

SUSTAINABLE GROWTH *to* DRIVE ALL DREAMS



THAI OIL PUBLIC
COMPANY LIMITED

INTEGRATED
REPORT 2024



**SUSTAINABLE
GROWTH
to DRIVE
ALL DREAMS**

ABOUT THIS REPORT

Thai Oil Public Company Limited has published this corporate sustainability report in line with the international reporting standards for the 13th consecutive year. The Company has committed to disclose all material information on corporate sustainable development transparently and accurately. This report encompasses the Company's economic, social, and environmental performances between January 1 and December 31, 2024.

REPORTING APPROACH

This 2024 Sustainability Report applies the Integrated Reporting <IR> Framework of the Value Reporting Foundation. In addition, the reporting material topics have been identified through a materiality assessment process, while the management approach and performance are disclosed in accordance with the Global Reporting Initiative (GRI) Standards. The Report integrates supplementary indicators specific to the Oil and Gas industry as per GRI 11: Oil and Gas Sector on page 68. The Report also outlines operational achievement progress in alignment with the ten Principles of the United Nations Global Compact (UNGC) on page 71, the Task Force on Climate-Related Financial Disclosures (TCFD) on page 71, and the United Nations Sustainable Development Goals (SDGs) on page 72-75. The reporting information on environmental data, safety data, and materiality assessment process has been verified by the external verifier, with the statement of assurance on page 66-67.



TCFD

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES



SCOPE OF REPORTING

The scope of reporting has been determined by consideration of business relevance, information readiness, and impacts on core businesses, namely oil refinery business, petrochemical business, lube base oil business, power business, and other businesses. The Report covers only businesses of Thai Oil Public Company Limited (TOP), Thai Lube Base Public Company Limited (TLB), Thai Paraxylene Company Limited (TPX), Thailoil Energy Services Company Limited (TES), LABIX Company Limited (LABIX), and TOP SPP Company Limited (TOP SPP). In addition, the performance related to green products of TOPNEXT International Company Limited (TX), and Thailoil Ethanol Company Limited (TET) is reported. The reporting coverage is 96% of Thailoil Group's sales revenue.

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The 2024 Intergrated Report is available for download at



For additional information on Thailoil Group's performance beyond the scope of this Report, please refer to the 2024 Annual Report (Form 56-1 One Report) at



MESSAGE TO OUR STAKEHOLDERS



Bandhit

Mr. Bandhit Thamprajamchit

Chief Executive Officer
and President

For over 63 years, Thaioil Group has sustained steady growth, solidifying its position as a leading company in the oil refinery business across the Asia-Pacific region. The Company is dedicated to enhancing its current businesses while pursuing new opportunities to achieve its vision of becoming a sustainable 100-year organization. In addition, the Company remains committed to playing a pivotal role in advancing Thailand's energy security with stability and sustainability.

In 2024, the increased global oil demand has been contributing to a positive overall performance for Thaioil Group. However, the global economic slowdown, coupled with uncontrollable geopolitical tensions, has created significant uncertainties in the business landscape. Moreover, the heightened focus on achieving net-zero greenhouse gas (GHG) emissions target – as committed by Thailand and governments worldwide – has increased expectations for private-sector efforts to innovate and deliver low-carbon products to drive the energy transition and usher in the era of an energy mix that integrates diverse forms of energy. This shift involves a gradual reduction in the reliance on fossil fuels, replaced by more environmentally friendly energy alternatives resulting in changes in consumer preferences and behaviors.

To align with the global trend towards energy transition, Thaioil Group has enhanced its business strategies through setting a target for developing low-carbon businesses and environmentally friendly products by 2030. The strategic portfolio comprises 45% petroleum and high value product businesses, 30% petrochemical and high value products, 20% high value and other new S-curve businesses, and 5% power businesses. To achieve this target, Thaioil Group has developed a strategic plan under the concept of "TOP for the Great Future" through the 3Vs business strategy framework as follows:

Value Maximization: Integrated Crude to Chemicals consists of maximizing the value of existing businesses by extending the value chain into high value products and downstream petrochemicals, including specialty chemicals, to enhance resilience and competitiveness.

Value Enhancement: Integrated Value Chain Management consists of enhancing sustainable business competitiveness by increasing the sales volume of commodity products, expanding into specialty products markets, and developing and distributing products to high growth markets such as Vietnam, Indonesia, and India.

Value Diversifications consists of pursuing new investment opportunities in new S-curves businesses that enhance the Company's portfolio resilience and sustainability, such as Disinfectants and Surfactants (D+S) business and new businesses related to global trends and low-carbon emissions like bio business, new energy technology business, as well as businesses that can generate stable profit such as power business.

Furthermore, Thaioil Group is dedicated to fostering sustainable business growth aligning with environmental, social, and governance (ESG) dimensions. To achieve this, the Company has established its sustainability strategic framework known as "3Es" to drive stable organizational growth while addressing the expectations of all stakeholders as follows:

Enhance Clean Environment consists of enhancing environmental management in alignment with global trends through "3Cs" strategy, which includes (1) C: Cut Down Existing Emissions – focusing on GHG reduction across production processes, (2) C: Compensate Residual Emissions – focusing on offsetting residual emissions, and (3) C: Control Future Emissions – focusing on managing future GHG emissions. These efforts are contributed by seeking investment opportunities in high-value and innovative businesses focusing on low-carbon products for achieving Carbon Neutrality target by 2050 and Net Zero GHG Emissions target by 2060.

Engage Society consists of engaging with community and society to foster long-term social value creation through "CARE"

strategy, encompassing (1) C: Control of impact – monitoring impacts caused by Thaioil Group's business operations on communities and society, (2) A: Associate – supporting community and societal engagement, (3) R: Relationship – building strong and positive relationship among the Company, community and society, and (4) E: Enhancement of Quality of Life – fostering quality of life for stakeholders through initiatives that add value to communities and society surrounding the refinery, such as improving accessibility to clean energy for hospitals and schools, promoting education, and enhancing public health systems, etc.

Ensure Good Governance consists of ensuring trust through transparent business operations through "3Ss" strategy, comprising (1) S: Safeguarding – preventing the business by mitigating external risks, (2) S: Strengthening – fostering Governance, Risk, and Compliance (GRC) behavior and culture, and (3) S: Sustaining – maintaining excellence in GRC through sustainable development. These efforts ensure full compliance with regulations, rules, and laws, enabling the Company to operate businesses with good corporate governance and transparency, as well as supporting anti-corruption initiatives in collaboration with anti-corruption network.

With unwavering commitment to sustainable management, in 2024, the Company was recognized for sustainability assessment in the 2024 Sustainability Yearbook as the Top 1% of the S&P Global ESG Score, the highest level possible, for nine years in the Oil & Gas Refining and Marketing industry. Furthermore, Thaioil Group has been listed as a member of the Dow Jones Sustainability Indices (DJSI) 2024 for the 12th consecutive year by S&P Global, the world-class financial information provider and world-leading sustainability rater. Additionally, Thaioil Group was honored with the SET Awards 2024 in the category of Sustainability Excellence for the 7th consecutive year. This recognition affirms the Company's commitment to conducting its business responsibly, with a focus on communities, society, and environment, underpinned by good corporate governance and adherence to internationally recognized ESG principles.

On behalf of Thaioil Group, I would like to express our gratitude to all stakeholders for their unwavering trust and support. Thaioil Group remains committed to driving sustainable business growth to respond to future challenges and adapt to the evolving business landscape. Furthermore, we strive to create maximum shared value for the economy, environmental, and society under good corporate governance, fulfilling the needs and expectations of all stakeholders in line with our vision "Empowering human life through sustainable energy and chemicals".



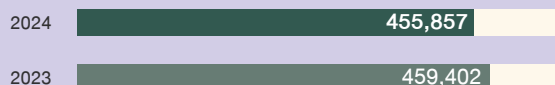
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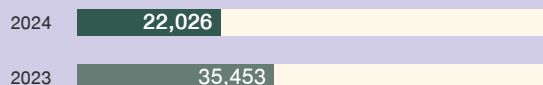


FINANCIAL HIGHLIGHTS

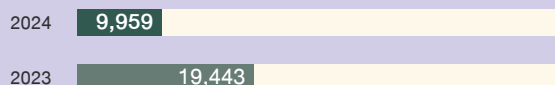
Sales Revenue **455,857**
Million THB



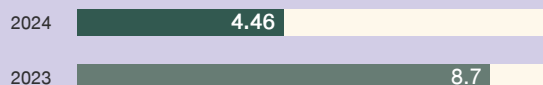
EBITDA **22,026**
Million THB



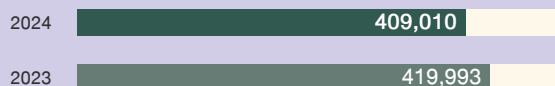
Net Profit/ (Loss) **9,959**
Million THB



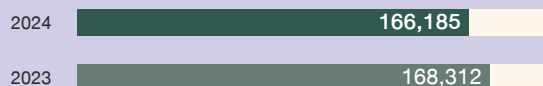
Net Profit/ (Loss) per Share **4.46**
THB/ Share



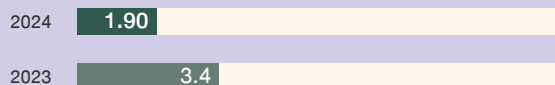
Total Assets **409,010**
Million THB



Total Equity **166,185**
Million THB



Dividend Payment **1.90**
THB/ Share



Market Capitalization **63,106**
Million THB





SUSTAINABILITY HIGHLIGHTS

Environment Dimension

Enhance environmental management to ensure effectiveness and alignment with global trends



Natural Capital

Total Greenhouse gas emissions reduced by **28,985** tons of carbon dioxide through energy efficiency improvement projects

Zero

industrial waste disposal to landfills

Total wastewater volume decreased by

1.71%

compared to the previous year

Natural Capital

No

freshwater withdrawal for consumption from water-stressed areas

Intellectual Capital

2

New High Value Products

Manufactured Capital

Accumulated carbon credits certified by Thailand Greenhouse Gas Management Organization (Public Organization) or TGO between 2019-2024 total

1,675,172 tons

Financial Capital

40%

share of revenue from environmental-friendly products

Social Dimension

Empower social engagement to collaboratively uplift the quality of life, while being responsible to all stakeholders towards a sustainable future



Intellectual Capital

1,623 new knowledge gained from knowledge sharing sessions among employees from Knowledge Management (KM) Project

Empowering

4 community enterprises through the reforestation project by supporting knowledge of forest conservation, coupled with hiring the communities for planting and maintaining the forests. In addition, this initiative not only restores the environment but also stimulates local economy.

Manufactured Capital

Zero cases process safety event (tier 1)

Financial Capital

617 million THB in benefits gained by the Company from leveraging employees' knowledge for business development

Human Capital

0.25 cases per million hour worked Total Recordable Injury Frequency Rate (TRIFR) for Employees and Contractors

Natural Capital

Participation in a government-led reforestation project to reduce carbon dioxide. The project has been operated in an area of

8,656.22 rai,

which is expected to absorb approximately

88,000

tons of carbon dioxide equivalent over the 10-year project period

Social and Relationship Capital

No

human rights complaints

95.54%

community engagement score

98%

employee engagement score

98%

employee satisfaction score

Governance and Economic Dimension

Ensure the robustness and maintain trustworthiness of good corporate governance as strong foundation for sustainable business growth



Financial Capital

No

cases or fines for non-compliance with laws and regulations, or cases of corruption and bribery

No

financial losses due to cyberattacks impacting business operations

Financial Capital

Benefits gained from knowledge and innovation for working process improvement

233

million THB

Social and Relationship Capital

Zero

cases of non-compliance with the Company's code of conduct, violation of laws and regulations, and actions that may induce corruption

97%

supplier satisfaction score

93%

customer engagement score



ABOUT THAIOIL



THAI OIL PUBLIC COMPANY LIMITED

Thai Oil Public Company Limited, a leading petroleum refinery with top-tier efficiency in the Asia-Pacific region, has been operating for more than 63 years. We have a modern and highly efficient production process that allows us to produce and distribute refined petroleum, and mainly support the domestic petroleum demands. Thaioil operates under the Operational Excellence principle, as an integrated group of businesses in oil refinery, petrochemicals, and lube base. Thaioil leads the Thai refinery industry through a well-planned and integrated production process, yielding optimum efficiency and enhancing competitiveness. The high qualified in the top quartile of refineries in Asia Pacific giving Thaioil to maintain business stability.

VISION

Empowering human life through sustainable energy and chemicals

MISSION

To enrich stakeholders' well-being and deliver sustainable returns built upon innovation, technology, and resilient portfolio with top class management and accountable corporate governance.

Corporate Values



- Professionalism
- Ownership and Commitment
- Social Responsibility
- Integrity
- Teamwork and Collaboration
- Innovation
- Vision Focus
- Excellence Striving

Headquarter: **Bangkok, Thailand**

Listed Date in the Stock Exchange of Thailand: **October 9, 2004**

Registered Capital: **22,338,355,660 THB**

Percentage of Shares Owned by PTT PLC.: **45.031%**

Refinery Production in 2024: **Approximately 282,000 BBL per day**
103% of nameplate capacity at 275,000 BBL per day

Domestic Distribution: **28% of total domestic finished oil demand**

Locations of Operations: **Thailand, Vietnam, Singapore, Hong Kong, Indonesia, and India**

Number of Employees: **2,052**

BUSINESS MODEL

Macro Environment

At present, sustainable development has become the top priority on the current global agenda, encompassing not only business and financial aspects but also Environment, Social, and Governance (ESG) dimensions. These directions towards sustainability may impact Thaioil Group that involves technological advancements, adoption of alternative energy in lieu of oil usage, or intensification of laws, regulations, and directives. Moreover, the increasing intensity of global and Thai government targets to achieve net zero greenhouse gas emissions has led to greater expectations for the private sector to develop and produce low-carbon products. Thaioil Group has recognized the significance of setting both short-term and long-term strategic directions to confront business risks and opportunities, and foster long-term confidence and sustainable value for all stakeholders. (Thaioil Group's Business Strategy Outlook chapter, Page 23-25)

Capitals/ Inputs

Financial Capital
The financial resources of the Thaioil Group consist of owner's equity and liabilities, amounting to 166,185 and 242,825 million THB, respectively. In 2024, the Company incurred operating expenses of 453,884 million THB to support business operations as per the strategic plan.

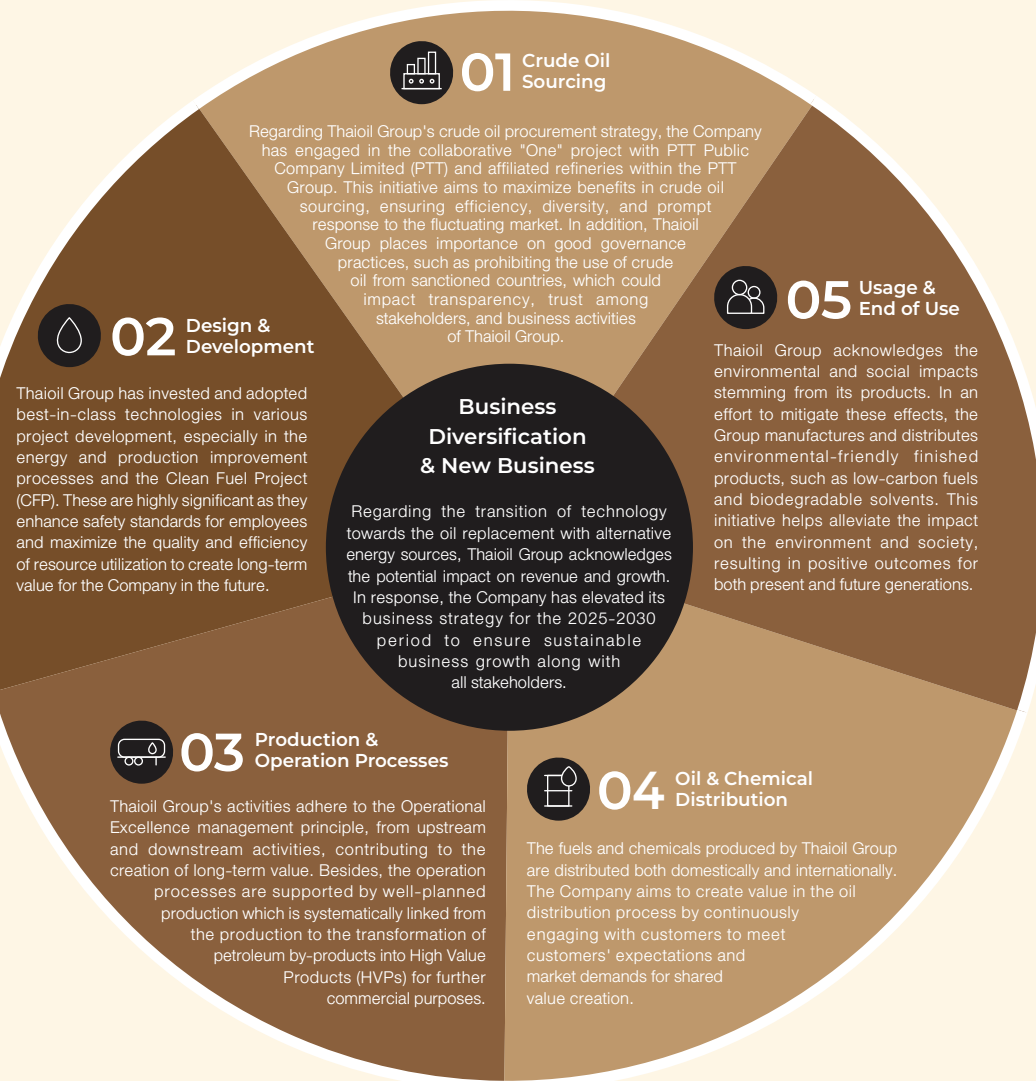
Manufactured Capital
In 2024, Thaioil Group invested in the acquisition, development, and maintenance of infrastructure to enhance production capabilities. The asset value was estimated at 409,010 million THB.

Natural Capital
Thaioil Group acknowledges the limitations and irreplaceability of natural resources. In 2024, the Company utilized 14.88 million tons of raw materials for refining purposes, used 24.3 million m³ of water, and consumed 50.1 million GJ of energy. In addition, the Company implemented 39 energy efficiency improvement projects, aimed at reducing reliance on natural resources.

Human Capital
In 2024, Thaioil Group had 2,052 employees to support the organization's growth, alongside an investment of 369 million THB in employee development and training.

Social and Relationship Capital
Thaioil Group believes that engaging and maintaining relationships with stakeholders are crucial for sustainable growth. In 2024, the Company supported community development projects and made donations amounting to 197.49 million THB.

Intellectual Capital
The employees of Thaioil Group, custodians of the organization's knowledge, strive to achieve operational excellence, exceed customer expectations, and cultivate an innovative culture to enhance key work processes. In 2024, the Company supported 42 million THB in investment and research and development.



Outputs

Products

282,000 barrels of crude oil refining capacity per day.	2,317.37 GWh of electricity generation.	89,675 tons of environmental-friendly products (TDEA, TRAE & AROS).
619,000 tons of Aromatic.	148,500 tons of Linear Alkylbenzene (LAB).	34,508 tons of Green solvent.
215,000 tons of lubricant oil.	56.40 million liters of Ethanol (TET).	

Emission of waste from production process

Greenhouse gas emissions (Scopes 1 and 2): 3.48 million tons of CO₂ equivalent.
8,485 tons of waste generation.
No industrial waste disposed to landfills.
19.71 million m³ of treated wastewater.

Sustainable Value

Operating a business with a sustainable strategy and organizational objectives, including active participation in achieving the United Nations Sustainable Development Goals (UN SDGs), is crucial for collectively creating long-term value for both stakeholders and the Thaioil Group. (SDGs Progress chapter, Page 72-75)

Outcomes to Thaioil Group

- + EBITDA 22,026 million THB.
- + 223 million THB in cost saving from the energy efficiency improvement projects.
- + **No incidents and fines** from non-compliance with laws, regulations, and cases of corruption and bribery.

- + 103% of Refinery Utilization Rate, decreased by 8.04% from the previous year.
- The Gross Integrated Margin (GIM) decreased by 29% or 7.10 USD per barrel.

- 3.45 million tons of CO₂ equivalent of greenhouse gas emissions (Scope 1), increased from the previous year.
- + Accumulated carbon credits from the alternative energy development projects in Co-generation power plant with a total of 1,674,618 tons of CO₂ equivalent, and solar power generation projects with a total of 554 tons of CO₂ equivalent.

- + Employee turnover rate decreased by 2.21% to 3.51%.
- + Employee engagement score increased by 6.52% to 98%.

- + Community engagement score increased from 95.19% to 95.54%. Customer engagement score
- decreased from 94% to 93%
- decreased from 98% to 97%. Supplier satisfaction score

- + The innovation level of Thaioil Group is at level 3 out of 5 levels.
- + 2 new High Value Products.
- + **No financial loss** from cyberattacks.

Outcomes to Stakeholders

- + Market Capitalization 166,185 million THB.
- + Net profit 9,959 million THB or 4.46 THB per share.
- + Annual average of daily closing stock price increased by 0.58% or 50.69 THB per share.
- Dividend yield decreased from 6.70% to 3.70%.
- + 2,283 million THB of tax payment to the government.

- + Long-term returns to shareholders from investments in the acquisition, construction, and maintenance of land, buildings, and equipment.

- Net freshwater consumption increased by 18.37% from the previous year.
- + Reduced external natural gas dependence by 494,794 million GJ per year through energy efficiency improvement projects, resulting in a decrease of 28,985 tons of CO₂ equivalent of greenhouse gas emissions (Scope 1).
- + 919,559 tons of CO₂ equivalent of avoided greenhouse gas emissions (Scope 3) through the sale of low-carbon products compared to general oil products.

- + 361 average hours of employee training and development per person per year.
- + 4,450 million THB of employee welfare.
- + 0.25 cases per million hours worked of Total Recordable Injury Frequency Rate (TRIFR) of employees and contractors, decreased from the previous year.

- + 42,741 people, benefiting from the services provided by Thaioil Group's Health and Learning Center.
- + 1,247 employees volunteered to engage with the community, dedicating a total of 7,880 hours.

- + Employees are equipped with skills and knowledge suited for global transformation through knowledge-sharing initiatives via internal activities and publications, such as the TOP Innovation Newsletter, and Thaioil Innovation and Learning Day 2024, etc.

