptual framework of sustainability</li> </ul>	22
<b>Scope:</b> Corporate Sustainability Governance and Leadership	<b>Governance</b>		
	19. The COP describes CEO commitment and leadership	<ul style="list-style-type: none"> <li>Message from the President and CEO</li> <li>Sustainability Strategy</li> </ul>	8 47
	20. The COP describes Board adoption and oversight	<ul style="list-style-type: none"> <li>Bangchak and Sustainability</li> <li>Good Corporate Governance</li> </ul>	22 65
	21. The COP describes stakeholder engagement	<ul style="list-style-type: none"> <li>Bangchak and its stakeholders</li> </ul>	24



# LRQA Independent Assurance Statement

## Relating to Bangchak Corporation Public Company Limited's Integrated Sustainability Report for the calendar year 2022

This Assurance Statement has been prepared for Bangchak Corporation Public Company Limited in accordance with our contract but is intended for the readers of this Report.

### Terms of engagement

LRQA was commissioned by Bangchak Corporation Public Company Limited (BCP) to provide independent assurance on its Integrated Sustainability Report ("the report") against the assurance criteria below to a limited level of assurance at the materiality of the professional judgement of the verifier using LRQA's verification procedure for all specific standard disclosures listed below except for Energy consumption within the organization, Scope 1 GHG emissions, Scope 2 GHG emissions, and GHG emissions intensity where a reasonable level of assurance and 5% materiality is applied.

Our assurance engagement covered BCP's operations and activities in Thailand under its operational control<sup>(1)</sup> and specifically the following requirements: <sup>a, b</sup>

- Confirming that the report is in accordance with:
  - GRI Standard 2021
  - GRI 11 : Oil and Gas Sector 2021
- Evaluating the reliability of data and information for only the selected indicators listed below:
  - GRI 303-3 : Water withdrawal<sup>(2)</sup> (2018)
  - GRI 303-4 : Water discharge<sup>(2)</sup> (2018)
  - GRI 303-5 : Water consumption<sup>(2)</sup> (2018)
  - GRI 305-3 : Other indirect (Scope 3) GHG emissions<sup>(3)</sup> (2016)
  - GRI 305-5 : Reduction of GHG emissions<sup>(4)</sup> (2016)
  - GRI 305-7 : Nitrogen Oxides (NOx), Sulfur Oxides (SOx), and other significant air emissions (VOC and H2S)<sup>(5)</sup> (2016)
  - GRI 306-3 : Waste generated<sup>(2)</sup> (2020)
  - GRI 306-4 : Waste diverted from disposal<sup>(2)</sup> (2020)
  - GRI 306-5 : Waste directed to disposal<sup>(2)</sup> (2020)
  - GRI 306-3 : Significant spills<sup>(5)</sup> (2016)
  - GRI 403-9 : Work-related injuries<sup>(2)</sup> (2018)
  - GRI 403-10 : Work-related ill health<sup>(2)</sup> (2018)
  - GRI 405-2 : Ratio of basic salary and remuneration of women to men<sup>(6)</sup> (2016)
  - OG6 : Volume of Flared and Vented Hydrocarbon<sup>(5)</sup>
  - OGSS Emergency Preparedness<sup>(2)</sup>
- Evaluating the accuracy and reliability of data and information for only the selected indicators listed below:
  - GRI 302-1: Energy consumption within the organization<sup>(7)</sup>(2016)
  - GRI 305-1 : Direct (Scope 1) GHG emissions<sup>(7)</sup> (2016)
  - GRI 305-2 : Energy indirect (Scope 2) GHG emissions<sup>(7)</sup> (2016)
  - GRI 305-4 : GHG emissions intensity<sup>(7)</sup> (2016)

#### Notes:

- 1) Excludes subsidiaries and related companies in Thailand and overseas unless stated otherwise.
- 2) Includes BCP Refinery, refinery office at Sukhumvit Soi 64 and BCP Head office at M Tower.
- 3) Reporting of Scope 3 GHG emissions includes emissions from Upstream crude oil transportation, Downstream fuel products transportation (but excludes transportation of lube oil products), waste transportation and Municipal water consumption of refinery business and emission from purchased goods and services, upstream transportation, use of Municipal water and used of sold product for Marketing business. Remark: Upstream crude oil transportation does not include crude oil transportation from overseas.
- 4) Limited to GHG reduction activities of BCP refinery only.
- 5) Limited to a BCP refinery at Sukhumvit Soi 64 only.
- 6) Includes all units of BCP Refinery business i.e., Head office, Refinery plant, and Regional oil terminals.
- 7) includes BCP and its subsidiaries and related company in Thailand in Marketing business. Inconclusion, reporting scope for energy consumption and greenhouse gas emissions includes BCP (Refinery Business), Bangchak Green Net Co., Ltd. (BGN), and Bangchak Retail Co., Ltd. (BCR).