Impacts on Stakeholders



Further details of Thaioil Group's 2024 performances are provided in the following chapters:

- Message to Our Stakeholders (Page 02-03)
- About Thaioil (Page 08-09)
- Thaioil Group's Business Strategy Outlook (Page 23-25)
- Sustainability Governance (Page 26-28)
- Fight Against Corruption ([Click](#))
- Sustainable Supply Chain Management ([Click](#))

- About Thaioil (Page 08-09)
- Thaioil Group's Business Strategy Outlook (Page 23-25)

- Environmental Impact Management (Page 29-37 or [Click](#))
- Biodiversity ([Click](#))
- Climate Change Management (Page 38-45 or [Click](#))
- Circular Economy ([Click](#))
- Sustainable Supply Chain Management ([Click](#))

- Human Rights ([Click](#))
- Human and Organization Development ([Click](#))
- Human Health & Safety (Page 46-49 or [Click](#))

- Innovation & Customer Stewardship (Page 50-54 or [Click](#))
- Human Rights ([Click](#))
- Human and Organization Development ([Click](#))
- Corporate Social Responsibility ([Click](#))

- Human and Organization Development ([Click](#))
- Innovation & Customer Stewardship (Page 50-54 or [Click](#))
- Digital Transformation ([Click](#))

Impacts on SDGs



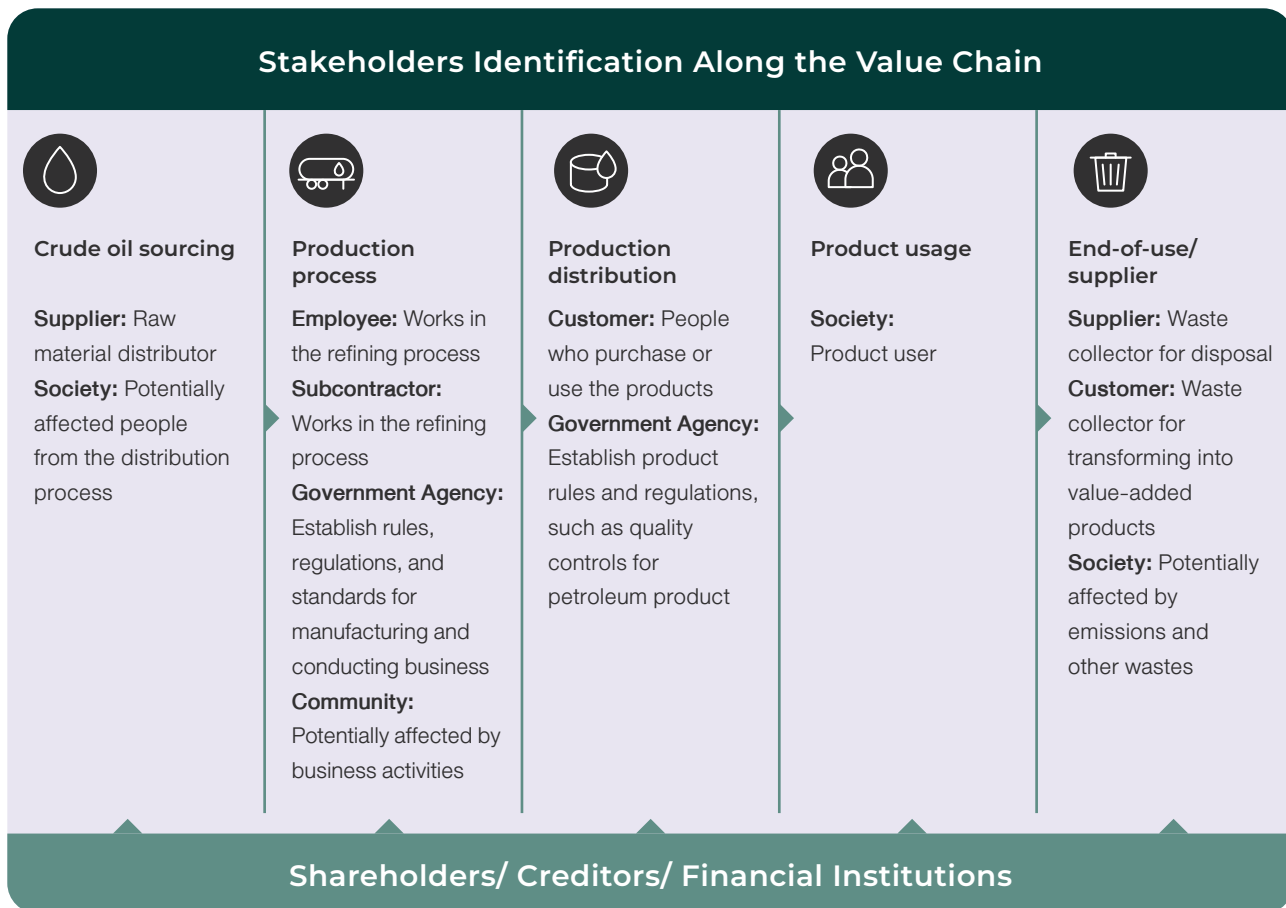


STAKEHOLDERS AND MATERIALITY MATTERS

STAKEHOLDER ENGAGEMENT

Establishing strong relationships with stakeholders is crucial in creating long-term business value. Thaioil Group has established an internal function to facilitate continuous communication with each stakeholder group. This aims to ensure stakeholders' perspectives and expectations are considered regarding the Company's operations, enabling for the analysis and enhancement of Thaioil Group's performance.

Thaioil Group has categorized its stakeholders into six main groups: shareholders/ creditors/ financial institutions, customers, suppliers/ contractors, employees, community/ society, and government agencies and related public agencies. Additionally, the Company analyzes and assesses stakeholders based on their impact and influence throughout the Company's value chain, from crude oil procurement to the disposal of post-utilization products, as depicted below.



Furthermore, Thaioil Group has established stakeholder engagement approaches for all stakeholder groups. Internal functions responsible for each group of stakeholders have designed appropriate channels and frequencies for stakeholder engagement. Following the COVID-19 pandemic situation, the engagement significantly altered the frequency and mode of communication and interaction towards a more predominant online format as depicted in the table below.

Stakeholder Engagement Approach

Stakeholder

Engagement Approach



Shareholders/ Creditors/ Financial Institutions

- Annual General Meeting (AGM)
- Annual Report (Form 56-1 One Report) and Integrated Report
- Quarterly meetings with analysts and rating agencies
- Scheduled company visits and roadshow events continuously, both domestic and foreign
- Participated events with the Stock Exchange of Thailand e.g. Opportunity Day and SET Digital roadshow events
- “TOP IR” application and Investor Relation webpage
- Grievance mechanisms: Investor Relations function, and Corporate Governance function email



Customers

- Annual online customer engagement survey
- Annual Report (Form 56-1 One Report) and Integrated Report
- Online meetings with customers
- Weekly, monthly, and quarterly e-newsletters
- Occasional customer engagement
- Grievance mechanisms: Customer Relations function, and Corporate Governance function email



Suppliers/ Contractors

- Annual supplier seminar
- Post-engagement survey
- Annual online supplier engagement survey
- Annual Report (Form 56-1 One Report) and Integrated Report
- Occasional meeting with supplier and contractor during procurement process
- Email communication of every occasion
- Grievance mechanisms: Supplier Relations function, and Corporate Governance function email



Employees

- Annual Labor Union meeting
- Bimonthly meetings with Employee Committee
- Annual online employee engagement survey
- Annual online survey on the awareness, understanding, and perspectives of sustainability matters
- Annual Report (Form 56-1 One Report) and Integrated Report
- Quarterly “CEO Townhall” Forum
- Monthly “Akanee” Magazine
- Weekly and monthly newsletters or e-newsletters
- Welfare benefit and employee activity access applications
- Grievance mechanisms: Employee Relations function, and Corporate Governance function email

Stakeholder Engagement Approach

Stakeholder	Engagement Approach
 <p>Community/ Society</p>	<ul style="list-style-type: none"> • Annual community engagement survey • Annual Report (Form 56-1 One Report) and Integrated Report • Bimonthly journal: “Thaioil Group Journal for the Community” • Monthly meetings with community leaders and tripartite meetings • Monthly community visits and events • Communication through social media and digital platforms such as Line Official Account • Thaioil Group Community Health & Learning Center • Grievance mechanisms: Community Relations function, and Corporate Governance function email
 <p>Government agencies and related public agencies</p>	<ul style="list-style-type: none"> • Annual feedback survey • Annual Report (Form 56-1 One Report) and Integrated Report • Occasional meetings with government representatives and public agencies • Monthly tripartite meetings between Thaioil Group, government agencies, and communities • Grievance mechanisms: Government Relations function, and Corporate Governance function email

THAIOIL GROUP'S MATERIALITY ASSESSMENT PROCESS

Thaioil Group regularly conducts an annual review and analysis of material topics that significantly impact stakeholders and the business. This includes assessing the Company’s impact on external factors (inside-out) and the impact of external factors on the Company (outside-in) in accordance with the Double Materiality Principle aligning with the Global Reporting Initiative (GRI) Standards 2021. Additionally, the Company has applied the AA1000 Accountability Principles (AA1000 AP) 2018 and the International Integrated Reporting Council’s Value Creation concept for materiality matters. Furthermore, the process has been independently verified by an external assurer on an annual basis.

Thaioil Group's Materiality Assessment Process



In 2024, Thaioil Group assessed materiality topics from the beginning of the year. The outcomes derived from this assessment became an integral part of consideration for the sustainability strategy during the Strategic Thinking Session (STS). This session aimed to support planning, target-setting, and resources allocation across six capitals, namely Financial Capital, Manufactured Capital, Natural Capital, Human Capital, Intellectual Capital, and Social and Relationship Capital.



01

Material Topics Identification

Thaioil Group assessed the 2024 material topics by analyzing internal and external drivers. The internal driver's analysis includes the analysis of the Company's context and the short-term, medium-term, and long-term Business Strategic Direction. Additionally, the external driver's analysis involves interests and concerns of stakeholders derived from feedback of all six stakeholder groups, global sustainability trends recognized by international organizations, such as the World Economic Forum (WEF) and the International Petroleum Industry Environmental Conservation Association (IPIECA), as well as interests from ESG Raters and Standards, for example, the Dow Jones Sustainability Indices (DJSI), the GRI 11 Oil & Gas Standard, and the Sustainability Accounting Standards Board (SASB), etc. These findings were prominently utilized in reviewing relevant material topics associated with Thaioil Group, building upon insights gained from previous years.



02

Material Topics Prioritization

Thaioil Group prioritized 2024 material topics by reviewing the results of the previous year's materiality assessment through various external factors that could potentially impact the business and stakeholders. This prioritization was accomplished through a collaborative workshop with the executives from internal functions responsible for sustainability development to reassess both the positive and negative impacts on the Company's value creation as well as evaluating the impacts on stakeholders' interest for those topics. The material topics were grouped into high, medium, and low levels of importance through a ranking system employing criteria based on two dimensions:

1) Impact and importance to Thaioil Group's ability to create value

This dimension evaluates the likelihood of both positive and negative impacts of material topics, the impacts on the Company's net revenue, reputation, and corporate assets.

2) Impact and importance to the stakeholders

This dimension assesses the level of positive and negative impacts on stakeholders together with stakeholder opinions and recommendations over the next 3-5 years.



03

Validation of Material Topics

The Sustainable Development function was the first in line to review the comprehensiveness of material topics. The results were then reported to the highest management level, the Sustainability Development Steering Committee, chaired by the CEO and President, for the final review and endorsement of the material topics, considering both internal and external impacts. After that, the material topics were also endorsed by the Board of Directors' Subcommittee, namely the Corporate Governance and Sustainability Committee.

Moreover, an external independent verifier was invited and participated to ensure the accuracy and completeness of the stakeholder engagement and materiality assessment process, and related key ESG performances.



04

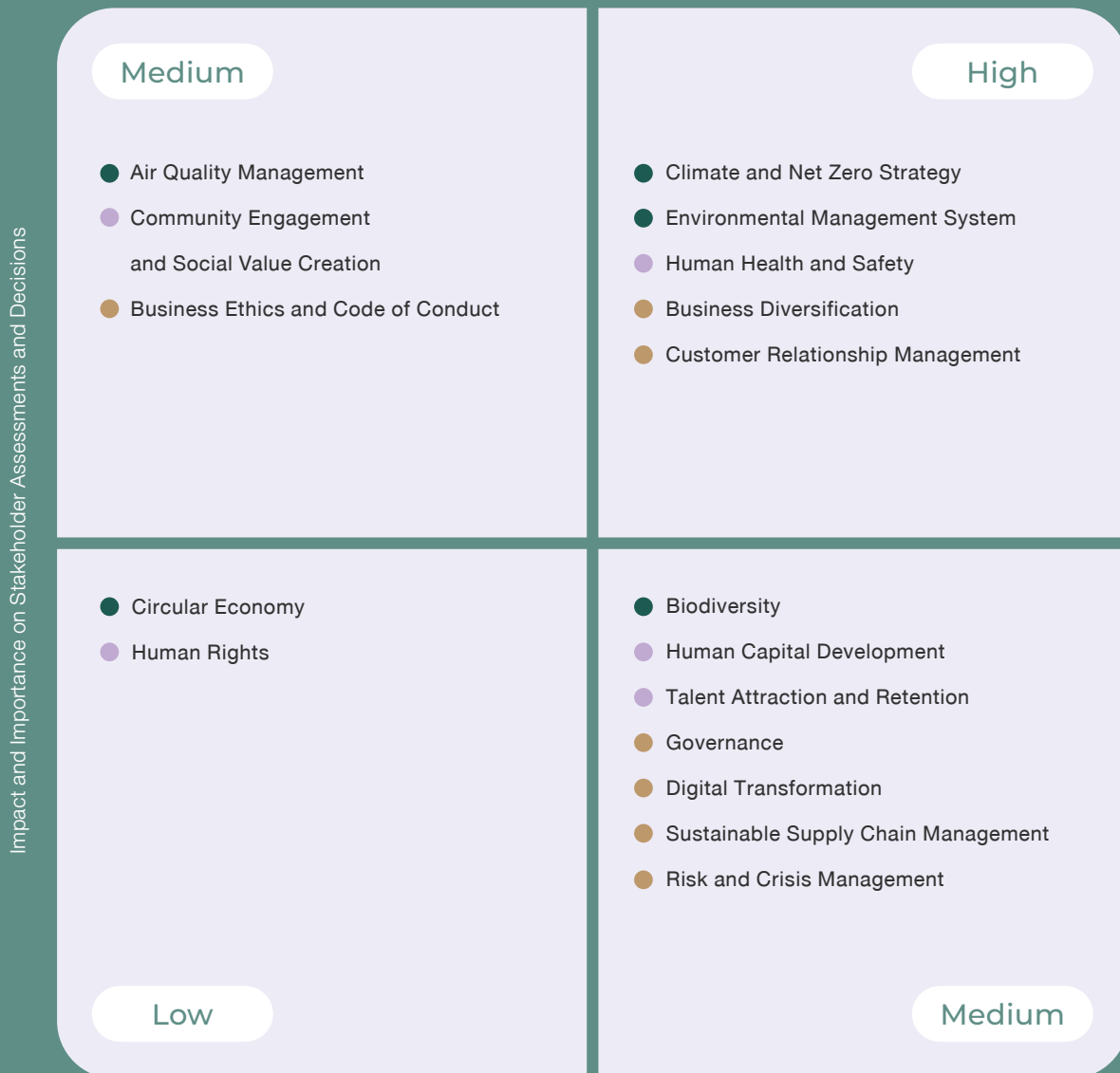
Strategic Integration for Organizational Risk Management and Strategy (Strategic Integration)

After the materiality assessment is approved and signed off, the Sustainability Development function will integrate material topics into the Company's Enterprise Risk Management (ERM) process to formulate mitigation plans as needed and to support the consideration of strategic planning through the annual Strategic Thinking Session (STS) business planning process. This will serve as a pivotal foundation for sustainable organizational management by establishing policies, objectives, and strategies, both in the short-, medium-, and long-term, as deemed appropriate.

Result of 2024 Materiality Assessment

The result of the 2024 materiality assessment revealed the contextual changes that positively and negatively affected the stakeholder's expectation and businesses in creating long-term value. In particular, there was heightened attention to climate change urging the Company to adjust its strategies to transition towards a low-carbon society. Additionally, the crude oil spill incident in late 2023 heightened the importance of environmental management systems and biodiversity. In response, Thairoil Group is committed to advancing the environmental management system to enhance confidence in minimizing environmental impacts, ensure safety for communities and society, and continuously protect terrestrial and aquatic biodiversity. This ongoing commitment to reach sustainability of Thairoil Group has led stakeholders to recognize good governance, air quality management, and circular economy as fundamental issues for operating businesses. This requires effective management in compliance with laws, standards, national and international practices. The result of the 2024 materiality assessment is illustrated and detailed in the following table.

Thairoil's Group Materiality Matrix 2024



Impact and Importance to Business's Ability to Create Value



Environment














Social



Economic/ Governance

Material Topic	Risks, Opportunities, Impacts on Business and Sustainability Context	Expectations and Viewpoints Expressed by Stakeholders	Details of Management Approach	Importance to Capital and Value Creation
<p>Climate and Net Zero Strategy</p> <hr/> <p>Biodiversity</p>	<ul style="list-style-type: none"> The energy business is a major emitter of carbon dioxide, directly contributing to climate change. Due to climate change, various organizations have implemented stricter climate-related policies, such as national net zero greenhouse gas emission targets, climate change act, carbon taxes on oil products, and energy transition initiatives. Non-compliance with these new laws and regulations could result in additional costs for businesses. Growing global concerns about climate change and biodiversity loss are creating opportunities for investment in new environmentally friendly businesses. The increasing severity of climate change is resulting in a greater impact on biodiversity. 	<ul style="list-style-type: none"> Supplier/ Contractors expect Thaioil Group to implement stringent carbon emission policies and increase the proportion of clean energy usage in production processes to reduce greenhouse gas emissions and mitigate risks from new laws and regulation. Moreover, they require the Company to place emphasis on biodiversity to maintain balance among terrestrial and aquatic creature. Shareholders/ Creditors/ Financial Institutions expect Thaioil Group to establish clear strategies for reducing greenhouse gas emissions as much as possible. They also require the Company to promote activities that offset environmental impacts on society. Customers expect Thaioil Group to reduce greenhouse gas emissions across its value chain and develop sustainable procurement practices to achieve net zero carbon emissions. Employees expect Thaioil Group to implement policies, strategies, technologies, and new products that help reduce greenhouse gas emissions, such as investments in clean energy businesses and the development of environmentally friendly products and production process. Additionally, they expect the Company to put efforts to preserve biodiversity in operational sites. Government and related public agencies expect Thaioil Group to participate in reducing greenhouse gas emissions to help achieve the national greenhouse gas reduction targets. 	<p>Climate Change Management (Page 38-45) (Click)</p> <hr/> <p>Biodiversity (Click)</p>	
<p>Environmental Management System</p>	<ul style="list-style-type: none"> The expansion of Thaioil Group's businesses increases the demand for resources and heightens the risk of air quality issues if the Company has inefficient environmental management system. Driving towards a circular economy by the Thai government, foreign governments, societal trends, and consumer expectations requires business sector to reduce environmental impacts throughout a product's lifecycle. This would lead to negatively affect Thaioil Group's reputation, revenue, and long-term growth if the Company fails to adapt or respond promptly. 	<ul style="list-style-type: none"> Suppliers/ Contractors expect Thaioil Group to apply circular economy principles throughout the production process, plan to develop resource recovery process to ensure recyclability, seek sustainable business partners to create a stable production system as well as support the national economy. Moreover, they require the Company to enhance efficiency of environmental management systems to reduce water and air pollution emissions. Community/ Society expect Thaioil Group to implement effective environmental management systems comprehensively covering land, water and air surrounding the refinery. 	<p>Environmental Impact Management (Page 29-37) (Click)</p>	

Material Topic	Risks, Opportunities, Impacts on Business and Sustainability Context	Expectations and Viewpoints Expressed by Stakeholders	Details of Management Approach	Importance to Capital and Value Creation
Environmental Management System Circular Economy	<ul style="list-style-type: none"> Adapting business practices in alignment with the circular economy becomes opportunities to reduce production costs together with maximize the efficient use of limited resources. 	<ul style="list-style-type: none"> Shareholders/ Creditors/ Financial Institutions expect Thaioil Group to maximize the use of available resources following circular economy principles and maintaining a reliable environmental management system. Customers expect Thaioil Group to have an efficient environmental management system to avoid ecological impacts and improve the well-being of communities. Furthermore, they require the Company to adopt circular economy principles as the standard in its operations. Employees expect Thaioil Group to establish business units that integrate circular economy principles effectively, clearly define policies and responsible individuals, and explore approaches to reduce pollution emissions from refinery to enable sustainable coexistence with the community. Government and related public agencies expect Thaioil Group to maintain high environmental management standards, reduce pollution emissions, and increase the production of products that minimize environmental impact, for example, Euro 5 standard fuels, to reduce air pollution. 	Environmental Impact Management (Page 29-37)  Circular Economy 	   
Talent Attraction and Retention	<ul style="list-style-type: none"> The increasing trend of an aging society in Thailand may lead to insufficient human resources and a shortage of experienced personnel, particularly the subsequent expansion of Thaioil Group's businesses. The difference between work behaviours and expectations of younger generations (Millennials and Gen Z) and traditional work cultures poses a risk of workforce shortages for Thaioil Group if the Company fails to adapt to attract and retain these people. The continuous development of technology, innovation, and digitalization results in digital transformation risk in oil refinery business for Thaioil Group, particularly in preparing workforce capabilities to enhance long-term competitiveness. 	<ul style="list-style-type: none"> Suppliers/ Contractors expect Thaioil Group to prioritize human rights by operating business with equality, non-discrimination, and respect for employees to foster a positive work environment and develop the necessary skills for the future workforce. Moreover, they require the Company to retain talented employees to ensure long-term business efficiency. Shareholders/ Creditors/ Financial Institutions expect Thaioil Group to continuously develop human resources to enhance work efficiency and focus on achieving a work-life balance by offering flexible working hours to attract and retain talented employees. Customers expect Thaioil Group to develop the knowledge of employees and foster environmental consciousness by encouraging staffs to participate in sustainable development. 	Human and Organization Development 	   

Material Topic	Risks, Opportunities, Impacts on Business and Sustainability Context	Expectations and Viewpoints Expressed by Stakeholders	Details of Management Approach	Importance to Capital and Value Creation
<p>Human Capital Management</p> <hr/> <p>Human Rights</p>	<ul style="list-style-type: none"> The growing demand for responsible investment, especially concerning human rights, requires listed companies to place greater emphasis on human rights issues as they are vital for ensuring sustainable business operations. 	<ul style="list-style-type: none"> Employees expect Thailoil Group to provide the necessary skills development before making business changes and retain talented employees together with recruiting new employees who align with the Company's values. In addition, they require the Company to place emphasis on employee human rights, respect diverse opinions, and treat everyone equally. Government and related public agencies expect Thailoil Group to provide competitive compensation and benefits packages to employees to attract and retain talented employees and enhance its competitiveness in the labor market among the same business sectors. 	<p>Human and Organization Development (Click)</p> <hr/> <p>Human Rights (Click)</p>	
<p>Human Health and Safety</p>	<ul style="list-style-type: none"> The oil refinery business has a high inherent risk of accidents, injuries, and fatalities of employees, contractors, as well as the surrounding communities and society. Such incidents could disrupt production process and damage the Company's reputation. The Company may encounter with public criticism risks if its operational practices are deemed risky or its sustainability efforts are inadequate especially under increasing regulatory scrutiny. The existence of any negative events could undermine trust among society, communities, and consumers together with exposing the Company to legal violations and potential financial losses. 	<ul style="list-style-type: none"> All stakeholder groups expect Thailoil Group to strengthen safety measures that are comprehensive and cover all relevant parties involved. Suppliers/ Contractors expect Thailoil Group to prioritize workplace safety and employee health, while preventing accidents that could impact the environment and communities. Additionally, they require the Company to open opportunities for community engagement in problem-solving, improving the quality of life and distributing income to build trust and positive relationships with the community. Community/ Society expect Thailoil Group to promote safety for both the Company and the surrounding communities by fostering community engagement for mutual growth. Shareholders/ Creditors/ Financial Institutions expect Thailoil Group to ensure expertise of practitioners in handling high-risk operations to mitigate potential risks to all stakeholders and establish stakeholder engagement across the value chain to build good relationships for long-term business continuity. Customers expect Thailoil Group to prioritize employee health and safety, operate business responsibly towards communities and the environment, as well as improving the quality of life for surrounding communities. 	<p>Human Health and Safety (Page 46-49) (Click)</p>	

Material Topic	Risks, Opportunities, Impacts on Business and Sustainability Context	Expectations and Viewpoints Expressed by Stakeholders	Details of Management Approach	Importance to Capital and Value Creation
Value Creation to Community and Society		<ul style="list-style-type: none"> Employees expect Thaioil Group to maintain stringent safety standards covering all relevant stakeholders, for example, suppliers/ contractors, etc, ensure continuous communication and feedback with the community, and continue developing the community through various projects. Government and related public agencies expect Thaioil Group to place a greater emphasis on the safety and health of both employees and communities due to the complexity of business operations and continuously conduct community engagement to promote social and environmental development. 	Corporate Social Responsibility ( Click)	   
<p>Corporate Governance</p> <p>.....</p> <p>Business Ethics and Code of Conduct</p>	<ul style="list-style-type: none"> Operating businesses without adhering to the principles of good corporate governance may lead to lose opportunities to access funding from institutional investors focused on responsible investment, such as those prioritizing sustainable stocks (SET ESG Rating). Operating businesses under the principles of good corporate governance, business ethics, and code of conduct ensures fair, honest, transparent, and accountable operations to fosters sustainable business growth and build trust among all stakeholder groups. 	<ul style="list-style-type: none"> Suppliers/ Contractors expect Thaioil Group to operate under good corporate governance across the organization, with transparent operations and reliable internal auditing systems to prevent corruption and enhance good governance on the social impacts. Shareholders/ Creditors/ Financial Institutions expect Thaioil Group to operate businesses with ethics and integrity to foster trust and credibility with investors and shareholders. Customers expect Thaioil Group to have ethically corporate governance practices, demonstrate integrity and respect for regulations to support the Company's sustainable operations. Government and related public agencies expect Thaioil Group to operate with ethics and code of conduct to promote other sustainability-related matters, leading to better performance. 	<p>Corporate Governance and Sustainability (Page 26-28)</p> <p>.....</p> <p>Fight Against Corruption ( Click)</p>	 

Material Topic	Risks, Opportunities, Impacts on Business and Sustainability Context	Expectations and Viewpoints Expressed by Stakeholders	Details of Management Approach	Importance to Capital and Value Creation
Risk and Crisis Management	<ul style="list-style-type: none"> Transitioning towards clean energy results in Thaioil Group to expand its investment portfolio into clean or alternative energy businesses to replace oil usage and develop low-carbon products to create long-term business growth. 	<ul style="list-style-type: none"> All stakeholder groups expect Thaioil Group to expand its businesses into clean energy, develop low-carbon products to meet shifting consumer demands, and foster sustainable business growth. 	Risk Management (Click)	
Business Diversification	<ul style="list-style-type: none"> Shifting consumer's oil demand may impact the Company's long-term profitability. Digital transformation increases Thaioil Group's exposure to cybersecurity threats and data theft, potentially leading to leaks of personal or business confidential information and damaging the Company's reputation. 	<ul style="list-style-type: none"> Suppliers/ Contractors expect Thaioil Group to integrate digital systems into operations to improve efficiency, while exploring business opportunities arising from digital technologies to reduce costs and create business value. 	Thaioil Group's Business Strategy Outlook (Page 23-28)	
Digital Transformation	<ul style="list-style-type: none"> Lack of sustainable supply chain management exposes the Company to supply risks from a limited number of suppliers. This could result in insufficient suppliers for procurement process and prolonged sourcing times. Moreover, there will be negative impacts on operations if suppliers encounter sustainability-related risks. 	<ul style="list-style-type: none"> Shareholders/ Creditors/ Financial Institutions expect Thaioil Group to innovate in new energy sources for long-term growth and adopt safer technologies in the organization to prevent cyberattacks, leading to customer trust. Employees expect Thaioil Group to develop digital literacy to enhance business competitiveness and implement AI in the work process to improve work efficiency. 	Digital Transformation (Click)	
Customer Relationship Management	<ul style="list-style-type: none"> Advancing innovation and embracing digitalization enable the Company to enhance operational efficiency, through technology implementation and investment in new technologies, to reduce business risks and generate long-term revenue. 	<ul style="list-style-type: none"> Government and related public agencies expect Thaioil Group to have an effective risk management system to prevent potential subsequent issues arising from business operations. In addition, they require the Company to integrate ethical practices and promote environmental responsibility among suppliers and contractors while balancing energy demand and sustainable energy sourcing. 	Innovation & Customer Stewardship (Page 26-28) (Click)	
Sustainable Supply Chain Management	<ul style="list-style-type: none"> Developing new technologies and innovations that meet the needs of current and potential customers allows the Company to sustain continuous growth over the long run. 		Sustainable Supply Chain Management (Click)	





THAIOIL GROUP'S BUSINESS STRATEGY OUTLOOK

APPROACH TO DEFINING BUSINESS STRATEGY DIRECTION FOR THAIOIL GROUP

Thaioil Group has consistently emphasized effective and systematic strategic management as the core principles throughout its corporate operations. This aims to foster confidence among stakeholders in driving the business performances towards Thaioil Group's vision.

Thaioil Group has determined the strategic direction through the Strategic Thinking Session (STS) process. The changes in the business environment, current and future needs and expectations of stakeholders, and the readiness of Thaioil Group are considered through brainstorming sessions with the management of Thaioil Group. The outcomes of these sessions are presented and approved by the Board of Directors on an annual basis.

BUSINESS STRATEGY DIRECTION OF THAIOIL GROUP

Thaioil Group's vision is to "Empowering Human Life through Sustainable Energy and Chemicals."

Through this vision, Thaioil Group aims to become a highly competitive energy and chemical company while delivering sustainable returns and enhancing the quality of life for all stakeholders, together with driving forward sustainable growth of the organization. In addition, the Company will maintain the balance across economic, social, environment, and governance dimensions.

In 2024, Thaioil Group continued to face ongoing uncertainties from external environmental challenges. These included stringent environmental policies arising from escalating environmental issues, the increasing trend towards electric vehicles and alternative energy sources, concerns about economic deceleration, geopolitical conflict, uncertainties in the energy industry and government policies regarding energy. Nonetheless, Thaioil Group recognized the importance of implementing and developing a flexible and competitive strategic plan to seize opportunities for sustainable business growth. Therefore, the Company defined the business strategic direction and approach for business operation both in the short and long term as follows:



Short-Term Strategic Execution:

Thaioil Group enhances Operation Excellence to Business Excellence by focusing on the organizational management towards Integrated Operational and Commercial Excellence throughout the value chain – from crude oil sourcing, production process, to product distribution – and efficient operational cost management. The details of key initiatives are as follows:

- **Operational Excellence:** Key initiatives include continuous efficient manufacturing products and operating business with efficiency through practices, such as the strategic procurement of crude oil and raw materials to ensure the most suitable types and quality to increase opportunities for higher returns, improve the efficiency of production processes, and reduce energy consumption in production processes through enhancing energy efficiency.

Furthermore, Thaioil Group has implemented flexible production plans to align with market scenario and oil demand, in parallel with implementing effective safety and production management system. This enables the Company to maintain a high utilization rate and consistently uphold excellent safety records.

- **Commercial Excellence:** Key initiatives include distributing products to regional markets with high growth rates and demand, collaborating with the PTT Group for crude oil procurement and product exports, and selling high-value products (High Value Product).
- **Operational Cost Management:** Key initiatives include cost reductions in finance, accounting, and other relevant costs, such as procuring insurance jointly with the PTT Group, proactively managing foreign exchange risk, and efficiently managing procurement process, etc.



Long-Term Strategic Execution for Sustainable Growth

By operating businesses with the 3Vs strategy to create national energy security and advance into new businesses in alignment with global trends. The details are as follows:



Value Maximization: Integrated Crude to Chemicals

The strategy aims to enhance product's value by integrating the current business's value chain with high-value products and downstream petrochemical businesses to optimize the potential of current operations and strengthen the resilience and competitiveness. The strategy focuses on 4 main businesses with the details as follows:

- Refinery:** The refinery business is a core business foundation as reactant for petrochemical production. Thaioil Group has invested in the Clean Fuel Project (CFP) to enhance resilience and competitiveness in the long term. Moreover, the Company has supported the national energy security in the energy transition period by shifting traditional energy to new energy.
- Aromatics:** The aromatics business aims to add value of the products in refinery business and to serve demands for aromatics products in the region.
- Olefins:** The olefins business aims to add value to the refinery business's products through investment in PT Chandra Asri Petrochemical (CAP), the largest petrochemical producer in Indonesia. The purpose is to respond to petrochemical and other product demands in the Indonesian market, which has a high growth rate.
- High Value Product (HVP):** The HPV business aims to innovate high-value products through high-value product development and value chain extension to meet customer demands.



Value Enhancement: Integrated Value Chain Management

The strategy aims to integrate and manage the value chains of Thaioil Group to increase business competitiveness sustainably by increasing the proportion of commodity product sales, expanding markets into specialty products, and coupled with developing and distributing the products to regional market with high economic growth rate, such as Vietnam, Indonesia, and India.



Value Diversifications

- High Value Business (HVB):** To develop a crucial business platform for Thaioil Group in the future, with a focus on the low carbon chemical business. This includes seeking strategic cooperation with business partners with a focus on the growth of Disinfectants and Surfactants (D+S). This business direction aligns with Thaioil Group's competitive strengths and supports the transition toward more sustainable chemical solutions.
- Bio Business:** To enhance the resilience of Thaioil Group's investment portfolio in alignment with the industrial trends and future changes in energy consumption, while supporting the transition towards achieving Net Zero GHG Emissions. The targeted businesses include Sustainable Aviation Fuel (SAF) by focusing on alternative fuels to reduce carbon emissions in the aviation sector. The company aims to explore investment opportunities in SAF production using technologies, such as Hydroprocessed Esters and Fatty Acids (HEFA) and Alcohol-to-Jet (ATJ) by signing a Memorandum of Understanding (MOU) with PTT Group and business partners, and conducting a study on Co-Processing technology for SAF production within existing refinery processes
- New Energy Business:** To drive growth towards a clean energy and lower carbon emission business which aims to explore investment opportunities in green hydrogen and its derivatives, such as ammonia and Electrofuels (E-fuels). Additionally, the focus extends to Carbon Capture, Utilization and Storage (CCUS) technologies to develop a business model that reduces carbon dioxide emissions (Decarbonization) from existing operations.
- Power Business:** To support electricity security and secure Thaioil Group's profit by operating through the power plant of TOP SPP under Thaioil Group, and investing in GPSC Power Synergy Public Company Limited (GPSC), the flagship power plant in the PTT Group. GPSC has developed a "Scale-up Green Energy" to increase the proportion of renewable energy sources such as solar, wind and the integration of renewable energy with energy storage systems (ESSs). The company aims to achieve a renewable energy capacity accounting for 65% of its total power generation capacity by 2030.

3Vs Strategy's Action Plan by the Timeline

Year: 2025 Short-term Action Plan	Year: 2026 – 2028 Medium-term Action Plan	Year: 2029 – 2030 Long-term Action Plan
<ul style="list-style-type: none"> Refinery: <ul style="list-style-type: none"> Focusing on productivity improvement by enhancing profitability through various projects or initiatives, both in operational and commercial projects across the value chain together with cost management. Accelerating the construction of the CFP project to ensure its implementation aligns with the established plan. Olefin: Supporting and driving PT Chandra Asri Pacific Tbk (CAP) to enhance operational excellence and expand into new businesses. High Value Product (HVP): Developing High Value Product (HVP) and researching for opportunities in Specialty Chemicals business. 	<ul style="list-style-type: none"> Refinery: Continuously operating and improving productivity. Specialty Chemicals: Building Thaioil Group's competency to enter the specialty chemical business, especially in the form of providing technical service regarding petrochemicals and specialty chemicals. High Value Product (HVP): Seeking opportunities for expanding value chain to embrace HVP and downstream petrochemical businesses to increase the values of the existing products, through the collaboration with business partners in refinery business, lube base oil business, aromatics business, olefins business, and Linear Alkyl Benzene (LAB) business. 	<ul style="list-style-type: none"> Continuously operating and improving productivity. Strengthening the business's competitiveness in terms of production costs and profitability towards Top Quartile performance among oil refinery business through CFP. Setting a business target for 2030 to have profit ratios in the petroleum business and its high-value products at 45%, and the petrochemical business and its high-value products at 30% of the total net profits.
<ul style="list-style-type: none"> Distribute the products to regional market particularly the countries with high economic growth rate. The targeted countries include 1) Vietnam 2) Indonesia and 3) India. Preparing marketing readiness through collaboration with business partners to increase the proportion of commodity product sales and expand into Specialty Business. 	<ul style="list-style-type: none"> Strengthening portfolio of commodity product business and specialty business by expanding distribution channels and sales networks in targeted countries. This includes utilizing existing platforms, workforces, and customer bases both domestically and internationally. 	<ul style="list-style-type: none"> Being the distribution center of product and services for Thaioil Group, while strengthening the security in transportation and public utilities from engaging with business partners, JVs, and M&A. Increasing the profit margin target of specialty business.
<ul style="list-style-type: none"> High Value Business (HVB): To develop a crucial business platform for Thaioil Group in the future, with a focus on the low carbon chemical business. This includes seeking strategic cooperation with business partners with a focus on the growth of Disinfectants and Surfactants (D+S). This business direction aligns with Thaioil Group's competitive strengths and supports the transition toward more sustainable chemical solutions. Bio Business: To enhance the resilience of Thaioil Group's investment portfolio in alignment with the industrial trends and future changes in energy consumption, while supporting the transition towards achieving Net Zero GHG Emissions. The targeted businesses include Sustainable Aviation Fuel (SAF) by focusing on alternative fuels to reduce carbon emissions in the aviation sector. The company aims to explore investment opportunities in SAF production using technologies, such as Hydroprocessed Esters and Fatty Acids (HEFA) and Alcohol-to-Jet (ATJ) by signing a Memorandum of Understanding (MOU) with PTT Group and business partners, and conducting a study on Co-Processing technology for SAF production within existing refinery processes New Energy Business: To drive growth towards a clean energy and lower carbon emission business which aims to explore investment opportunities in green hydrogen and its derivatives, such as ammonia and Electrofuels (E-fuels). Additionally, the focus extends to Carbon Capture, Utilization and Storage (CCUS) technologies to develop a business model that reduces carbon dioxide emissions (Decarbonization) from existing operations. Power Business: To support electricity security and secure Thaioil Group's profit by operating through the power plant of TOP SPP under Thaioil Group, and investing in GPSC Power Synergy Public Company Limited (GPSC), the flagship power plant in the PTT Group. GPSC has developed a "Scale-up Green Energy" to increase the proportion of renewable energy sources such as solar, wind and the integration of renewable energy with energy storage systems (ESSs). The company aims to achieve a renewable energy capacity accounting for 65% of its total power generation capacity by 2030. 	<ul style="list-style-type: none"> High Value Business (HVB) covering Low Carbon Chemical Business: Establishing commercial collaboration by developing the buying and selling of Disinfectants and Surfactants (D+S) and providing technical services, R&D, product quality improvement together with fostering cooperation with business partners, research institutions and educational institutions, and coupled with seeking investment opportunities through Corporate Venture Capital (CVC)*. Bio Business: <ul style="list-style-type: none"> Conducting raw materials study to ensure a reliable and sustainable supply of Used Cooking Oil (UCO) as a key raw material, as well as exploring alternative waste feedstocks, such as Palm Oil Mill Effluent (POME), Palm Fatty Acid Distillate (PFAD), and other potential resources. Additionally, the Company has conducted a regulatory study and technological study by assessing the feasibility of applying existing SAF Co-processing technology within existing Thaioil Group's production facilities. Seeking investment opportunities through Corporate Venture Capital (CVC)*. New Energy Business: <ul style="list-style-type: none"> Conducting preliminary technology studies to analyze both current and emerging technologies for green hydrogen production and its derivatives. Exploring carbon capture, utilization, and storage (CCUS) technologies to reduce greenhouse gas emissions from existing process and explore the potential for blue hydrogen production. Monitoring regulatory and market movements, both nationally and internationally, to understand the evolving landscape and assess the investment viability. Seeking investment opportunities through Corporate Venture Capital (CVC)*. Power Business: Building the security and efficiency in power and steam to support Thaioil Group's power consumption at competitive costs. 	<ul style="list-style-type: none"> High Value Business (HVB) covering Low Carbon Chemical Business: Expanding product distribution for Disinfectants and Surfactants (D+S) to add value and competitiveness, including building cooperation with partners, and seeking opportunities for joint ventures (JVs) and mergers and acquisitions (M&A), and coupled with seeking investment opportunities through Corporate Venture Capital (CVC)*. Bio Business: Studying Sustainable Aviation Fuel (SAF) projects in collaboration with PTT Group as follows: <ul style="list-style-type: none"> Conducting evaluation of the potential risks derived from the Company's initial studies from short-term action plan and commit to on-going monitoring and analysis of rapidly evolving international laws, regulations, standards and frameworks, with a particular focus on ASEAN region. Thaioil will take a careful attention to regulatory landscapes as it may impact the Company's sources of raw materials, production processes, and products of new businesses. Continuing research study on relevant technologies and raw materials. Supporting the government through the Company's research and studies to foster the growth of sustainable and renewable fuel sources. Studying and developing a business model that enhances the market appeal and demand and technology reliabilities, as well as to ensure the cost of raw materials and alternative fuel sources remain competitive. Seeking investment opportunities through Corporate Venture Capital (CVC)*. New Energy Business: <ul style="list-style-type: none"> Continue studying and assessing relevant technologies to understand development trends and their potential applications. Monitor regulatory changes and standards related to hydrogen energy and CCUS. Seeking investment opportunities through Corporate Venture Capital (CVC)*. Power Business: Generating stable profits for Thaioil Group through the growth of Global Power Synergy Company Limited (GPSC) as a shareholder, which is the PTT Group's flagship power generation company.

Remarks: * Thaioil Group supports direct investment studies in various projects in new business ventures through investment in Corporate Venture Capital (CVC) in High Value Business (HVB), Bio Business, and New Energy Business, for example, technologies for environment and quality of life improvement, technologies supporting the transition of the petroleum business, production technologies with Bio-based feedstock and products, such as Bio-Surfactant, Bio-Chemicals, Bio-Plastics, Hydrogen, and Carbon Capture, Utilization and Storage (CCUS) to develop as a business to reduce carbon dioxide emissions (Decarbonization) from own's operations. Additionally, there is a focus on accessing Emerging Technologies to monitor industry development trends and the potential of technologies that can create long-term impact.



SUSTAINABILITY GOVERNANCE

THAIOIL GROUP SUSTAINABILITY MANAGEMENT POLICY

Thaioil Group's Sustainability Management Policy demonstrates a commitment to operate business in accordance with Environment, Social, and Governance (ESG) practices, aligning with the global direction and the goals of the United Nations Sustainable Development Goals (UN SDGs). This policy aims to enhance the quality of life and create shared value with all stakeholders in the long-term.



The details of **Thaioil Group's Sustainability Management Policy** are disclosed on the Company's website under the Sustainability/ Sustainability Management/ Policy section



SUSTAINABLE DEVELOPMENT GOVERNANCE STRUCTURE

Sustainable Development Structure

Thaioil Group manages material sustainability topics through dedicated function for each topic. The Sustainability Strategy and Management function adopts a holistic approach to sustainability management and provides performance reports to the Sustainable Development Steering Committee (Management Level) on a quarterly basis and the Corporate Governance and Sustainability Committee (Board Level) on a semi-annual basis. These results are subsequently presented to the Board of Directors for regular consideration and acknowledgment. In instances of significant and urgent risks impacting the Company's operations, management will promptly report to the Board of Directors for immediate consideration and acknowledgment. Furthermore, the Risk Management function is responsible for reporting the

organizational risk management results to Risk Management Steering Committee (RMSC) and the Risk Management Committee at least on a quarterly basis, and the Audit Committee on a semi-annual basis. This aims to ensure that operations and practices align with corporate strategies, enabling the organization to effectively meet the needs and expectations of all stakeholder groups.



The details of **Sustainable Management Structure** are disclosed on the Company's website under Sustainability/ Sustainability Management/ Sustainability Management Structure section



Board Role and Responsibility for Sustainable Development

Board of Directors

The Board of Directors is committed to sustainable business operations. Environment, Social, and Governance (ESG) dimensions are considered a fundamental basis for the business management through the formulation of policies, strategies, and objectives covering short-term, medium-term, and long-term, as part of the annual business planning process or Strategic Thinking Session (STS). During the session, the Board of Directors and the management of all lines of work collectively conduct environmental scanning, which may impact future business operations. The key

sustainability initiatives of the Board of Directors in 2024 were as follows:

- Approved Thaioil Group's 2024 Sustainability Materiality Assessment and overall sustainability strategy.
- Approved Thaioil Group's 2024 sustainability strategy, encompassing all of the ESG dimensions, including key targets and action plans that aligned with global trends and stakeholder expectations.

- Approved Thailoil Group’s Net Zero Greenhouse Gas (GHG) Emissions Pathway and the interim target to reduce GHG emissions by 15% by 2035 from the base year of 2026.
- Endorsed Thailoil Group’s Corporate Social Responsibility (CSR) Policy.

The Corporate Governance and Sustainability Committee is responsible for overseeing the progress of sustainable management, encompassing GHG emissions management strategies, on a semi-annual basis.

Sustainable Development Steering Committee




The Sustainable Development Steering Committee consists of the Chief Executive Officer and President, and all Executive Vice Presidents. In 2024, the highlights of the initiatives were as follows:

- Reviewed and approved Thailoil Group’s 2024 ESG material topics, along with endorsement of the corporate sustainability strategies.