<sup>a</sup> <https://www.globalreporting.org>

<sup>b</sup> GHG quantification is subject to inherent uncertainty.



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

### LRQA's Opinion

Based on LRQA's approach, we believe that BCP has, in all material respects disclosed accurate and reliable performance data and information related to the following selected indicators:

- GRI 302-1 : Energy consumption within the organization<sup>(7)</sup>(2016)
- GRI 305-1 : Direct (Scope 1) GHG emissions<sup>(7)</sup> (2016)
- GRI 305-2 : Energy indirect (Scope 2) GHG emissions<sup>(7)</sup> (2016)
- GRI 305-4 : GHG emissions intensity<sup>(7)</sup> (2016)

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

Also, nothing has come to our attention that would cause us to believe that BCP has not, in all material respects:

- Met the requirements above.
- Disclosed reliable performance data and information for the selected indicators.
- Covered all the issues that are important to the stakeholders and readers of this report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

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

### LRQA's approach

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

- Assessing BCP's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing documents and associated records of stakeholder engagement results.
- Reviewing BCP's process for identifying and determining material issues to confirm that the right issues were included in their report. We did this by benchmarking reports written by BCP with its peers and sector standard to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether BCP makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing BCP's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We spoke with those key people responsible for compiling the data and drafting the report. We also reviewed the effectiveness of data handling processes and systems.
- Conducting the verification remotely through ICT applications in-order to:
  - interview people involved in reporting data of selected indicators within the reporting scope.
  - verify evidence made available for the selected indicators.

LRQA did not verify the data back to its original sources, nor did it assess the accuracy and completeness of the data reported by individual locations for all selected indicators, except for energy consumption within the organization, Scope 1 GHG emissions, Scope 2 GHG emissions, and GHG emissions intensity.

- Reviewing BCP's Integrated Sustainability Report 2022 based on the agreed criteria and term of engagement.

### Observations

Further observations and findings, made during the assurance engagement, are:

- Stakeholder inclusivity:  
We are not aware of any key stakeholder groups that have been excluded from BCP's stakeholder engagement process. Each of BCP's business units have applied various methods for engagement with their relevant stakeholders, either through:
  - usual communication forums during day-to-day operations, or
  - specific engagement activities such as opinion surveys, focus groups, etc.
 Engagement results from each business unit are then consolidated to the corporate level. BCP's sustainability vision and strategy, and the content of this report, have been informed by the views and expectation of these stakeholders.



- **Materiality:**  
We are not aware of any material issues concerning BCP's sustainability performance that have been excluded from the report. BCP has established criteria for determining its relevant sustainable issues by considering stakeholder engagement results, its context, business relationships, sector specific issues as well as global trends, etc. The resultant issues are then prioritized by impact assessment. These identified material issues also influence BCP's sustainable strategy, management approaches and performance disclosures.
- **Responsiveness:**  
BCP has established and implemented processes for responding to concerns from various stakeholder groups. We believe these communication processes are effective in explaining BCP's aim in contributing towards sustainable development. However, we believe that the monitoring and reporting scopes for all selected indicators should be expanded (as applicable: see notes 1-7) to include regional oil terminals, other subsidiaries and related companies in Thailand and overseas to demonstrate responsiveness at a broader level, i.e., to align with the energy and GHG emissions indicators' scope.
- **Impact:**  
BCP has implemented processes to measure, evaluate and manage impact(s) relevant to its material topics.
- **Reliability:**  
Data management systems are considered to be properly defined and implemented for collecting and calculating the data and information associated with the selected indicators.

#### **LRQA's standards, competence and independence**

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

The verification is the only work undertaken by LRQA for BCP and as such does not compromise our independence or impartiality.

A handwritten signature in black ink, appearing to read 'P. Hengsitawat'.

Paveena Hengsitawat  
LRQA Lead Verifier  
On behalf of LRQA (Thailand) Limited  
No.9, G Tower Grand Rama 9, 30<sup>th</sup> Floor, Room H14,  
Rama 9 Road, Huaykwang Sub-District, Huaykwang District  
Bangkok, 10310 Thailand

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**Bangchak Corporation Public Company Limited**

Head office : 2098 M Tower Building, 8th Floor, Sukhumvit Road,  
Phra Khanong Tai, Phra Khanong, Bangkok 10260 Thailand

Tel : 0 2335 8888 Fax : 0 2335 8000

[www.bangchak.co.th](http://www.bangchak.co.th)