- Reviewed and approved the implementation of an Internal Carbon Price (ICP) to evaluate the financial returns of carbon reduction projects and manage carbon-intensive projects. This will facilitate the Company to drive towards energy transition with low-carbon innovation and technologies in the future.
- Reviewed and approved Thailoil Group’s IFRS S1&S2 Roadmap to prepare for the disclosure of sustainability data according to the International Financial Reporting Standards (IFRS), both IFRS S1 the standard regarding General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 the standard regarding the Climate-related Disclosure which requires the Company to link the sustainability performance to the Company’s financial statements.
- Steered and supported various internal functions to actively participate in integrating operations towards a sustainable organization across all ESG dimensions. This included approving key sustainable development plan to achieve Thailoil Group’s sustainability targets.

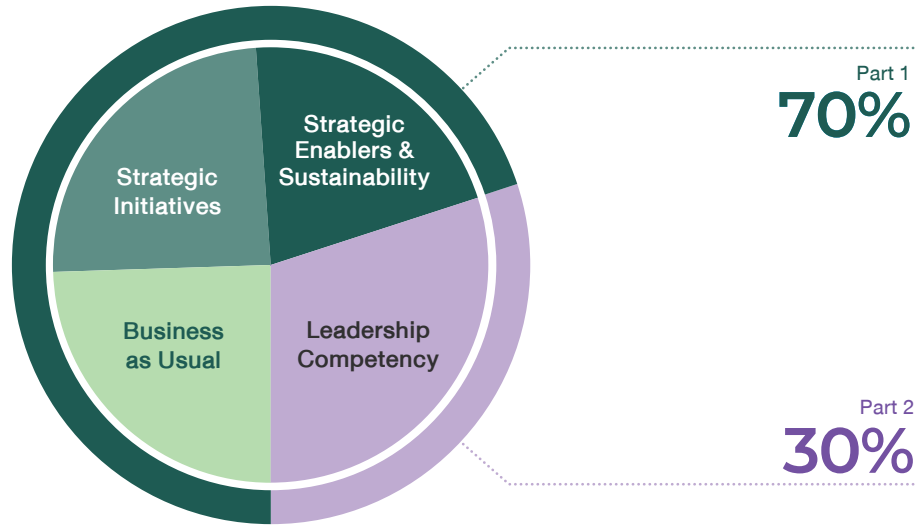
SUSTAINABILITY STRATEGY

In 2024, Thailoil Group reviewed the sustainability strategies to ensure alignment and advocacy to the business strategy to properly manage ESG risks. The details of the Company’s sustainability strategic directions are as follows:

Sustainability Dimension	 E: Environment	 S: Social	 G: Governance
Strategy	Enhance Clean Environment Enhancing environmental management in alignment with global trends	Engage Society Engaging with community and society to foster long-term social value creation	Ensure Good Governance Ensuring trust through transparent business operations
Target	Net Zero GHG Reduction: Reduce greenhouse gas emissions by 15% by 2035 from the base year of 2026 to achieve the Carbon Neutrality by 2050 and Net Zero GHG Emissions target by 2060 through the implementation of Net Zero GHG Emissions Strategy	Creating Social Value: Enhance the quality of life of the community and society with the C.A.R.E strategy Strengthen Community Engagement: Maintain a community engagement score at 90% above	Zero Case of Non-Compliance and Fraud Incidents: No case of non-compliance with laws, regulations, and the Company’s code of conduct Good Governance Recognition: A recognized organization for good corporate governance, both domestically and internationally

SUSTAINABILITY PERFORMANCE INDICATORS

Thaioil Group has determined the 2024 Sustainability Performance Indicators which are linked to the compensation of the Chief Executive Officer and President, and the Sustainable Development Steering Committee. The sustainability performance is also integrated into the Corporate Key Performance Indicators cascaded to all levels of employees in relevant functions. This aims to ensure that the Company can achieve the targets of Environment, Social, and Governance (ESG) management. The components are shown as follows:



Part 1) Corporate Key Performance Indicators (70%)

Thaioil Group indicates Key Performance Indicators based on the principle of the balanced scorecard to align with the direction of “TOP for the Great Future”. The Key Performance Indicators are classified into three areas:

01 45% of performance in Business as Usual, such as:

- Net Operating Profit
- Return on Invested Capital (ROIC) 7-Year Average
- Total Recordable Case Frequency (TRCF) and Process Safety Event Tier-1
- Operational Availability
- Energy Efficiency and GHG Emission
- Cash Operating Cost
- Productivity Improvement

02 29% of performance in Strategic Initiatives

03 26% of performance in Strategic Enablers & Sustainability, such as:

- Investment Grade Credit Rating
- People & Organization Readiness
- Digitalization
- Innovation
- Stakeholder Engagement (Customer, Community, and Investor)
- Dow Jones Sustainability Indices (DJSI)

Part 2) Leadership Competency (30%)

The assessment of the CEO and President’s leadership competency is conducted in six areas, namely building shared vision, organizational management aligned with strategic plan, risk management, team management toward the highest productivity, ability to coach and mentor, and building personal excellence.

Sustainability performance is assessed by using performance indicators across three areas of the balanced scorecard and leadership competency.



ENVIRONMENT IMPACT MANAGEMENT

CHALLENGES, RISKS, AND IMPACTS

Thaioil Group conducts a comprehensive review of the environmental risks and impacts on an annual basis. In 2024, the Company intensified its focus on climate change mitigation, including the establishment of Carbon Neutrality and Net Zero GHG Emission targets. The Company also prioritized on enhancing air quality management including the control of Volatile Organic Compounds (VOCs) emissions, ensuring strict compliance with environmental regulations, promoting a circular economy, preparing for potential drought situations, and safeguarding biodiversity. In addition to these challenges, Thaioil Group recognizes the impact of the business operations on local communities, which requires effective management to mitigate associated risks. Consequently, Thaioil Group enhanced its management approach in construction projects and implemented controls over the production process to prevent adverse effects on the community’s lifestyle and well-being. To achieve this, the company has integrated the sustainability or Environment, Social, and Governance (ESG) management process into its operations to enhance work processes and procedures, thereby reducing environmental impacts on communities and other stakeholders. This approach is applied to all sizes of Thaioil Group’s construction projects. Likewise, the Company maintains strict control over the current production process to ensure normal operating conditions. Moreover, Thaioil Group consistently places significant emphasis on regulatory compliance inspections and preparation for emergencies that may arise and impact the environment.

COMMITMENTS AND TARGETS

Thaioil Group strives to enhance the Company’s environmental management system in alignment with global trends, aiming to drive towards sustainable business growth while maintaining environmental awareness. According to the Environment, Social, and Governance (ESG) practices, the Company aims to reduce environmental impacts and create long-term business opportunities in collaboration with the community as specified in the policy. In addition, the Company has adopted an environmental management system in accordance with national and international standards to oversee and continually improve the management system and environmental master plan. Since 2023, Thaioil Group elevated its policy commitment in the “**Thaioil and Subsidiaries’ Quality, Security, Safety, Occupational Health, Environment, and Energy Management Policy**” through the approval of the Board of Directors to consistently drive the most efficient environmental management practices.



Please see more details of **Thaioil and Subsidiaries’ Quality, Security, Safety, Occupational Health, Environment, and Energy Management Policy** on the Company’s website under the Sustainability Section/ Environment Dimension/ Environmental Impact Management

[Click](#)



Targets



Complaints on environmental incidents (case)

Targets 2024
0

Long-term targets 2030
0



Non-compliance with relevant environmental laws and regulations (case)

Targets 2024
0

Long-term targets 2030
0



Major non-compliance with ISO 14001: 2015 standard (case)

Targets 2024
0

Long-term targets 2030
0



Significant oil and chemical spills into the environment (case of significant spill)

Targets 2024
0

Long-term targets 2030
0



Compliance with excellent environmental governance standards in petroleum and petrochemical refineries

Targets 2024
100%

Long-term targets 2030
100%

MANAGEMENT APPROACH AND PERFORMANCE

Environmental Management

Thaioil has defined the roles and responsibilities for implementing Quality, Security, Safety, Health, Environment, Energy Management (QSHE policy), with the goal of efficient resource management and continuous improvement. The Roles and Responsibilities extend to executives and employees at all levels, including

Chief Executive Officer and President

- Determine roles, responsibilities, and duties of all operation levels throughout the organization in relation to the Company environmental management system.
- Appoint an acting representative(s) according to appropriate chain of command and communicate this appointment to relevant employees and entities to ensure that operations adhere to Continuous Management System requirements.
- Ensure that all management system manuals and work procedures are properly documented and communicated to employees. This can be achieved through lines of supervisors and training. In this case, once this is done, the documents must be stored in the central database of Thaioil Group, where they can be easily accessed by all employees.
- Appoint Manager of Quality System to be a representative for QSHE Management Representative (QSHE-MR) according to the organizational structure and responsible for:
 - Develop, utilize, and maintain management system and document.
 - Encourage all relevant personnel to be aware of the needs and expectations of all stakeholders. This includes understanding and complying with all legal and other requirements related to the QSHE management system.
 - Report on the performance of QSHE management system to management team for review and recommendation for improvement.

All management levels and Department managers

- Clearly identify the roles and responsibilities of those involved in QSHE management system to ensure that processes meet objectives and targets and respond to needs and expectations of all stakeholders.

- Sufficiently allocate resources, such as human capital, skills, facilities and technology, to prepare and maintain the management system.
- Provide clear directions and communicate to employees and contractors at all levels to understand and strictly adhere to the QSHE policy.

Employees and Contractors

- Employees and contractors at all levels comprehend and strictly comply with the QSHE policy in order to efficiently achieve the goals and objectives.

Management Approach

Thaioil Group is committed to fulfilling its responsibilities across three key areas, namely Environment, Social, and Governance (ESG). The Company has adopted the principles of a circular economy to drive business growth. A comprehensive environmental strategy and master plan have been developed to guide short, medium, and long-term initiatives, ensuring environmentally conscious operations and minimizing environmental impacts throughout the production chain towards sustainable business growth.

- **Long-term Strategy:** Thaioil Group is committed to promoting business growth while maintaining environmental consciousness and creating long-term business opportunities. This commitment comprises two key strategies, namely the Net Zero GHG Emissions strategy and the Circular Economy strategy, both of which are supported by a well-defined governance structure.
- **Short-to Medium-term Strategy:** Thaioil Group is committed to minimizing environmental impacts at their sources and promoting ESG practices that are resilient to changes and aligned with global trends and the long-term business strategy. The Company has aligned the strategic management plan towards O2Bx (Operation Excellence to Business Excellence). In addition, the “Refinery in the City” model has been adopted in the management approach in pursuit of business excellence, focusing on three main areas on environmental management, social management, and governance compliance. To efficiently achieve these business excellences, Thaioil Group has implemented a management approach known as the “CARE Concept”, which is outlined as

C

Control Right

Controlling environmental impacts and maintaining compliance with the regulatory requirements. The environmental management has been elevated through Permit to Work–Job Safety Environmental Analysis (JSEA) to prevent and minimize potential impacts on communities that may be affected by the Company’s production, construction, and transportation activities. The Company has also proactively prepared to mitigate impacts from the Clean Fuel Project (CFP), which is in the process of commissioning and start-up. This aims to maintain the trust of the surrounding community through active community engagement.

A

Awareness & Communication Right

Raising awareness, engaging in communication with stakeholders, and building trust in Thaioil Group’s ability to prevent and mitigate the impacts of business operations. This is outlined in the Company’s Sustainability Management Policy and Corporate Social Responsibility Policy. This aims to enhance the quality of life for communities and society, contributing to sustainable growth.

R

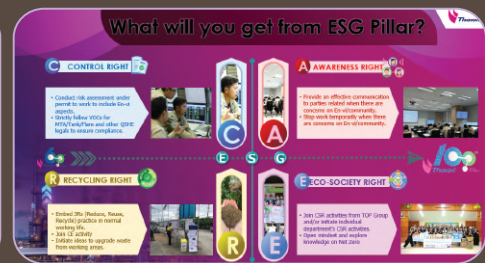
Recycling Right

Managing natural resources efficiency through the 3Rs strategy (Reduce, Reuse, Recycle) and the circular economy principle, in order to support the Sustainable Development Goals such as TOP CE WE GO (Waste to Products) and CE for Community projects.

E

Eco-Society Right

Creating value to society through the "Partner for Life CSR" concept to instill volunteerism and corporate social responsibility among employees. Furthermore, the Company promotes a "Volunteer Culture" and encourages employees to design initiatives for communities towards "Share Value with Society".



Thaioil Group operates business with transparency and fairness, prioritizing the appropriate return of benefits to all groups of stakeholders, as well as emphasizing environmental protection and community well-being. To achieve this goal, the Company implements a comprehensive environmental management plan that considers both internal and external environmental factors (Environmental Outlook) to align with the needs and expectations of the stakeholders. This involves communities, government agencies, executives, and employees who have expertise in environmental topics, as well as environmental regulations, laws, and global megatrends, etc. All factors are analyzed to identify business opportunities and enhance a five-year environmental plan referred to as the “5 Years Environmental Master Plan”. This plan is used as the key framework to drive sustainability in environmental management and ensure effective environmental management to achieve the environmental targets.

Thaioil Group enhances employees’ knowledge on environmental management in alignment with the sustainability and environmental policies and practices. For instance, the Company organized training sessions on carbon taxes, Net Zero GHG Emissions, Carbon Footprint Organization and Carbon Footprint Products. In addition, statutory training was also conducted for environmental managers and practitioners in pollution treatment systems, which was attended by 113 attendants. The Company is committed to

providing training on an annual basis to enhance employees’ knowledge of environmental management for continuous efficiency.

Furthermore, Thaioil Group governs and develops environmental management systems according to accepted standards at the national and international levels. For example, ISO 14001 (the standard on environmental management excellence) and evidence of the Company’s environmental management system (EMS) audits (ISO 14001) for all operating locations is available on the Company’s website <https://www.thaioilgroup.com/about/management-system>, ISO 26000 (the standard on corporate social responsibility) under the CSR-DIW project, PTT Group’s Operational Excellence Management System (OEMS), the best practices in biodiversity management, the Global Reporting Initiative (GRI), and the best practices identified from the Dow Jones Sustainability Indices (DJSI) assessment. To improve and develop environmental management systems, these standards are adopted in risk assessments, environmental prevention and mitigation measures, operational controls, monitoring, inspection, and reporting processes, as well as the execution of the proactive and reactive environmental indicators. The Company has also improved and developed the environmental management system throughout the production process to end products across the value chain, covering operations in various conditions as follows:

Production in Normal Operating Conditions

Thaioil Group reviews risks, environmental issues, and preventive measures to mitigate environmental impacts at the sources on an annual basis or when significant changes occur. Moreover, the Company has been steadily enhancing production efficiency in accordance with the Environmental Master Plan, which serves as the operational framework and comprises the following topics:

- Governance
- Environmental Technical Procedures
- Climate Strategy
- Water Resource Management
- Eco-efficiency
- Biodiversity
- Supplier and Contractor Program
- Environmental Audit
- Management Information Solutions

For the refinery unit expansion project, Thaioil Group applies the environmental standard specifications, which encompasses the requirements, laws, best practices, and fair stakeholder perspectives, based on the environmental principles. This aims to establish the operating framework for the Green Construction Project. The framework remains continuously responsive to the requirements and expectations of relevant stakeholders.



Key Highlighted Projects

In 2024, Thaioil Group implemented additional projects as follows:

- The best practice principle has been applied to reduce emissions and minimize the loss of volatile organic compounds (VOCs) through continuous maintenance of production processes and tank maintenance. For example, the reduction of Benzene product loss during the maintenance of the Benzene storage tank (T-7604A) was achieved by lowering the benzene level in the tank to the lowest possible point. The remaining benzene residue was transferred to the Re-Process tank (T-7501) through a closed drain system. However, as the Re-Process tank contained degraded Sulfolane with a low pH value, the benzene that could no longer be reused and had to be entirely disposed of. To resolve this issue, a pump-out system was established to transfer the remaining benzene to other benzene product tanks instead of the Re-Process tank. This initiative not only reduced benzene evaporation into the atmosphere but also minimized benzene loss, saving approximately 17 million THB.

Production in Abnormal Operating Conditions

Thaioil Group has established the Environment and Community Relation Committee (ECRC). The Company has worked in partnership with the government agencies, academies, and communities surrounding the production area to improve environmental management and mitigate impacts on all stakeholders. The Company has adopted a collaborative approach, adhering to the “3-synchronization model” and the “5-Together” conceptual framework, fostering a collaborative approach that emphasises joint efforts in thinking, working, correcting, learning, and developing together. This collaboration starts with establishing proactive guidelines and working together to resolve issues during abnormal operating conditions. Environmental performance is monitored and assessed 24 hours a day, seven days a week by the operational team. Furthermore, the ECRC also organizes activities and communication platforms to track and monitor environmental performance in compliance with the requirements, regulations, and operating targets. To ensure the least environmental impact on the surrounding communities, the ECRC organizes monthly meetings to address concerns and suggestions for further improvement. Additionally, an annual perception survey is conducted with the community.



government agencies



Please see more details of **Environmental Emergency Condition Management Approach 2024** on the Company's website under the Sustainability Section/ Environment Dimension/ Environmental Impact Management





Key Highlighted Projects

In 2024, Thaioil Group launched development projects and upgraded its management of abnormal operating conditions and the environmental emergency situations. For example:

- Thaioil Group collaborated with the innovation department of PTT Public Company Limited to conduct the study and experiment of the Electronic Nose (E-Nose) system. The system is designed to assist in monitoring, detecting, and notifying the unpleasant odors that may arise from the production process and other activities, potentially affecting employees, contractors, communities, and other stakeholders. The system operates 24 hours a day, enabling the Company to identify the source of unpleasant odors and implement improvements promptly.



Experimental installation of the E-Nose system in the Thaioil Group area.



Performance 2024



Social and Relationship Capital



100%

compliance with ISO 14001: 2015 across all operating locations.



100%

compliance with relevant environmental laws and regulations.



100%

compliance with excellent environmental governance standards in petroleum and petrochemical refineries.

Remark: Scope limited to TOP, TLB, TPX, and LABIX in Sriracha District, Chon Buri Province.



100%

environmental performance compliance with environmental laws and regulations.



0

complaint from communities related to environmental impacts.



Natural Capital

0

case of significant oil and chemical spills into the environment.

Note:

Oil and chemical spill exceeding 1 barrel into the sea, or oil and chemical spill of 100 barrel into the soil, is considered a significant spill.

Air Quality Management

Management Approach

Thaioil Group is committed to minimizing environmental impact to facilitate continuous business, while maintaining environmental consciousness alongside surrounding communities. To achieve this, the Company has established targets for controlling air quality, including Nitrogen Oxides (NO_x), Sulphur Oxides (SO_x), Volatile Organic Compounds (VOCs), and Particulate Matter (PM). Starting from the design phase, the Company selects and installs high-efficiency technologies that meet international standards to control its production processes. The Company also monitors and measures air quality at its sources and in the surrounding areas on a regular basis in accordance with a predetermined schedule. The Company also uses an air quality monitoring system that displays real-time results and tracks the performance of air quality against international best practices. The Company's environmental management system and performance is audited and certified by an external party on an annual basis.

NO_x and SO_x Emissions Management

Thaioil Group assesses environmental impacts and determines preventive measures to control NO_x and SO_x emissions from the production process. The primary source of emissions is from fuel combustion. To control and minimize these emissions, the Company has installed high-quality technology that is internationally recognized and continuously operates the Sulphur Recovery Unit (SRU) system. The SRU system can effectively convert Sulphur from waste gases into a liquid product for use in other industries instead of emitting it into the environment. Furthermore, the Company upgraded all burners to Ultra-Low NO_x in 2010 to effectively reduce Nitrogen Oxides emissions from combustion. The Company also controls the usage of low-polluting fuel over the high-polluting fuel and regularly monitors the smoke from combustion (White Smoke Monitoring) and manage irregularities from the early stages to avoid impacts on the community. Moreover, Thaioil Group measures the air quality both at the source and in the surrounding communities by using advanced technologies, such as the Continuous Emission Monitoring System (CEMS) and the Air Quality Management System (AQMS), respectively. The air quality is also measured and audited by an external party, and reported daily in the Environmental Daily Dashboard. Consequently, in 2024, Thaioil Group was able to control Nitrogen and Sulphur Oxides emissions at levels better than the required standards and set targets.

Despite the increasing trend of our sulfur dioxide (SO_x) emissions in 2023, the Company is implementing a project called CFP to expand

our refining capacity from 275,000 barrels to 400,000 barrels per day. This expansion will achieve economies of scale, reduce production costs, and allow for greater flexibility in processing different types of crude oil. Thus, the Company will refine more heavy crude oil, up to 40-50 percent more, and turn fuel oil into more valuable products like jet fuel and diesel. By doing this, we expect to use less fuel oil and lower our SO_x emissions in the future.

In addition, in 2024, Thaioil Group implemented additional projects to control SO_x and NO_x emissions as follows:

- Thaioil Group recognizes the importance of controlling air quality emitted from stacks across various parameters, such as Sulfur Dioxide (SO_x), Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and total suspended particulates (TSP). Therefore, Thaioil Group has installed the Continuous Emission Monitoring System (CEMS) to report emission values 24/7 for all stacks, with the installation expected to be completed by 2027.

VOCs Emissions Management (VOCs)

Thaioil Group manages Volatile Organic Compounds (VOCs) emissions through environmental impact assessment. The Company implements preventive and monitoring measures of VOCs emissions from various sources within the production process, including flares, combustion, tanks, loading, effluent treatment plants, and fugitives, through operational excellence management as follows:

- **Flares and Fuel Combustion:** The Company monitors flare efficiency, maintenance process, and implements controls to prevent undesirable incidents that may emit VOCs emissions from the combustion tower.
- **Tanks and Loading processes:** The Company selects appropriate storage tanks for each substance or fuel being stored, and installs a Vapor Recovery Unit (VRU) with a high efficiency of up to 99% to treat VOCs during product transfer.
- **Effluent Treatment Plants (ETP):** The Company regularly tracks and monitors VOCs emissions to improve its wastewater treatment system. The ETP Cover Project has been initiated and is now in the process of installing an ETP Cover system to reduce VOCs emissions into the environment.
- **Fugitives from operational processes:** The Company controls and monitors ventilations through the VOCs emission leak detection camera. The camera helps identify leak points in accordance with regulations, international laws, and standards specified in the US Environmental Protection Agency (US EPA) since 2012. This provides opportunities for further improvement to prevent fugitive emissions.

- **VOCs Reduction Measures in Maintenance:** The Company has amended the maintenance work procedures to align with best practices and ensure that VOCs emissions are controlled below legal requirements in all activities. Moreover, VOC measurements are conducted along the perimeter of the Thaioil Group during maintenance to monitor and ensure that VOC levels remain within standard limits throughout the maintenance period.

In 2024, Thaioil Group implemented additional projects to control Volatile Organic Compounds (VOCs) emissions as follows:

- After Thaioil Group developed the “Scrubber Unit Machine” by adopting Wet & Dry Scrubber Technologies to assist in reducing the VOCs emissions to below 500 ppm before opening oil storage tanks. This machine has been effectively used in oil tank maintenance process. Furthermore, the Innovation Department has developed a chemical agent that accelerates the reduction of VOCs more rapidly by adding the chemical into the Wet Scrubber. The initial phase is currently under trial, and upon successful completion, it will be implemented in the annual major maintenance period commencing in 2025.

Particulate Matter (PM) Management

“PM2.5 Taskforce” consistently monitors and develops management approach to drive and communicate activities to control PM2.5 under the 4C measures (Control, Contain, Clean, and Check). These approaches have been implemented to reduce environmental impact at the source, such as office buildings, production processes, construction projects, and community areas, as well as supporting governmental activities and measures. Besides, the Company regularly measures PM10 and PM2.5 by using the Air Quality Management System (AQMS) and undergoes audits by external parties. Likewise, the Company regularly communicates the PM2.5 management through ENVI e-newsletter to all employees.

In 2024, Thaioil Group implemented additional projects under the 4C measures as follows:



Communication of PM2.5 Management through the ENVI e-newsletter

- **C-1 Control:** The Company maintained the air quality at a higher level than standards and legal requirements. Several activities were undertaken to limit the use of vehicles and road usage, including the promotion of carpool campaign, the change of carpool vehicles to electrical vehicles, and the adoption of “Fast & Flow” strategy to manage traffic flow. The Company also monitored and controlled the vehicles’ conditions and their black smoke, as well as ensuring the proper use of dust covers of dusty material on dump trucks.
- **C-2 Contain:** The Company organized an activity to control the dust pollution levels on walkways, aiming to minimize dust dispersion and accumulation. The activities included installing a dust collection net, using tarp covers to prevent dust from transport vehicles, setting up wheel washes in the construction area, installing water spray, and providing dust protection masks for employees and contractors working in risk areas.
- **C-3 Clean:** The Company established cleaning initiatives in buildings, lorry loading areas, and construction sites. These initiatives included activities such as carpet cleaning, air conditioner cleaning, 5S activities, Big Cleaning Day, and regularly cleaning the road within Thaioil Group premises and surrounding communities. In addition, the Company supported government initiatives to control dust levels on Sukhumvit Road by spraying water.
- **C-4 Check:** The Company conducted regular site audits to monitor dust pollution levels by tracking data from the Pollution Control Department station, TOP AQMS lorry station, and PM2.5 NONG PIM detectors to assess air quality both indoors and outdoors.



Performance 2024

Natural Capital



Nitrogen Oxides (NO_x) emissions

decreased by

4.89%

compared to the previous year



Sulphur Oxides (SO_x) emissions

decreased by

4.66%

compared to the previous year



Volatile Organic Compounds (VOCs) emissions

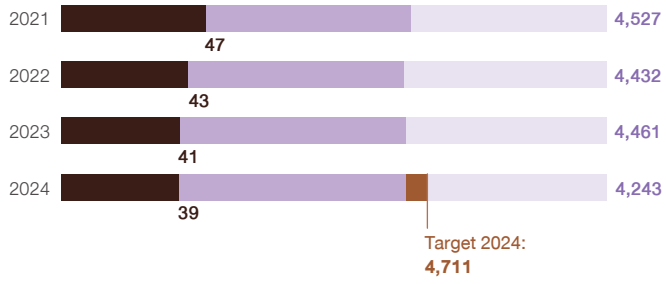
decreased by

10.05%

compared to the previous year

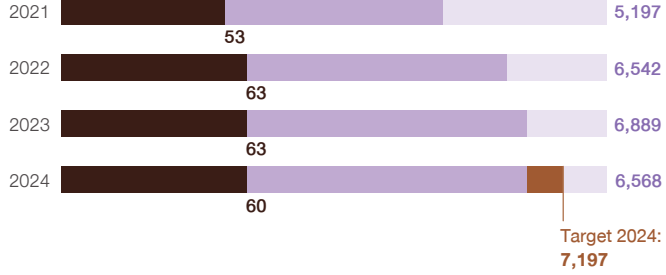
The amount of Nitrogen Oxides (NO_x) emissions

- Ton
- Ton per million barrels of crude oil equivalent



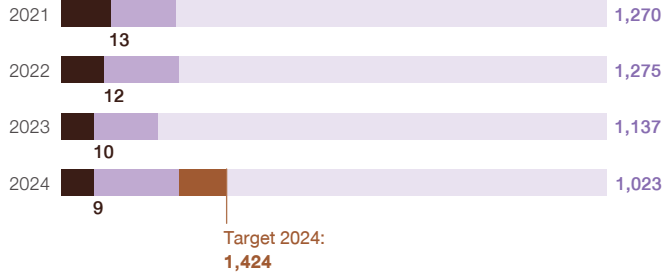
The amount of Sulphur Oxides (SO_x) emissions

- Ton
- Ton per million barrels of crude oil equivalent



The amount of Volatile Organic Compounds (VOCs) emissions

- Ton
- Ton per million barrels of crude oil equivalent







CLIMATE CHANGE MANAGEMENT

CHALLENGES, RISKS, AND IMPACTS

Climate change is a crucial global concern, as reflected in the United Nations Sustainable Development Goals (SDG 13: Climate Action) and annually addressed at the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP). Thailand is committed to achieving the long-term goal of net zero greenhouse gas emissions by 2065. This pledge accelerates the efforts for both public and private sectors to manage greenhouse gas emissions more effectively through the draft of the National Climate Change Act, which will be effective soon. Additionally, the national clean energy production and utilization have been emphasized to respond to the forthcoming changes in consumption patterns and stakeholder expectations in the energy sector. Thaioil Group has recognized these challenges and reflected them as the Company's risks and opportunities to determine the most effective target and long-term strategy.

COMMITMENTS AND TARGETS

The Board of Directors and the executive management of Thaioil Group and its subsidiaries have acknowledged the importance of the future business directions towards clean energy businesses and the low-carbon society. The Company has determined the policy in alignment with the Paris Agreement and Thailand's Nationally Determined Contribution (NDC). The Company focuses on the feasibility study of new businesses, including high-value environmentally friendly products and process optimization for maximum efficiency. Moreover, the Company has determined tangible strategies and set long-term targets in line with the national commitment.



Targets



GHG emission reductions (Scope 1 and 2)
Percent compared with base year

Long-term Target

Reduce

15%

of GHG emission by 2035 compared with base year in 2026



GHG emissions (Scope 1 and 2)

Target 2024

Less than
3.76

million ton of carbon dioxide equivalents (tCO₂e)

Long-term Target

Carbon
Neutrality
by 2050

Net Zero
GHG Emissions
by 2060



GHG emissions (Scope 1)

Target 2024

Less than
3.67

million ton of carbon dioxide equivalents (tCO₂e)

GHG emissions (Scope 2)

Target 2024

Less than
0.09

million ton of carbon dioxide equivalents (tCO₂e)

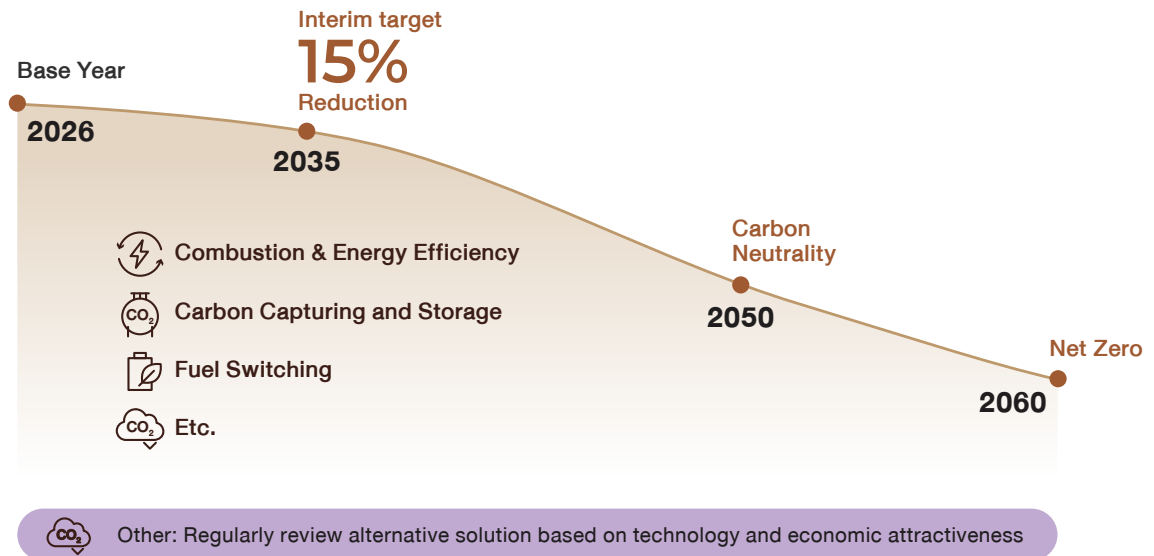
GHG emissions (Scope 3)

Target 2024

Less than
50

million ton of carbon dioxide equivalents (tCO₂e)

Thaioil Group's Targets



MANAGEMENT APPROACH AND PERFORMANCE

Governance and Oversight

The Board of Directors has annually reviewed the corporate climate change strategies and adopted risk management process as a tool to assess climate change impact on future business operation. The climate risks are monitored on quarterly basis. The Board is also tracking climate-related key performance indicators including Energy Intensity Index and Greenhouse Gas Intensity, which are the Corporate Key Performance Indicators, to evaluate the performance of management executives and employees.

In 2024 strategic review, the Board endorsed the Net Zero GHG Emissions Pathway and considered budget and investment approach in low carbon technology, such as studying the installation of Carbon Capture technology in production unit, studying Blue and Green Hydrogen business, and studying Sustainable Aviation Fuel (SAF) production.

The Board of Directors has assigned the Corporate Governance and Sustainability Committee (Board level) to oversight and monitor the performance of sustainability initiatives, including the management of topics related to climate change on a

semi-annually basis. The Sustainable Development Steering Committee (Management level), chaired by the Chief Executive Officer and President, is also assigned to drive the implementation, and monitor the progress on a quarterly basis. The executives of Thaioil Group take responsibility for the management in line with the established strategy. "The Net Zero GHG Emissions Governance Structure" is established where the Vice President of the Sustainability Function is supervising overall management, including the integration of work processes with Corporate Strategy Function, Production Function, Business Development Function, Research and Development Function, and Corporate Social Responsibility Function. The functions have the roles of assessing climate-related risks and opportunities, conducting work in accordance with the organizational climate strategy, developing action plans that align with Thaioil Group's Net Zero GHG Emissions Pathway and Roadmap, and reporting the performances as well as risks and opportunities management to the committees on a regular basis.

Thaioil Group's Net Zero Greenhouse Gas Emissions Governance Structure

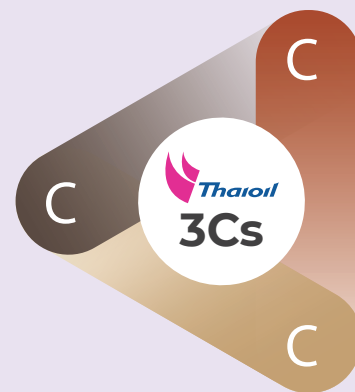


Thaioil Group's climate governance can be summarized as the followings

Level	Roles and Accountabilities	Meeting Frequency
The Board of Directors	<ul style="list-style-type: none"> Oversee the corporate climate change strategies, execution roadmap and performance. 	As needed
The Corporate Governance and Sustainability Committee Board level	<ul style="list-style-type: none"> Define and review sustainability strategy, plan, and goals, which include climate related issues. Oversee the setting of climate-related targets. Oversee and monitor the development and implementation progress of corporate climate change strategies, roadmap, and climate-related key performances. 	Semi-annually
The Sustainable Development Steering Committee Executive level	<ul style="list-style-type: none"> Drive the implementation, and monitor the progress of corporate climate change strategies, climate risks management and mitigating actions and the development of a climate transition plan. Review and approve the annual sustainability material topics, including climate actions along with corporate sustainability strategies. Review and endorse Thaioil Group's Net Zero GHG Emissions Pathway, including the interim target to reduce GHG emissions by 15% by 2035 from the base year of 2026. This is consistent with Thaioil Group's Carbon Neutrality target by 2050 and Net Zero GHG Emissions target by 2060. Steer and support various internal functions to actively participate in integrating operations towards a sustainable organization across all ESG dimensions. This included approving key sustainable development plan to achieve Thaioil Group's sustainability targets. 	Quarterly
The "Net Zero GHG Emissions Governance Structure"	<ul style="list-style-type: none"> Assess climate-related risks and opportunities, including aligning their work as per the organizational climate strategy, developing action plans and Thaioil Group's Net Zero GHG Emissions Pathway and Roadmap, and regularly reporting performances as well as risks and opportunities management to the management, executives, and Board committees. 	As needed

Climate Change Action and Strategy

Thaioil Group has defined the Net Zero GHG Emissions Strategy, called the 3Cs strategies with the details as follows:



	Operational Approach	2024 Progress
<p>C Cut Down Existing Emission Reducing GHG emission in the current process of production (Scope 1 and 2)</p>	<p>Operational and Investment Approach prior 2030</p> <ul style="list-style-type: none"> • Focusing on continuous study and investment in improving energy efficiency, driven by the Energy and Loss Committee to oversee operations. • Controlling the proportion of low greenhouse gas-emitting fuels used in the production process to exceed the amount of high greenhouse gas-emitting fuels. • Utilizing high efficiency technologies and phase out older production units with long operational lifespans, resulting in a significant improvement in refinery energy efficiency. • Discontinuing the use of fuel oil, a high greenhouse gas-emitting fuel, in the production process. This is because the refined fuel oil can be processed into high value products, thereby reducing greenhouse gas emissions in the end consumption phase. • Exploring the feasibility of adopting Carbon Capture and Storage (CCS) technology for application in production units. <p>Operational and Investment Approach after 2030</p> <ul style="list-style-type: none"> • Studying and investing in Carbon Capture and Storage (CCS) technology in detail for production units to achieve the interim target of reducing greenhouse gas emissions by 15% by 2035, compared to the base year of 2026 • Reviewing and implementing strategies to achieve net-zero greenhouse gas emissions, with a goal of carbon neutrality by 2050 and net zero GHG emissions by 2060. 	<ul style="list-style-type: none"> • Reviewed the operational and investments strategies aimed at reducing greenhouse gas emissions in the production process. • Implemented a total of 39 energy efficiency improvement projects. • Collaborated with the PTT Group in conducting a Preliminary Feasibility Study for the application of carbon capture, storage, and utilization technologies, as well as for hydrogen production modifications. • Monitored and participated in the public consultation process for the draft Climate Change Act.
<p>C Compensate Residual Emission Offsetting the remaining greenhouse gases</p>	<ul style="list-style-type: none"> • Supporting the use of nature-based solutions (NbS) as a foundation for restoration. • Promoting afforestation efforts to capture carbon in the atmosphere. • Generating carbon credits from the cogeneration power plants of TOP SPP within the voluntary greenhouse gas reduction program under Thailand's T-VER standards. • Exploring the feasibility of generating carbon credits from investment projects that support carbon reduction. • Developing guidelines for carbon credit trading. 	<ul style="list-style-type: none"> • An area of 8,656 rai has been allocated for project implementation in cooperation with the government, consisting of 8,300 rai of terrestrial forest and 356 rai of mangrove forest. Afforestation activities are currently underway on this land, with an estimated carbon dioxide sequestration of approximately 88,640 tons of CO₂ equivalent over the 10-year project duration. • Carbon credits have been generated from the cogeneration power plants of TOP SPP in the voluntary greenhouse gas reduction program under Thailand's T-VER standards since 2019, with a total accumulated certification of 1,674,618 tons of CO₂ equivalent. • Carbon credits have been generated from a project focused on energy efficiency improvements, totalling 554 tons of CO₂ equivalent. • Raise awareness and understanding of the carbon market trends and related legal frameworks in Thailand and internationally among executives and employees.
<p>C Control Future Emission Controlling GHG emissions in the future</p>	<p>Seeking investment opportunities in businesses focused on low carbon products, such as Sustainable Aviation Fuel (SAF), bio-based businesses, low carbon hydrogen and its derivatives, and Carbon Capture, Utilization, and Storage (CCUS) technologies.</p>	<ul style="list-style-type: none"> • Conducted Primary Feasibility Studies on the following: <ul style="list-style-type: none"> - Production of Sustainable Aviation Fuel (SAF) - Carbon Capture, Utilization, and Storage (CCUS) technologies - Low carbon energy business projects, such as low-carbon hydrogen and its derivatives, and other biofuels. • Monitored international standards and government regulations.

CLIMATE-RELATED RISK AND OPPORTUNITY MANAGEMENT

Thaioil Group has evaluated the resilience of the Net Zero GHG Emissions Strategy through scenario analysis, as well as the business impacts from each climate change scenario. The climate-related risks and opportunities were assessed in 2030, 2040, and 2050. According to the Task Force on Climate-related Financial Disclosure (TCFD) recommendation, the analysis was conducted in 2 scenarios compared with the baseline scenario as described as follows:

The Transition Scenario

Thaioil Group has assessed climate-related risks and opportunities considering 4 factors, namely, regulatory, technological, market, and reputational. The two scenarios were analysed in three periods, which are year 2030, 2040, and 2050 across the supply chain, from upstream to downstream, as follows:

1. Stated Policy Scenario (STEPS) – this scenario represents a pathway that considers the current policies and targets that governments have announced including the Nationally Determined Contributions under the Paris Agreement
2. Sustainable Development Scenario (SDS) – this scenario represents a “well below 2 °C” pathway achieved through

transitioning into a low-carbon economy and meeting all current net zero pledges from EIA (International Energy Agency: (IEA))

The Physical Scenario

Thaioil Group has assessed physical risks of both acute and chronic impacts from rising global temperature. The scenario analysis has been conducted in the period of 2030, 2040, and 2050 across supply chain, from upstream to downstream. Representative Concentration Pathways (RCPs), a recognized climate model of the Intergovernmental Panel on Climate Change (IPCC), has been applied in two scenarios as below:

- The RCP 2.6 scenario represents a stringent greenhouse gas reduction measure.
- The RCP 8.5 scenario represents a rapid increase in greenhouse gas emissions.



Please see more details of **Climate-Related Risk and Opportunity Management including further financial impacts** in the Company's website under the Sustainability Section/ Environment Dimension/ Climate Change Management



Performance 2024

To achieve Thaioil Group's net zero GHG emissions target, the Company strives to reduce the direct GHG emissions in the production process. The performance of Thaioil Group in 2023 is outlined as follows:

Reduction of Direct Greenhouse Gas Emissions (Scope 1)

Thaioil Group has implemented projects to decrease GHG emissions in production processes through the Energy Intensity Index (EII). The Company has invested in 23 energy efficiency improvement projects, resulting in a GHG reduction of over 28,003 tons of carbon dioxide equivalent (tCO₂e)

Thaioil Group has conducted a feasibility study to reduce GHG emissions at its source, namely The Assessment of the Carbon Footprint of Products for TOP Refinery in Business-to-Business (B2B). The project has assessed GHG emissions from raw material procurement and production processes to the shipping at the

factory gate. The GHG data from 2022 to 2023 was used as the base year for calculating the Carbon Footprint of Products, which was certified by the Thailand Greenhouse Gas Management Organization (Public Organization) or TGO. Thaioil Group plans to extend the scope of the Carbon Footprint of Products to its subsidiaries, Thai Lubes Base Co., Ltd. (TLB), using data from 2023, and in 2024, the project received certification for registration from the Thailand Greenhouse Gas Management Organization (TGO). However, Thaioil Group has planned to expand the scope of the carbon footprint study to include products from Thai Paraxylene Co., Ltd. and Labix Co., Ltd. continuing with data from 2024.

Furthermore, Thaioil Group has implemented renewable energy projects to support the GHG reduction of Thaioil Group and the national GHG emissions reduction targets. The completed activities are outlined as follows:

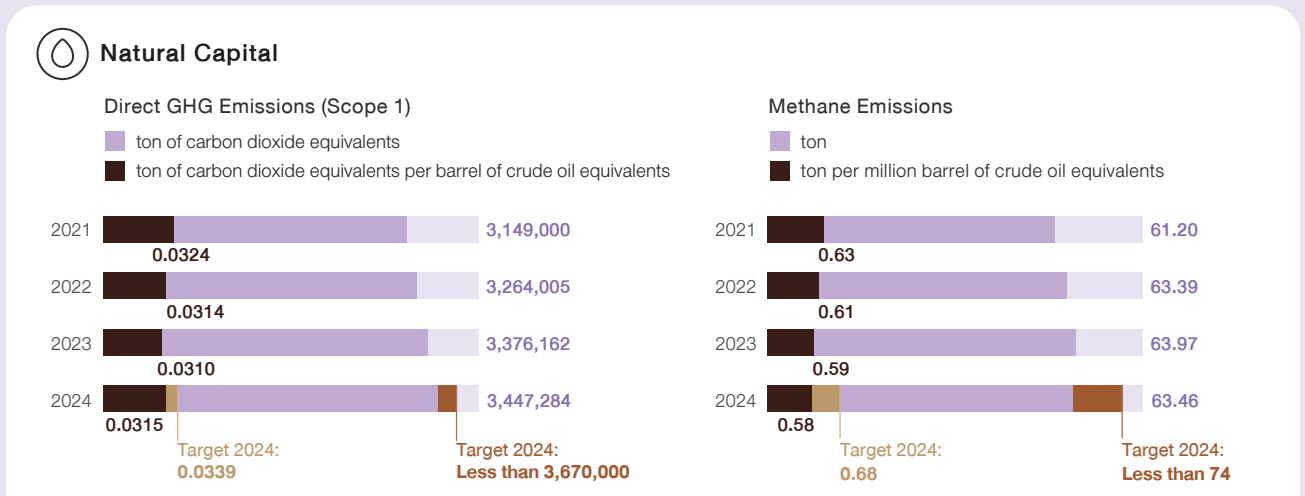
Thaioil Group has participated in the Thailand Voluntary Emission Reduction Program (T-VER), organized by the Thailand Greenhouse Gas Management Organization (Public Organization) under the project "Solar Rooftop at Thaioil's Buildings." The project has been completely applied in the Engineering Building Center, Thaioil Sriracha Building, and Laboratory. The purpose is to promote the use of renewable energy and the GHG reduction. In 2024, the total production capacity of solar cells is 1MWp, which has been assessed and received a certified carbon credit for the first year with over 554 tons of carbon dioxide equivalent (tCO₂e).

Thaioil Group has participated in the Thailand Voluntary Emission Reduction Program (T-VER) organized by the Thailand Greenhouse Gas Management Organization (Public Organization) under the project "239-MW Combined Cycle Co-Generation Power Plant" located in the Sriracha District, Chon Buri Province, operated by TOP SPP Company Limited. The project successfully passed the assessment and has been received certified carbon credits from 2020 to 2024. The accumulated carbon credit is a total of 1,674,618 tons of carbon dioxide equivalent (tCO₂e).

The Low Emission Supporting Scheme (LESS) Project, implemented through energy conservation activities aimed at improving energy efficiency within Thaioil Group, involves the selection of four energy efficiency improvement projects. These include: reducing fuel consumption by increasing the inlet air temperature to the furnace of the Hydrotreater Unit 2 at Thai Oil Public Company Limited; reducing energy usage by replacing the catalyst in the Sulfur Recovery and Sweetening Unit (HFU Catalyst Replacement) at Thai Lubes Base Public Company Limited; reducing electricity consumption by using variable speed motors for compressors in the Xylene Rerun Unit at Thai Paraxylene Co., Ltd.; and optimizing fuel consumption in the Unionfining Unit at Labix Co., Ltd. The execution of these projects is expected to reduce greenhouse gas emissions by over 2,145 tons of CO₂ equivalent (tCO₂e).

With the GHG management described above, Thaioil Group has controlled methane emissions at the set target. A significant portion of methane emissions originates from the same source as the other greenhouse gases.

Thaioil Group has set long-term, medium-term, and annual targets. The annual targets are evaluated based on the energy consumption of the business plan for each year. Through the implementation of energy efficiency improvement projects in the production process in 2024, Thaioil Group is expected to achieve its greenhouse gas emissions target for Scope 1, as outlined, as follows:



Natural Capital

Reduced direct GHG emissions by **28,985** tons of carbon dioxide equivalents (tCO₂e) from energy efficiency improvement projects

Accumulated carbon credits (2020-2024) amounting to **1,675,172** tons of carbon dioxide equivalents (tCO₂e)

Manufactured Capital

No disruption in production process caused by water scarcity

100% of operations were assessed for physical climate risk

Reduction of Indirect Greenhouse Gas Emissions (Scope 2)

Thaioil Group has indirect greenhouse gas emissions (Scope 2) from the purchased electricity with the total of 30,753 ton carbon dioxide equivalents (tCO₂e) or 0.88% of greenhouse gas emissions (Scope 1 and 2), which meets the target for greenhouse gas emissions under Scope 2, set at no more than 90,000 tons of CO₂ equivalent (tCO₂e).








Since 2023, Thaioil Group has expanded its reporting boundary to include indirect greenhouse gas emissions (Scope 2). As Sriracha operations is accounted significant with emissions from utilities, and office in Sriracha, enhanced by its increased use of renewable energy, including electricity purchased from TSB and EBC's solar rooftop.








Reduction of Indirect Greenhouse Gas Emissions (Scope 3)

Indirect GHG management (Scope 3) from Thaioil Group's supply chain is summarized as follows:

- Studied and created opportunities to increase the value of waste disposed to landfill. The 3Rs method were adopted to control and reduce GHG emissions. In 2024, Thaioil Group successfully maintained zero waste to landfill performance against the set target.
- Conducted risks assessment and developed plans to minimize ocean loss during the transportation. The product loading system through pipeline was also designed by the Energy and Loss Committee to reduce GHG emissions from the production and transportation system, both land and sea.
- Promoted the procurement of environmentally friendly products and services from partners. Moreover, the Company organized "Thaioil CE WE GO (Thaioil Circular Economy) project" to increase waste value through upcycling initiatives, such as upcycling plastic waste into QSHE shirts for employees and contractors, upcycling food waste into fertilizer, and others.
- Sold the low-carbon products to reduce downstream GHG emissions of users from gasohol, biodiesel, and bioethanol.

In 2024, Thaioil Group had 5 green product categories, and 14 types of environmentally friendly products as follows:

Green Product Category	Product Sold by Thaioil Group	Company	Sales Value (Million THB)	Sales Volume
 Bio-based Product	Ethanol from cassava		1,715.70	56.40 million litres
	Ethanol 99.5% (from cassava and corn)		1.70	41.69 tons
 Biodegradable Product	Linear Alkyl Benzene (LAB)		7,633.46	15,0437.71 tons
	Heavy Alkyl Benzene (HAB)		76.59	2,197.27 tons
 Compostable Product	Cleaning products (KEEEN)		0.61	3.50 tons

Green Product Category	Product Sold by Thaioil Group	Company	Sales Value (Million THB)	Sales Volume
 <p>Products that reduce emissions released to the environment (Emission Reduction)</p>	Benzene-free solvents, including:			
	• TOPSol BF: Benzene Free		51.60	1,038.58 tons
	• Xylene (Isomer): Low Ethylbenzene		1,108.31	32,737.58 tons
	• Methyl Cyclohexane (MCH)		2.88	53.32 tons
	Solvents with low concentration of polycyclic aromatic hydrocarbons (TOPSol A 150 ND: Low PAHs)		44.69	678.14 tons
	Rubber oils (TDAE, TRAE, AROS) with PCA content below the international limit – thus non-carcinogenic and does not cause genetic mutation in humans		2,922.23	89,675.00 tons
Low Sulfur Fuel Oil (LSFO or Fuel Oil IMO) with sulfur content at 0.5% or below		2,885.66	152.83 million litres	
 <p>Products with lower GHG emissions than products of the same group in the market (Avoided GHG Emission Product)</p>	Cyclopentane CP80 and CP97, which are substitute agents for CFCs and HCFCs		14.92	194.00 tons
	Gasohol		45,209.92	1,434.66 million litres
	Biodiesel		122,554.67	4,535.29 million litres



Performance 2024



Financial Capital

Revenue share of green products to total sales revenue
Percent



Financial Capital

Revenue share of avoided GHG emission products to total sales revenues
Percent



Natural Capital

Sales volume of avoided GHG emission products
Percent



Natural Capital

Avoided GHG emissions
919,559
tons of carbon dioxide equivalents (tCO₂e)

for the end users through lower carbon products



HUMAN HEALTH AND SAFETY

CHALLENGES, RISKS, AND IMPACTS

As a heavy industry, Thailoil Group prioritizes occupational health and safety, recognizing it as a significant material issue. With the ongoing expansion of production capacity through major projects like the Clean Fuel Project (CFP), Thailoil must comprehensively review and strengthen safety control measures. This is necessary to ensure continuous business operations and mitigate the risk of major incidents resulting from inadequate safety management. The impacts of insufficient safety management could adversely impact the Company's performance through increased costs, including fines, penalties, and delays in operational activities. Additionally, it poses risks of human rights violations for employees, contractors, and surrounding communities.

COMMITMENTS AND TARGETS

Thailoil Group has committed to establish the foundation of robust management systems for both personal safety and process safety. The QSHE policy (Thailoil and Subsidiaries's Quality, Security, Safety, Occupational Health, Environment, and Energy Management Policy) was established to prevent, control, and reduce impacts that may occur in normal and abnormal operations, and emergency situations for both current and future business expansion. The Company also supports and protects suppliers from operational risks by considering relevant rules, regulations, and requirements. The target is to establish the organization as a "No Harm, No Leak, Goal Zero" organization.



Maturity Level

Target 2024

Level

4

out of 5

Long-term Target 2030

Level

4.5

out of 5



Total Recordable Work-related Injury Rate (TRIR) for all workers (employees and contractors)

Target 2024

Top

10%

of companies in oil and gas industry (by IOGP criteria)

Long-term Target 2030

0.10

cases per million hours worked



Process Safety Event (PSE) Tier 1

Target 2024

0

incidents

Long-term Target 2030

0

incidents

MANAGEMENT APPROACH AND PERFORMANCE

Employee Health and Safety Management

Management Approach

Thaioil Group manages occupational health and safety through the establishment of [Thaioil and Subsidiaries’s Quality, Security, Safety, Occupational Health, Environment, And Energy Management Policy \(QSHE Policy\)](#). The policy is used as a framework to drive and strengthen Thaioil Group’s towards continuous QSHE excellence and sustainability. The Company has integrated the management system covering all operational functions in Sriracha area. The [management systems](#) are as follows:

- Occupational health and safety management system aligned with ISO 45001: 2018 standard
- Management system for the competence of testing laboratories (ISO/IEC 17025: 2018)
- Safety management system for chemical laboratories (TIS 2677: 2015)
- Process safety management system

At present, Thaioil Group adheres to the **Operational Excellence to Business Excellence (O2Bx) strategy** with the goal to become a world-class refinery after commissioning of the CFP project. Safety is recognized as one of the main pillars that must be developed and elevated. The ‘All SAFE White Green’ Principles were adopted to develop and raise operational safety awareness, culture, and leadership. Furthermore, safety performance is incorporated as one of the corporate KPIs, reflecting the senior management’s commitment to prioritizing safety in operations. The definitions of All SAFE White Green are outlined below:

- All** All employees and contractors
- S** Standard of works
- A** Awareness on hazards and risk assessments
- F** Full compliance on work standard with proper site supervision
- E** Ensure continuous improvement
- White** Drug Free
- Green** Environmental impact mitigation
- No Harm** Organization without injury
- No Leak** Free from leaks of hydrocarbons or hazardous chemicals from primary container

Thaioil Group has a specific function to control and implement the work plan. The Company has established **the Safety, Occupational Health, and Working Environment Committee**, in which more than 50% of the members are representatives of operational-level employees (excluding the committee chair). The committee requires at least one monthly meeting to share updates and monitor the progress of current performance and plans for future operations.

Role of Safety, Occupational Health, and Working Environment Committee

- Review policies and plans related to occupational health and safety.
- Determine target related to the Safety, Occupational Health, and Working Environment.
- Develop a 5-year plan by prioritization and integration of the action plans with quantified targets to address those associated risks.

- Performance monitoring, evaluating, and reporting of progress in reducing/ preventing safety, health issues, and associated risks related action items against targets.
- Report and provide recommendations to improve performance and maintain compliance with occupational health and safety regulations and standards in order to ensure the safety of all employees, subcontractors, and any other individual visiting onsite.
- Promote and support the organization of occupational health and safety-related activities.
- Conduct audits of occupational health and safety at operation areas and inspect statistics related to incidents in the area of operations at least once every month.



Please see more details of **Occupational Health and Safety Initiatives and Programs 2024** on the Company’s website under the Sustainability Section/ Social Dimension/ Human Health and Safety





Performance 2024



Work-related Fatalities Employees

0 case



Work-related Fatalities Contractors

0 case



Occupational Illness Frequency Rate (OIFR) Employees

0 case

Referred to annual general health check-up report and health screening results based on risk factors for 2024



Total Recordable Injury Frequency Rate (TRIFR) for Employees and Contractors

0.25 cases per million hours worked

Achieved the target set of less than 0.30 cases per million hours worked



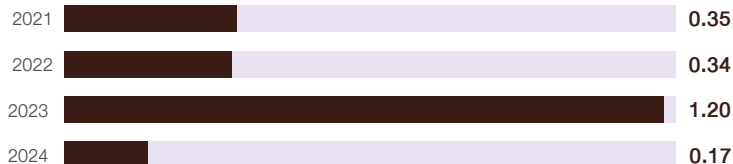
Thaioil Group's safety performance was on par

Top 10% of companies in oil and gas industry (by IOGP criteria in Manhour <50M Group)



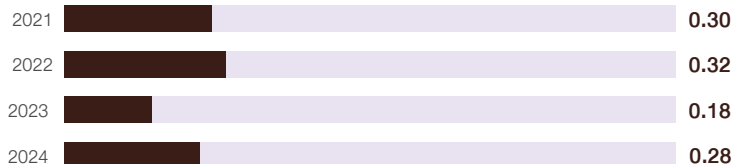
Total Recordable Injury Frequency Rate (TRIFR) of employees

Case per million hours worked



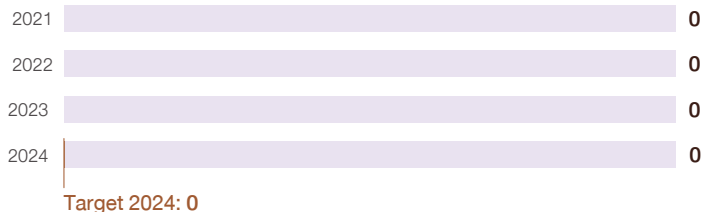
Total Recordable Injury Frequency Rate (TRIFR) of contractors

Case per million hours worked



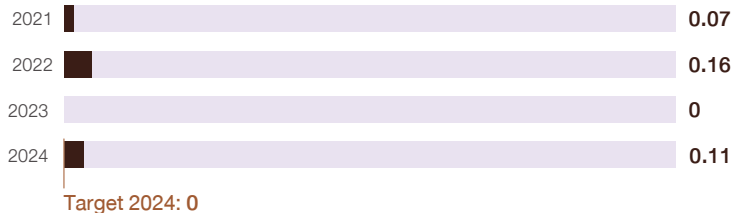
Lost-Time Injury Frequency Rate (LTIFR) of employees

Case per million hours worked



Lost-Time Injury Frequency Rate (LTIFR) of contractors

Case per million hours worked



Process Safety Management System

Management Approach

Process safety is one of the key components in the Safety Pillar identified in the strategic plans towards business excellence that requires continuous development and improvement. The main goal is to maintain business continuity without a Loss of Primary Containment (LOPC) or Process Safety Event (PSE) that could result in fatalities, asset loss, environmental impacts, and reputational damage. Thus, the Process Safety Management (PSM) has become a key success that drives and strengthens the capability of the Company to achieve the No Harm, No Leak, Goal Zero target and deliver world-class process safety performance.

Since 2018, the Company has established the Technical Safety Function to develop and improve process safety management to meet the international standards of the Occupational Safety and Health Administration (OSHA). The proactive risk management is emphasized to prevent severe incidents. This allows Thaioil Group to conduct sustainable business and become a safe organization throughout the value chain.



Please see more details of **Process Safety Initiatives and Programs 2024** on the Company's website under the Sustainability Section/ Social Dimension/ Human Health and Safety



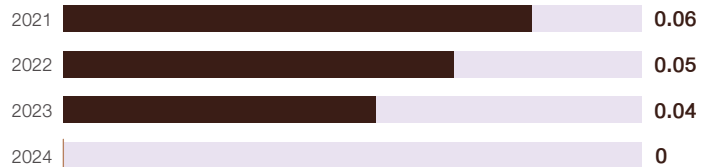
Performance 2024

Process Safety Events

Tier 1 in accordance with API 754



Case per million hours worked



Target 2024: 0



INNOVATION & CUSTOMER STEWARDSHIP

CHALLENGES, RISKS, AND IMPACTS

The petroleum and petrochemicals industries represent significant economic value but are currently confronted with a multitude of challenges. These include economic downturns leading to decreased consumer purchasing power, volatile energy prices affecting raw material costs, transportation expenses, profit margins, uncertainties in political policies, geopolitical conflicts, advancements in technology and the emergence of low-cost products resulting in market oversupply and price fluctuations. Additionally, critical environmental issues, such as climate change and plastic waste management, pose significant challenges.

Thaioil Group, a leading company in Thailand’s energy sector, places a greater emphasis on development of advanced technologies and innovations to enhance production efficiency and develop high value products. This aims to decrease production costs and generate new revenue streams from new products, thereby strengthening competitive advantages and responding to shifts in customer demands, particularly in the aspects of product quality and safety.

COMMITMENTS AND TARGETS

Thaioil Group has promoted the importance of corporate innovation since 2022 by integrating innovation as one of its corporate values. Furthermore, the Company was initially assessed the level of corporate innovation and achieved Level 3 (Challenging Level) out of a total of 5 Levels. Thaioil Group is committed to advancing its corporate innovation from Level 3 (Challenging Level) to Level 4 (Proficient Level) by 2026. This progression will position the Company on par with other leading companies both domestically and internationally.



Targets

Thaioil Group is committed to advancing the status of innovation-driven organization from Level 3 to Level 4 by 2026. This target indicates the initiation of research and development of new products or services that demonstrate outstanding innovation and have a significant impact on the Company’s business. Achieving this ambitious target requires collaboration from all organizational sectors to create innovation that benefits both current and future customers. As a result, Thaioil Group has outlined an annual action plan to achieve target by 2026 as follows:

2024: Emphasizing on rolling the creative ideas into practices to create prototype for testing with users or customers, gathering feedback from those, and developing those prototypes into products or services that serve their needs. In this year, the level of corporate innovation was reassessed to consider the changes over the past two years.

2025: Taking the results of a corporate innovation maturity level to develop, improve, and enhance the employee’s capability to elevate the Company’s status of innovation-driven organization to Level 4 (Proficient Level) by 2026 as defined.

Target
2026



Level
of Innovation

4

(Proficient Level)
out of 5 Level

Thaioil Group prioritizes customer satisfaction with both the Company’s products and services, starting from order reception and continuing throughout the management process to ensure that customers receive complete, accurate, and timely products. The Company proactively handles complaints and closely follows up to resolve the issue. Furthermore, the Company collaborates with customers to develop products to meet their specific needs. This enables the Company to adjust marketing strategies appropriately and grow alongside partners.

Target
2024



Maintain Thaioil Group’s
customer engagement
score

92%

MANAGEMENT APPROACH AND PERFORMANCE

Innovation Management

Management Approach

In 2024, Thaioil Group defined Corporate Key Performance Indicators (Corporate KPIs) on the innovation to strengthen the business sustainably. The KPI is broken down into 5 levels. Level 1 is required to have creative ideas and prototype projects totaling 20 projects, while level 2 is required to have such projects totaling 30 projects. Also, Level 3 is required to completely build or produce 30 prototype projects. Meanwhile, Level 4 and 5 must have monetary benefits from the implementation of prototype projects, with the amount of 100 and 200 million THB per year, respectively.

Thaioil Group has embedded the organization's innovation targets across all 35 functions within the Company. The focus is on transforming ideas into prototype projects, testing them with users or customers to gather feedback, and continuously developing them into products or services that meet user needs. The results of 2024 indicate that employees across all 35 departments in Thaioil Group completed a total of 53 prototype projects with overall potential monetary benefit at 233 million THB per year. This demonstrates the successful achievement of the organization's innovation targets at the highest level as defined.

In 2024, Thaioil Group conducted a reassessment of the level of corporate innovation, following the initial assessment in 2022, to closely monitor the progress of the Company's innovation development over the past two years. The results of the assessment show a significant improvement, with the score increasing from 56 points (out of 100) in 2022 to 67 points. The Company remains at Level 3 (Challenging Level) out of 5 Levels but is approaching Level 4 (Proficient Level), the long-term target to achieve by 2026, which requires a score of over 70 points.

The 11-point increase in the corporate innovation score over the past two years is a significant achievement for the Company in advancing corporate innovation. Thaioil Group is the only company in the Thai Oil & Gas sector to experience such an increase, reaching the "TOP Quartile" level, with an increase of more than 5 points per year. This achievement is attributed to the dedication of employees at all levels in continuously elevating corporate innovation to be on par with leading companies both in Thailand and internationally.

Innovative Culture

Approach to build internal innovative culture

Thaioil Group has continuously encouraged employees to create innovations collectively and fostered continuous learning opportunities in the field of innovation. In 2024, the Company organized activities to enhance employee's awareness on the importance of innovation. In response to the Company's business strategies, Thaioil Group has focused on creating new innovations as a cornerstone for fostering sustainable business growth. Hence, the Company places importance on "innovation" by prioritizing and

empowering employees to develop creative solutions and invent new ideas and innovations to deliver value-added products and services in the future.



Please see more details of **Internal Innovation Culture Cultivation Projects 2024** in the Company's website under the Sustainability Section/ Governance and Economics Dimension/ Innovation & Customer Stewardship



Approach to build innovative collaboration with external organizations

In 2024, Thaioil Group continues to prioritize research and development collaboration with the education sector. This year, the Company has implemented plans to drive its research and development strategy into practice, focusing on both workforce management and research and development management. These efforts are organized under a structure consisting of six Centers of Excellence, which include:



Crude Excellence Center



Catalyst & Adsorbent Excellence Center



AI/Robotics Solution Provider



High Value Product/ High Value Business



Polymer & Olefin Derivatives

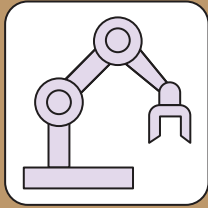


Sustainability & New Business

The six Centers of Excellence are dedicated to fostering collaborative research with academic and business partners to develop innovative products that cater to the evolving needs of both existing and potential customers. This is accomplished through a highly efficient cross-functional team approach, ensuring seamless coordination across departments. In 2024, the Company initiated 14 research and development projects, with 5 projects successfully completed.

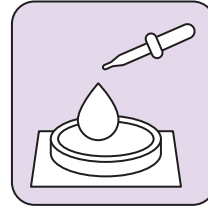
Besides the collaboration with educational and government agencies, Thaioil Group has expanded the partnerships to develop new products with the research and development units of the private sector, such as Inoxella Co., Ltd, which is a company specialized in designing and developing surfactant formulations for personal care products, including the efficacy testing of cleansing formulas to achieve products that provide effective cleaning while being gentle on the skin. These products are dermatologically tested and certified by reputable dermatology institutions to ensure they do not cause skin irritation or allergies.

In addition, in 2024, the research and development projects completed through collaboration with academic institutions and government agencies include:



The project to develop a robotic system for cleaning the heat exchanger pipes of oil heaters in the oil refining process

was conducted in collaboration with the Vidyasirimedhi Institute of Science and Technology (VISTEC). This innovative robot can clean the pipes by moving along their length without the need for scaffolding, reducing the risk of accidents associated with working at height. Additionally, it helps lower the amount of carbon dioxide emissions generated from burning fuel to heat the oil heater equipment in the production process.

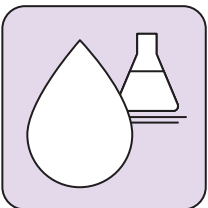
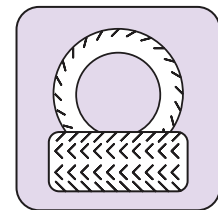


The Phase Change Materials (PCMs) development project,

using Slack Wax from Thai Lubes Public Company Limited, was conducted in collaboration with the National Nanotechnology Center (NANOTEC) under the National Science and Technology Development Agency (NSTDA). Initial studies have shown that Slack Wax possesses phase change properties, meaning it can absorb or release heat, known as latent heat, causing the material to change its physical state, such as from solid to liquid. When the temperature decreases, the material returns to its solid state.

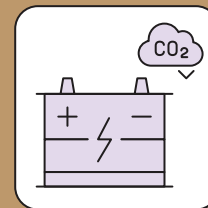
The project to develop Rubber Process Oil (RPO)

was undertaken in collaboration with Thai Lubes Public Company Limited to address customers' needs in the automotive parts industry. The project focused on improving the properties of paraffinic oil, including viscosity, acid number, and copper strip corrosion resistance, to meet the requirements of customer formulations and production processes. This development aims to replace imported rubber process oil with a locally produced alternative. The resulting product has lower carcinogenic substances than the health standard limits. The product has been commercially available since October 2024, generating a benefit of 0.3 million THB.



The catalyst testing project for Euro 5 oil production

was conducted in collaboration with the Petroleum and Petrochemical College, Chulalongkorn University (PPC). The project involved testing the performance of catalysts using a pilot unit from catalyst manufacturers participating in the bidding process for catalyst change in the Euro 5 oil production unit. The test results enabled the refinery to select the most suitable catalyst supplier for the production process and operating conditions.



The project to convert ethylene and carbon dioxide into ethylene carbonate

for use as a solvent in lithium-ion batteries involves a production process that is more efficient and safer compared to current technologies. This project is a collaboration with the Vidyasirimedhi Institute of Science and Technology (VISTEC) and has already filed for intellectual property registration with the Department of Intellectual Property.



Please see more details of **Product Innovation and Process Innovation Projects 2024** in the Company's website under the Sustainability Section/ Governance and Economics Dimension/ Innovation & Customer Stewardship





Performance 2024



Intellectual Capital

Thaioil Group's
Level of Corporate
Innovation

3

(Challenging Level)
out of a total of
5 Levels

2

High Value Products
as follows:

TOPSol P100
a lubricant oil

SDA Washing Oil
a solvent used for cleaning
heavy oils



Financial Capital

Investments in research
and development

42

 million THB


Customer Stewardship and Product Quality Management

Management Approach

Thaioil Group places great importance on taking care of customers as a part of our family under the strategy of "Partner for Life" in all aspects, including receiving products, services, and implementing various projects for customers in order to achieve sustainable growth together. In addition, the Company has prioritized the quality and safety of its products and services in compliance with laws, regulations, and international standards to prevent negative impacts on customers and society. This commitment aligns with sustainable organizational development criteria, focusing on three dimensions, namely Environment, Social, and Governance (ESG). Furthermore, the Company actively listens to customer feedback and takes prompt and efficient actions to meet evolving customer demands while enhancing customer satisfaction and fostering customer engagement between Thaioil Group and its customers.

In 2024, Thaioil Group continued to implement the Partner for Life plan to support customer stewardship in three aspects as follows:

Partner for Growth focuses on conducting the annual customer satisfaction and engagement surveys and analyzing the results of these surveys to discuss and brainstorm with relevant departments. This aims to leverage the insights and feedback to further develop and improve the product quality and customer services. The examples of key project are the project for utilizing digital systems to streamline financial processes and organizing interactive activities with customers through various social media platforms. In addition, the Company has evaluated customer satisfaction in each activity that the customer participated in. This aims to develop and improve such activities in the future.

Partner for Knowledge provides academic knowledge and supports knowledge sharing in various forms, encompassing technical, operational, marketing, and financial aspects through

trainings for customers such as Fundamental of Refinery Process and Business Overview & Refinery Overview.

Partner for Service emphasizes continuous enhancement of the Customer Relations Management (CRM) practices, segmented into four aspects, as follows:



Operation

Enhancing service efficiency and fostering continuous good customer relationships. The Company has been improving the efficiency of the customer registration process by integrating a digital system. This aims to ensure the consideration process is fast, transparent, and accountable. In addition, the Company has upgraded the Voice of Customer (VOC) system to be more convenient, user-friendly, and responsive for customers to contact relevant departments. Besides, the Company has established the Service Level Agreement (SLA), which is the standard for product and service delivery, with all relevant functions, including sales, quality, operations, delivery planning, accounting sale support, digital services, and customer relationship management. This covers the process of order reception and continues throughout the management process to ensure that customers receive complete, accurate, and timely products. Each function complies with standardized service level agreements, achieving a 100% compliance rate. In the fourth quarter of this year, the Company opened two new Gentry of petroleum pumping units. This aims to increase the opportunities for receiving more products and reduce waiting time for customers to pick up the petroleum products. Also, this assists the Company in improving the efficiency and convenience of product delivery.



Analytic

Analyzing the result of annual customer satisfaction and engagement survey to discuss and brainstorm with relevant departments. This aims to leverage the insights and feedback to further develop and improve the product quality and services. The examples of key project are the project for utilizing digital systems to streamline financial processes and organizing interactive activities with customers through various social media platforms. In addition, the Company has evaluated customer satisfaction with each activity that the customer participated in. This aims to develop and improve such activities in the future.



Collaboration

Providing knowledge sharing about the petroleum market to customers and collaborating with customers to conduct feasibility studies in improving the efficiency of petroleum product pickups by road.



Customer Data Platform

Leveraging an international standard platform for storing the fundamental customer data, intended for utilization in fostering and strengthening relationships with customers.



Please see more details of **Customer Engagement Projects 2024** in the Company's website under the Sustainability Section/ Governance and Economics Dimension/ Innovation & Customer Stewardship

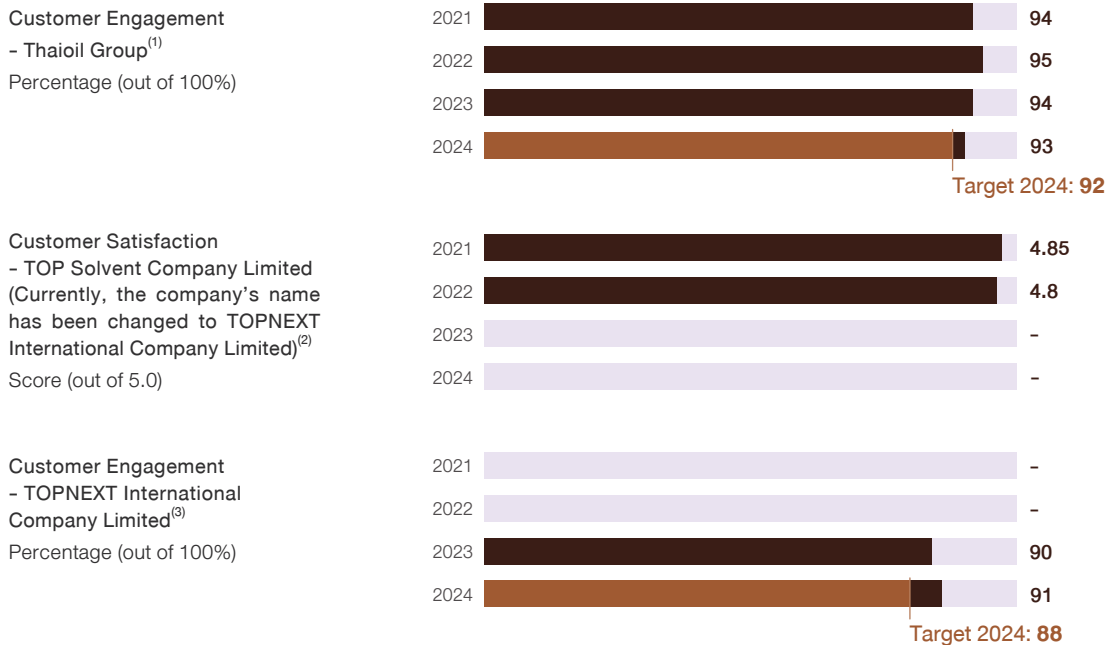


Performance 2024

Through Thaioil Group's comprehensive operations, encompassing both product manufacturing and service delivery, the Company has achieved a higher level of customer engagement that surpasses the predetermined targets.



Social and Relationship Capital



Remarks:

(1) Customer engagement of Thaioil Group consists of Thai Oil Public Company Limited (TOP), Thai Lube Base Public Company Limited (TLB), and Thai Paraxylene Company Limited (TPX). This survey was conducted by a third-party company that provides customer satisfaction assessment services.

(2) Customer satisfaction of TOP Solvent Company Limited (TOPNEXT International Company Limited) for 2020-2022 has a full score of 5. The survey was conducted by TOP Solvent Company Limited.

(3) Customer engagement of TOPNEXT International Company Limited in 2023-2024 has a full score of 100 percent. The survey was conducted by a third-party company that provides customer satisfaction assessment services.

PERFORMANCE SUMMARY

 Economic Performance ⁽¹⁾	Unit	2021	2022	2023	2024
Economic Value Generated					
Sales Revenue	Million THB	335,827	505,703	459,402	455,857
Economic Value Distributed					
Cost of Sales of Goods and Services ⁽²⁾	Million THB	319,555	481,137	436,164	450,010
Economic Value Retained					
EBITDA	Million THB	28,142	37,187	35,453	22,026
Net Profit/ (Loss)	Million THB	12,578	32,668	19,443	9,959
Financial Position					
Total Assets	Million THB	362,144	444,581	419,993	409,010
Total Liabilities	Million THB	239,050	285,924	251,681	242,825
Equity	Million THB	123,094	158,657	168,312	166,185
Financial Ratio					
Interest Coverage Ratio	Times	7.8	9.6	8.7	5.5
Current Ratio	Times	2.6	1.5	1.7	1.7
Net Debt to Equity Ratio	Times	1.4	1	0.9	0.8
Return on Equity ⁽⁴⁾	Percent	10.7	23.5	12.0	6.0
Return on Total Asset	Percent	3.9	8.2	4.5	2.4
Stock Data					
Net Profit/ (Loss) per Share	THB/ Share	6.17	15.63	8.70	4.46
Annual Average of Daily Closing Stock Price ⁽³⁾	THB/ Share	54.38	53.93	50.40	50.69
Market Capitalization	Million THB	110,937	114,752	120,069	63,106
Dividend Payment	THB/ Share	2.6	3.7	3.40	1.90 ⁽⁵⁾
Dividend Yield ⁽⁶⁾	Percent	4.8	6.9	6.7	3.7
Book Value	THB/ Share	59.25	69.85	74.12	73.17

Remarks:

(1) Economic performance reporting scope is aligned with the Financial Statements 2024.

(2) Expenses related to business operations or equipment, including components, and parts of equipment or facilities.

(3) Calculated by the annual average of daily closing stock price.

(4) The calculation method has been adjusted according to the criteria of the Securities and Exchange Commission.

(5) Include the interim dividend for 2024 half-year results at the rate of 1.20 baht per share paid on September 27, 2024, and the remaining dividend of 0.70 baht per share which is to be proposed to the 2025 Annual General Meeting of Shareholders for approval

(6) Calculated from average closing price for the year 2024



Contributions to Organizations and External Associations ⁽¹⁾

Type of Organization	Topic	Name of the Organization	Unit	2021	2022	2023	2024
Trade Associations	Support responsible oil spill management for the environment and society	International Fund for Compensation for Oil Pollution Damage	THB	0 ⁽²⁾	6,691,436 ⁽⁴⁾	8,022,619	7,700,000
		Oil Spill Response Limited (OSRL)	THB	1,740,193	2,012,460	2,255,153	2,512,806
		Oil Industry Environmental Safety Group Association (IESG)	THB	1,683,000	1,693,000	1,834,000	1,887,000
	Support the enhancement of competitiveness with peer industry groups through operational excellence	Petroleum Institute of Thailand (PTIT)	THB	819,309	886,553	1,075,058	1,154,190
		Federation of Thai Industries ^{(5), (6)}	THB	193,670	203,300	203,300	203,300
		Thai National Shippers' Council (TNSC)	THB	53,500	53,500	53,500	53,500
		Association of Private Power Producers	THB	42,800	42,800	42,800	42,800
		Thai Chamber of Commerce	THB	24,610	24,610	24,610	24,610
		Investor Club Association ⁽³⁾	THB	0	0	6,420	0
		Board of Trade of Thailand	THB	0 ⁽²⁾	25,680	0 ⁽²⁾	0 ⁽²⁾
	Support the promotion of sustainable development topics in line with international standards	Thailand Business Council for Sustainable Development (TBCSD)	THB	250,000	250,000	250,000	250,000
		Water and Environment Institute for Sustainability	THB	0	0	0	0
		Thailand Carbon Neutral Network (TCNN) ⁽⁷⁾	THB	0	0	0	0
Tax Exemption Group		Global Compact Network Thailand	THB	35,000	35,000	35,000	35,000
Lobbying, interest representatives, or similar	-	-	THB	0	0	0	0
Local, regional, or national political campaigns/ candidates	-	-	THB	0	0	0	0
Others (e.g., spending related to ballot measures or referendums)	-	-	THB	0	0	0	0
Total			THB	4,842,082	11,918,339	13,802,459	13,863,206

Remarks:

- (1) The contribution collected from subsidiaries in Thaioil Group, covering 96% of sales revenue.
- (2) Membership fee exemption.
- (3) Membership renewal every 5 years.
- (4) Additional financial support due to a spill case occurrence overseas.
- (5) Membership fees depend on corporate total revenue in financial statements of the past two years.
- (6) Membership fee for the Federation of Thai Industries has been waived for Thai Oil Power Co., Ltd. since 2021 due to termination of business, however it includes membership fee as an associate member of subsidiaries within Thaioil Group.
- (7) Network for promoting cooperation in reducing Thailand's greenhouse gas emissions. No membership fee.

Occupational Health and Safety Performance ^{(1), (2)}	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
Total hours worked	Hour	2,887,293		2,952,468		3,341,350		6,013,225	
• Employees		2,433,255	454,038	2,516,078	436,390	2,871,663	469,687	5,612,430	400,795
Total hours worked	Hour	13,554,027		18,890,846		21,888,660		17,755,449	
• Contractors		10,981,250	2,572,777	8,470,709	10,420,137	10,870,903	11,017,757	5,146,143	12,609,306
Work-related Injuries ⁽³⁾									
Fatality as a result of work-related injury	Case	0		0		0		0	
• Employees		0	0	0	0	0	0	0	0
	Case/ Million hours worked	0		0		0		0	
		0	0	0	0	0	0	0	0
Fatality as a result of work-related injury	Case	1		0		1		0	
• Contractors		0	1	0	0	1	0	0	0
	Case/ Million hours worked	0.07		0		0.05		0	
		0	0.39	0	0	0.09	0	0	0
Total recordable work-related injury rate (TRIR)	Case	1		1		4		1	
• Employees		1	0	1	0	4	0	1	0
	Case/ Million hours worked	0.35		0.34		1.2		0.17	
		0.41	0	0.4	0	1.39	0	0.18	0
Total recordable work-related injury rate (TRIR)	Case	4		6		4		5	
• Contractors		3	1	5	1	4	0	5	0
	Case/ Million hours worked	0.3		0.32		0.18		0.28	
		0.27	0.39	0.59	0.096	0.37	0	0.97	0
Lost-time injury frequency rate (LTIFR)	Case	0		0		0		0	
• Employees		0	0	0	0	0	0	0	0
	Case/ Million hours worked	0		0		0		0	
		0	0	0	0	0	0	0	0
Lost-time injury frequency rate (LTIFR)	Case	1		3		0		2	
• Contractors		0	1	2	1	0	0	2	0
	Case/ Million hours worked	0.07		0.16		0		0.11	
		0	0.39	0.24	0.1	0	0	0.39	0
Near misses ⁽⁴⁾	Case	6,594		7,601		4,650		6,380	
• Employees and Contractors									
Work-related Illnesses									
Fatality as a result of work-related ill health	Case	0		0		0		0	
• Employees		0	0	0	0	0	0	0	0
Fatality as a result of work-related ill health	Case	0		0		0		0	
• Contractors		0	0	0	0	0	0	0	0
Occupational illness frequency rate (OFR)	Case	0		0		0		0	
• Employees		0	0	0	0	0	0	0	0
	Case/ Million hours worked	0		0		0		0	
		0	0	0	0	0	0	0	0

Occupational Health and Safety Performance ^{(1), (2)}	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
Occupational illness frequency rate (OFR) • Contractors	Case	0		0		0		0	
		0	0	0	0	0	0	0	0
	Case/ Million hours worked	0		0		0		0	
		0	0	0	0	0	0	0	0
Process Safety ⁽⁵⁾									
Process safety events: Tier-1	Event	1		1		1		0	
	Event/ Million hours worked	0.06		0.05		0.04		0	
Process safety events: Tier-2	Event	2		2		4		4	
	Event/ Million hours worked	0.12		0.09		0.16		0.17	

Remarks:

- (1) Thaioil Group applies statistical reporting standard of PTT Group in line with Occupational Safety and Health Administration (OSHA).
- (2) Thaioil Group presents occupational health and safety statistics with a breakdown of employees and contractors to indicate the Group's social responsibility towards operational contractors.
- (3) First aid injuries are excluded in the accident record.
- (4) Thaioil Group combines 'Potential Incident Report (PRI)' together with the Near Misses (Please see additional information in Human Health and Safety chapter).
- (5) Thaioil Group reports process safety in accordance with API RP 754.

People ⁽⁶⁾	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
GRI 405-1 Employees ⁽¹⁾									
Total number of employees	Person	1,799		1,851		1,936		2,052	
		1,351	448	1,369	482	1,412	524	1,487	565
	Percent	75	25	74	26	73	27	72	28
Number of Employees by Level									
All Employees									
• Executives ⁽³⁾	Person	10	2	11	2	9	2	7	3
	Percent	83	17	85	15	82	18	70	30
• Management ⁽⁴⁾	Person	93	69	102	77	101	84	108	87
	Percent	57	43	57	43	55	45	55	45
• Non-management	Person	1,248	377	1,256	403	1,302	438	1,372	475
	Percent	77	23	76	24	75	25	74	26
Permanent Contract									
• Executives ⁽³⁾	Person	8	1	9	1	7	1	6	2
• Management ⁽⁴⁾	Person	90	66	101	75	101	82	108	86
• Non-management	Person	1,248	376	1,256	402	1,301	436	1,372	474
Temporary Contract ⁽⁷⁾									
• Executives ⁽³⁾	Person	2	1	2	1	2	1	1	1
• Management ⁽⁴⁾	Person	3	3	1	2	0	2	0	1
• Non-management	Person	0	1	0	1	1	2	0	1
Number of Employees by Age Group ⁽¹⁾									
• Below 30 years old	Person	471	83	438	81	459	112	500	128
• 30-50 years old	Person	545	301	591	338	611	347	647	368
• Over 50 years old	Person	335	64	340	63	342	65	340	69
Number of Employees by Area of work									
Permanent Contract									
• Depot	Person	2	1	2	1	3	2	2	2
• Bangkok office	Person	54	151	82	185	88	197	101	207
• Sriracha office (Thaioil refinery)	Person	1,290	291	1,285	296	1,321	325	1,383	353


People ⁽⁶⁾	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
Temporary Contract									
• Depot	Person	0	0	0	0	0	0	0	0
• Bangkok office	Person	4	5	3	4	3	5	1	3
• Sriracha office (Thaioil refinery)	Person	1	0	0	0	0	0	0	0
Attraction									
GRI 401-1 New Employees Hired ⁽¹⁾									
Total number of new employees hired	Person	94		99		158		176	
		54	40	51	48	95	63	116	60
Number of New Employees by Level									
• Executives ⁽³⁾	Person	1	1	0	0	0	0	0	0
• Management ⁽⁴⁾	Person	2	0	0	0	0	0	0	1
• Non-management	Person	51	39	41	48	95	63	116	59
Number of New Employees by Age Group									
• Below 30 years old	Person	45	27	41	31	85	45	100	42
• 30-50 years old	Person	8	12	10	17	10	18	16	18
• Over 50 years old	Person	1	1	0	0	0	0	0	0
Number of Employees by Religion ⁽¹⁰⁾									
• Buddhism	Percent	97.61		95.73		94.47		91.81	
• Christianity	Percent	1.22		1.19		1.19		1.12	
• Islam	Percent	1.11		1.03		0.98		0.93	
• Atheism	Percent	0.06		0.05		0.05		0.05	
• Not specified	Percent			2		3.31		6.09	
Total new hire rate	Percent of total number of employees	5.23		5.35		8.16		8.59	
		4	8.93	3.73	9.96	6.73	12.02	7.80	10.62
Internal Hires	Percent of total number of employees	97		97		97.62		97.67	
Ability to recruit employees	Percent of total number of open positions	90		92		92		101	
Cost of new employee recruitment	THB/ FTE	36,000		54,000		47,000		35,217	
Retention									
GRI 401-1 Employee Turnover ^{(1), (5)}									
Total employee turnover	Person	49		92		70		72	
		37	12	60	32	47	23	54	18
• Below 30 years old	Person	12	2	19	10	12	8	2	4
• 30-50 years old	Person	5	4	6	15	7	10	8	8
• Over 50 years old	Person	20	6	35	7	28	5	44	6
Turnover rate	Percent of total number of employees	2.72		4.97		3.62		3.51	
		2.74	2.68	4.38	6.64	3.33	4.39	3.63	3.19
Voluntary resignation rate	Percent of total number of employees	1.17		2.81		2.01		1.17	
		1.11	1.34	1.9	5.39	1.49	3.44	0.74	3.19
DJSI 3.5.8 Employee Engagement									
Employee engagement score	Percent	94		89		92		98	
		95	92	81	89	92	92	99	93
Employee Engagement by Level									
• Executives ⁽³⁾	Percent			100		100		100	
• Management ⁽⁴⁾	Percent			83		95		97	
• Non-management	Percent			92		91		98	
Employee Engagement by Age Group									
• Below 30 years old	Percent			66		75		89	
• 30-50 years old	Percent			91		87		97	
• Over 50 years old	Percent			92		96		99	


People ⁽⁶⁾	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
GRI 401-3 Parental Leave ⁽⁸⁾									
Total number of employees that took parental leave	Person	47		43		46		41	
		33	14	26	17	35	11	33	8
Total number of employees that returned to work after taking parental leave	Person	47		43		46		41	
		33	14	26	17	35	11	33	8
Rate of employees that returned to work after parental leave ended	Percent of employees who took parental leave	100		100		100		100	
		100	100	100	100	100	100	100	100
Employee Development									
GRI 404-1 Average Training Hours ^{(1), (2), (10)}									
Total training hours	Hour	103,102		124,421		136,655		156,090	
		82,920	20,182	103,117	21,303	115,138	21,516	123,157	32,933
Average training hours of all employees	Hour/ FTE/ Year	57	46	68	45	75	42	74	59
• Executives ⁽³⁾	Hour/ FTE/ Year	157	47	83	47	34	18	61	59
• Management ⁽⁴⁾	Hour/ FTE/ Year	56	57	74	74	59	46	67	36
• Non-management	Hour/ FTE/ Year	56	43	67	39	76	41	79	62
Average Training & Development by Hours and Costs ⁽¹⁰⁾									
Average training hours and costs by all types of training	Hour	293		316		351		361	
	THB/ FTE	266,344		296,488		349,984		369,865	
Average Training & Development hours and costs by Type of Training ⁽¹⁰⁾									
• Classroom Training	Hour	54		62		67		70	
	THB/ FTE	10,454		15,288		29,538		32,772	
• Coaching and On the Job Training (OJT)	Hour	221		233		262		270	
	THB/ FTE	251,280		275,540		313,876		323,460	
• Online Training	Hour	18		21		22		22	
	THB/ FTE	4,610		5,660		5,740		3,017	
Average Training Hours and Costs by Age Group ⁽¹⁰⁾									
• Below 30 years old	Hour	275		294		338		339	
	THB/ FTE	265,575		298,760		360,473		371,243	
• 30-50 years old	Hour	284		302		331		343	
	THB/ FTE	270,529		301,386		357,237		378,583	
• Over 50 years old	Hour	253		281		312		330	
	THB/ FTE	255,996		284,828		343,414		356,232	
Average Training Hours and Costs by Employee Level ⁽¹⁰⁾									
• Executives ⁽³⁾	Hour	327		331		335		371	
	THB/ FTE	292,765		301,287		347,101		357,603	
• Management ⁽⁴⁾	Hour	270		278		327		306	
	THB/ FTE	266,067		277,644		343,414		356,232	
• Non-management	Hour	275		281		309		343	
	THB/ FTE	265,873		298,495		350,682		371,235	
Individual Development Plan									
Employees who developed Individual Development Plan (IDP)	Percent	100		100		100		100	
IDP Progress	Percent	100		100		100		100	
Employees with plans on career path	Percent	99		99		99		99	
Human Rights									
GRI 405-2: Gender Pay Ratio between Women and Men ⁽⁹⁾									
Executives ⁽³⁾ (Base salary only)	Average THB/ Person			6,674,000	6,048,000	6,658,000	5,857,000	7,233,000	5,497,000
Executives ⁽³⁾ (Base salary and other cash incentives)	Average THB/ Person			10,787,000	10,180,000	11,224,000	9,981,000	12,349,000	9,234,000

People ⁽⁶⁾	Unit	2021		2022		2023		2024	
		Male	Female	Male	Female	Male	Female	Male	Female
Management ⁽⁴⁾ (Base salary only)	Average THB/ Person			2,227,000	1,937,000	2,269,000	1,991,000	2,268,000	1,974,000
Management ⁽⁴⁾ (Base salary and other cash incentives)	Average THB/ Person			3,743,000	3,231,000	3,824,000	3,327,000	3,847,000	3,306,000
Non-management (Base salary only)	Average THB/ Person			582,000	612,000	574,000	598,000	561,000	609,000
Non-management (Base salary and other cash incentives)	Average THB/ Person			1,095,000	1,117,000	1,085,000	1,099,000	1,068,000	1,124,000
Executives ⁽³⁾ (Base salary only)	Ratio of average salary of women to men			0.91		0.88		0.76	
Executives ⁽³⁾ (Base salary and other cash incentives)	Ratio of average salary of women to men			0.94		0.89		0.75	
Management ⁽⁴⁾ (Base salary only)	Ratio of average salary of women to men			0.87		0.88		0.87	
Management ⁽⁴⁾ (Base salary and other cash incentives)	Ratio of average salary of women to men			0.86		0.87		0.86	
Non-management (Base salary only)	Ratio of average salary of women to men			1.05		1.04		1.09	
Non-management (Base salary and other cash incentives)	Ratio of average salary of women to men			1.02		1.01		1.05	
Employee Grievance									
Number of human rights grievances	Case	0		0		0		0	
• Resolved grievances	Case	0		0		0		0	
• Grievances under investigation	Case	0		0		0		0	
Number of labor practice grievances	Case	0		0		0		0	
• Resolved grievances	Case	0		0		0		0	
• Grievances under investigation	Case	0		0		0		0	
Labor Union									
Number of employees in the Labor Union	Percent	75.24		75		75		75	

Remarks:


- (1) Included data of the employees assigned from external organizations, both permanent contract and temporary contract.
- (2) Excluded data from the educational scholarship funded by Thaioil Group.
- (3) The executives consist of CEO, President, and Executive Vice President.
- (4) The management consists of Vice President and Section Manager.
- (5) The turnover rate includes voluntary resignation, retirement, asked to resignation, employee laid off, and fatality.
- (6) The scope of reporting includes only Thai Oil Public Company Limited.
- (7) Employees on temporary contract are full-time employees as Thaioil Group does not hire part-time employees.
- (8) Female employees have 98 days of parental leave with 60 days of paid parental leave, which is higher than Thailand Labor Law, requiring 45 days. Male employees have 12 days of parental leave, which is also higher than the Labor Law, requiring 3 days.
- (9) Ratio of average salary of women to men is verified by an independent third party according to GRI Standard 405-2 (Details of Assurance Statement on page xxx).
- (10) FTE or Full Time Equivalent is the number of working hours per full-time employee per year.

 Society and Community Development	Unit	2021	2022	2023	2024
Percentage of operations with employee engagement activities, impact assessments, and/ or community development programs	Percent	100	100	100	100
Number of visits at Thaioil Group's Health and Learning Center	Visit	22,223	32,114	42,430	45,760
Community engagement score	Percent	96.74	95.85	95.19	95.54
Number of employee volunteer hours	Hour	12,488	6,450	7,488	7,880
Value of employee volunteering during paid hours	Million THB	5.12	4.61	4.66	5.14
Cost of management	Million THB	31	36	38.73	42.78

 Supply Chain Management ⁽¹⁾	Unit	2021	2022	2023	2024
Supplier Screening					
Total number of Tier-1 suppliers	Number of Suppliers		1,025	1,015	1,167
Total number of significant suppliers in Tier-1	Number of Suppliers		41	37	48
Total spend on significant suppliers in Tier-1	Percent		23	11	52
Total number of significant suppliers in Non Tier-1	Number of Suppliers		10	0	2
Total number of significant suppliers (Tier-1 and Non Tier-1)	Number of Suppliers		51	37	50
Supplier Assessment					
Total number of significant suppliers assessed via desk assessments/ on-site assessments	Number of Suppliers		45	32	46
Significant suppliers assessed	Percent		88	86	92
Target of significant suppliers assessed	Percent		80	85	90
Number of significant suppliers assessed with substantial actual/ potential negative impacts	Number of Suppliers		7	0	0
Significant suppliers with substantial actual/ potential negative impacts with agreed corrective action/ improvement plan	Percent		100	100	100
Number of significant suppliers with substantial actual/ potential negative impacts that were resolved	Number of Suppliers		0	0	0
Corrective action plan support					
Total number of significant suppliers supported in corrective action plan implementation	Number of Suppliers		7	0	0
Significant suppliers assessed with substantial actual/ potential negative impacts supported in corrective action plan implementation	Percent		100	100	100
Target of significant suppliers assessed with substantial actual/ potential negative impacts supported in corrective action plan implementation	Percent		100	100	100
Capacity building programs					
Total number of significant suppliers in capacity building programs	Number of Suppliers		24	30	39
Significant suppliers in capacity building programs	Percent		47	81	78
Target of significant suppliers in capacity building programs	Percent		50	50	50
GRI 308-1 and GRI 414-1 Suppliers					
New suppliers acknowledged SCOC	Percent	100	100	100	100
Supplier satisfaction score	Percent	93	98	98	97


Remarks:


(1) Data covers all suppliers in the Company's database system, however crude oil suppliers and contractors in expansion projects are excluded.


 Customer Responsibility Management	Unit	2021	2022	2023	2024
GRI 308-1 and GRI 414-8 Customers					
Customer engagement index ⁽¹⁾	Percent	94	95	94	93


Remarks:

(1) Customer engagement index includes Thai Oil Public Company Limited, Thai Lube Base Public Company Limited, and Thai Paraxylene Company Limited. The survey was conducted by a third-party company that provides service on the customer satisfaction surveys.

 Environmental Performance	Unit	2021	2022	2023	2024
Refinery throughput ⁽¹⁾	Metric Ton	13,664,652	14,294,851	14,938,285	14,876,755
Energy and chemicals production	Million barrels of crude oil equivalent (MBOE) ⁽¹²⁾	97	104	109	109
Environment-Related Expenditure					
Total Environment-Related Expenditure	Million THB	500.85	98.93	242.98	259.64
• Capital investment on energy efficiency improvement	Million THB	425	13.14	108.86	189.62
• Expenses to operate environmental management system	Million THB	75.85	85.79	134.12	70.02
Investment benefits ⁽¹¹⁾	Million THB	65	74	215	223
Energy Management and Greenhouse Gases ^{(2), (4)}					
Total energy consumption ⁽²⁾	Million GJ	47.18	47.34	49.76	50.09
Refinery energy intensity	GJ/ BOE ⁽¹²⁾	0.49	0.45	0.46	0.46
Non-renewable energy consumption	Million GJ	47.18	47.34	49.76	50.09
	Megawatt-Hour	13,108,617	13,149,763	13,820,127	13,912,052
Renewable energy consumption (i.e., Solar)	GJ	0	0	5,060	5,008
	Megawatt-Hour	0	0	1,406	1,391
Total fuel consumption ⁽²⁾	Million GJ	52.76	52.74	54.52	54.50
Refinery fuel consumption intensity	GJ/ BOE ⁽¹²⁾	0.54	0.51	0.50	0.50
• Natural gas	Million GJ	33.32	34.43	34.38	34.03
• Fuel oil	Million GJ	4.30	4.27	4.94	4.69
• Fuel gas	Million GJ	14.07	13.04	14.34	14.55
• Coke	Million GJ	1.04	0.98	0.84	0.89
• LPG	Million GJ	Less than 0.01	Less than 0.01	Less than 0.01	0.33
• Diesel	Million GJ	0.016	0.019	0.016	0.021
• Benzene	Million GJ	Less than 0.01	Less than 0.01	Less than 0.01	Less than 0.01
• Ethanol	Million GJ	Less than 0.01	Less than 0.01	Less than 0.01	Less than 0.01
Electricity consumption	Megawatt-Hour	1,048,927	1,059,245	1,123,932	1,167,269
	Million GJ	3.78	3.81	4.05	4.20
Electricity purchased from external source	Megawatt-Hour	0	0	21,561	78,082
Electricity sold ⁽⁴⁾	Megawatt-Hour	1,546,883	1,499,678	1,324,051	1,228,181
Energy consumption reduction	GJ	312,741	138,473	464,839	494,794
Investments in renewable energy	Million THB	1,413	1,624	1,831	1,676
Direct greenhouse gas emissions (Scope 1) ⁽³⁾	Million tons of CO ₂ equivalent	3.15	3.26	3.38	3.45
• Stationary combustion	Tons of CO ₂ equivalent		3,262,488	3,215,700	3,216,504
• Mobile Combustion	Tons of CO ₂ equivalent		1,516	1,377	1,711
• Fugitive emission	Tons of CO ₂ equivalent		0	0	0
• Process (Electricity distributions system/ Refrigerant-Cooling system/ Fire extinguisher)	Tons of CO ₂ equivalent			159,086	229,069
Indirect greenhouse gas emissions (Scope 2) ⁽³⁾	Tons of CO ₂ equivalent	0	0	8,244	30,753
• Location based	Tons of CO ₂ equivalent			8,244	31,311
• Market based	Tons of CO ₂ equivalent			NAP	30,753
Greenhouse gas emissions intensity (Scope 1 and 2)	Tons of CO ₂ equivalent/ BOE ⁽¹²⁾	0.032	0.031	0.031	0.032
Greenhouse gas emissions reduction (Scope 1) as a result of energy efficiency improvement projects	Tons of CO ₂ equivalent	17,545	16,759	28,003	28,985
Methane emission	Ton	61.20	63.39	63.97	63.46
	Percent of gross direct GHG emissions (Scope 1)	0.067	0.058	0.060	0.050
Air Emission ^{(5), (6)}					
• Nitrogen Oxides emissions (NO _x)	Ton	4,527	4,426	4,461	4,243
• Sulphur Oxides emissions (SO _x)	Ton	5,197	6,542	6,889	6,568
• Volatile Organic Compounds emissions (VOCs)	Ton	1,270	1,275	1,137	1,023

 Environmental Performance	Unit	2021	2022	2023	2024
Waste Management					
Total waste generated	Ton	5,889	11,278	14,273	8,485
Total waste generated and managed	Ton	5,862	10,950	10,311	7,197
• Hazardous waste generated	Ton	5,078	9,586	9,750	7,108
• Non-hazardous waste generated	Ton	784	1,364	561	89
Total waste leftover onsite at the end of the year	Ton	27	327	3,962	1,288
• Total hazardous waste leftover onsite at the end of the year	Ton	25	68	2,411	379
• Non-hazardous waste leftover onsite at the end of the year	Ton	2	259	1,551	909
Total waste diverted from disposal	Ton	5,856	10,950	10,639	9,871
Onsite	Ton	0	0	0	0
Total hazardous waste utilized	Ton	0	0	0	0
• By reusing	Ton	0	0	0	0
• By recycling	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0
Total non-hazardous waste utilized	Ton	0	0	0	0
• By reusing	Ton	0	0	0	0
• By recycling	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0
Offsite	Ton	5,856	10,950	10,639	9,871
Total hazardous waste utilized	Ton	5,078	9,586	9,819	9,140
• By reusing	Ton	0	0	0	0
• By recycling	Ton	944	1,084	411	1,850
• Others ⁽⁷⁾	Ton	4,134	8,502	9,408	7,290
Total non-hazardous waste utilized	Ton	778	1,364	820	731
• By reusing	Ton	0	0	0	0
• By recycling	Ton	432	441	0	420
• By recycling as alternative energy	Ton	346	923	820	311
• Others ⁽⁷⁾	Ton	0	0	0	0
Total waste disposed	Ton	6	0	0	0
Onsite	Ton	0	0	0	0
Total hazardous waste disposed	Ton	0	0	0	0
• By incineration with energy recovery	Ton	0	0	0	0
• By incineration without energy recovery	Ton	0	0	0	0
• By landfill	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0
Total non-hazardous waste disposed	Ton	0	0	0	0
• By incineration with energy recovery	Ton	0	0	0	0
• By incineration without energy recovery	Ton	0	0	0	0
• By landfill	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0
Offsite	Ton	6	0	0	0
Total hazardous waste disposed	Ton	0	0	0	0
• By incineration with energy recovery	Ton	0	0	0	0
• By incineration without energy recovery	Ton	0	0	0	0
• By landfill	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0
Total non-hazardous waste disposed	Ton	6	0	0	0
• By incineration with energy recovery	Ton	6	0	0	0
• By incineration without energy recovery	Ton	0	0	0	0
• By landfill	Ton	0	0	0	0
• Others ⁽⁷⁾	Ton	0	0	0	0

 Environmental Performance	Unit	2021	2022	2023	2024
Oil and Chemical Spill ⁽⁸⁾					
Significant oil and chemical spills on land	Case	0	0	0	0
Significant oil and chemical spills in the sea	Case	0	0	1	0
Environmental Laws and Regulations Compliance					
Fines for non-compliance with environmental laws and regulations	Million THB	0	0	0	0
Number of non-compliance with environmental laws and regulations incidents	Incident	0	0	0	0

 Environmental Performance		Unit	Water				Water in water-stressed areas	
			2021	2022	2023	2024	2024	
Water ⁽⁹⁾								
Water withdrawal by source	Total seawater ⁽¹⁰⁾	Million m ³	18.19	18.19	19.74	19.36	0	
	• Freshwater (≤ 1,000 mg/L Total Dissolve Solids)	Million m ³	0	0	0	0	0	
	• Other water (> 1,000 mg/L Total Dissolve Solids)	Million m ³	18.19	18.19	19.74	19.36	0	
	Total water withdrawal from other sources	Million m ³	3.88	3.67	4.16	4.92	0	
	• Freshwater (≤ 1,000 mg/L Total Dissolve Solids)	Million m ³	3.88	3.67	4.16	4.92	0	
	• Other water (> 1,000 mg/L Total Dissolve Solids)	Million m ³	0	0	0	0	0	
	Total third-party water withdrawal by source	Surface water	Million m ³	3.88	3.67	4.16	4.92	0
		Groundwater	Million m ³	0	0	0	0	0
Seawater		Million m ³	0	0	0	0	0	
Produced water		Million m ³	0	0	0	0	0	
Water withdrawal	From all water sources	Million m ³	22.07	21.86	23.90	24.28	0	
Water discharge by destination	Discharged into the sea	Million m ³	18.10	18.74	20.05	19.71	0	
Total water discharge ⁽⁷⁾	All discharge destinations	Million m ³	18.10	18.74	20.05	19.71	0	
Total water discharge by treatment level	Freshwater (≤ 1,000 mg/L Total Dissolve Solids)	Million m ³	0	0	0	0	0	
	Other water (> 1,000 mg/L Total Dissolve Solids)	Million m ³	18.10	18.74	20.05	19.71	0	
Water consumption for industrial purposes	Total water consumption	Million m ³	3.97	3.11	3.84	4.57	0	
	Total net freshwater consumption in water-stressed areas ⁽¹³⁾	Million m ³	0	0	0	0	0	

Remarks:

- (1) Refinery Throughput includes crude oil and other refinery feedstock.
- (2) Energy consumption covers TOP, TPX, TLB, LABIX, and TOPSPP. The amount of fuel, steam, and electricity is calculated in accordance with GRI 302 (2016). The energy conversion factors are specific values gathered from Thaioil Group and subsidiaries' laboratory.
- (3) Thaioil Group follows PTT Group's statistical reporting standard that is in line with the WBCSD Greenhouse Gas Protocol, which covers carbon dioxide, methane, and nitrous oxide.
- (4) There is no steam sold to external organization.
- (5) Thaioil Group operates, evaluates, and monitors occupational health and safety and environmental performance by following Shell International Practice Standard (2007).
- (6) Thaioil Group does not purchase ozone-depleting chemicals, such as CFCs, HCFCs, Halons, and Methyl Bromide.
- (7) The other waste disposal methods cover incineration in industrial incinerators and external wastewater treatment.
- (8) Oil and chemical spills that are greater than 1 Barrel to sea and leak over 1 Barrel to land are considered significant.
- (9) Data excludes water consumption in the office building as the amount is very small compared to water consumed in the production process. Therefore, it can be considered insignificant.
- (10) The amount of seawater withdrawal and water discharge covers excess seawater that has been discharged as freshwater by desalination process from the desalination unit.
- (11) Investment benefits include cost saving from environmental-related activities and tax benefits.
- (12) Barrel Oil Equivalent means the production amount of petroleum and petrochemical product equivalent to 1 Barrel of crude oil.
- (13) Thaioil Group has not consumed fresh water in the production process from water-stressed areas.



ASSURANCE STATEMENT

SGS (THAILAND) LIMITED'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE THAI OIL PUBLIC COMPANY LIMITED FOR 2024

NATURE OF THE ASSURANCE/VERIFICATION

SGS (THAILAND) LIMITED (hereinafter referred to as SGS) was commissioned by Thai Oil Public Company Limited (hereinafter referred to as TOP) to conduct an independent assurance of the integrated report (hereinafter referred to as the Report) the year ended December 31, 2024. SGS reserves the right to update the assurance statement from time to time depending on the level of report content discrepancy of the published version from the agreed standards requirements.

INTENDED USERS OF THIS ASSURANCE STATEMENT

This Assurance Statement is provided with the intention of informing all TOP's Stakeholders/specified stakeholders.

RESPONSIBILITIES

The sustainability information in the Report and its presentation are the responsibility of the directors or governing body and the management of TOP. SGS has not been involved in the preparation of any of the material included in the Report. Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of assurance based upon sufficient and appropriate objective evidence.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE

The assurance of this report has been conducted according to the AA1000 Assurance Standard (AA1000AS v3), a standard used globally to provide assurance on sustainability-related information across organizations of all types, including the evaluation of the nature and extent to which an organization adheres to the AccountAbility Principles (AA1000AP, 2018). Assurance has been conducted at a moderate (limited) level of scrutiny.

SCOPE OF ASSURANCE

The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria: AA1000 Accountability Principles (2018), GRI Standards 2021 (In accordance with), DJSI Criteria: DJSI 1.7.5 (2022) KPIs for Supplier Screening and DJSI Criteria: DJSI 1.7.6 (2022) KPIs for Supplier Assessment and Development.

SPECIFIED PERFORMANCE INFORMATION AND DISCLOSURES INCLUDED IN SCOPE

Our assurance engagement encompassed the operations and activities of Thai Oil Public Company Limited (TOP) in Chonburi, Thailand, along with its five subsidiary companies: Thai Lube Base Public Company Limited, Thai Paraxylene Company Limited, Thairoil Energy Services Company Limited, LABIX Company Limited, and TOP SPP Company Limited. TOP's the Report are adequately in line with the Sustainability Reporting Standard and fulfills all the required content and quality criteria for the selected environmental and social indicators listed as below;

- evaluation of content veracity of the sustainability performance information in relation to the determined material topics at a moderate (limited) level of scrutiny for TOP and applicable aspect boundaries outside of the organization covered by this report;
- AA1000 Assurance Standard v3 Type 2 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2018); and
- evaluation of the report against the requirements of GRI Standards listed in the GRI content index where the organization has referenced for the preparation of the reported information detailed below:
 - Environmental performance indicators: GRI 302-1 (2016), 303-3 (2018), 303-4 (2018), 305-1 (2016), 305-2 (2016), 305-3 (2016), 305-4 (2016), 305-7 (2016), 306-3 (2016), 306-3 (2020), 306-4 (2020), 306-5 (2020).
 - Social performance indicators: 403-9a (2018) and 403-9b (2018), 403-10a (2018) and 403-10b (2018), 405-2 (2016), and for customize assurance accordance with DJSI requirement include: DJSI 1.7.5, 1.7.6 (2023 version) regarding critical supplier assessment.

ASSURANCE METHODOLOGY

The assurance comprised a combination of desktop research, interviews with relevant employees (including on-site and remote); documentation and record review and validation with external bodies and/or stakeholders where relevant.

- TOP's management interviews with key personnel, including members of the Corporate Sustainability team responsible for performance in the

areas within scope. In addition, interviews were held with data owners and managers responsible for internal data collection and reporting databases.

- Document review of relevant systems, policies, and procedures where available. Understanding, analysing and sample testing the key data collection, aggregation, validation and reporting systems, processes, procedures, and controls.
- Evidence presented at TOP's head office in Chonburi was systematically sampled to verify the reliability of the selected environmental and social indicators. The scope of the sampling was directly aligned with the applied level of assurance, ensuring a robust evaluation process.

LIMITATIONS

Financial data drawn directly from independently audited financial accounts, Task Force on Climate-related Financial Disclosures (TCFD) and SASB related disclosures has not been checked back to source as part of this assurance process.

INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from TOP, being free from bias and conflicts of interest with the organization, its subsidiaries and stakeholders. The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with specializing in the Environmental, Social and Governance (ESG) and carbon fields and experience on the SRA Assurance service provisions.

FINDINGS AND CONCLUSIONS

ASSURANCE OPINION

On the basis of the methodology described and the assurance work performed, we are satisfied that the specified performance information included in the scope of assurance is accurate, reliable, has been fairly stated and has been prepared, in all material respects, in accordance with the AA1000 AccountAbility Principles (2018). We believe that the organization has chosen an appropriate level of assurance for this stage in their reporting.

ADHERENCE TO AA1000 ACCOUNTABILITY PRINCIPLES (2018)

INCLUSIVITY

TOP has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, sustainability experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns.

MATERIALITY

TOP has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

RESPONSIVENESS

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

IMPACT

TOP has demonstrated a process on identify and fairly represented impacts that encompass a range of environmental, social and governance topics from wide range of sources, such as activities, policies, programs, decisions and products and services, as well as any related performance. Measurement and evaluation of its impacts related to material topic were in place at target setting with combination of qualitative and quantitative measurements

Signed:

For and on behalf of SGS (Thailand) Limited



Montree Tangtermsirikul

General Manager

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28 February 2024

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GRI, UNGC PRINCIPLES COP, AND TCFD FRAMEWORK INDICES

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2-11	Thaioil Group's Annual Report (56-1 One Report): Board of Directors Chapter	
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3-1	14-15	Yes
3-2	16-21	Yes

Topic Specific Disclosure

Thaioil Sustainability Material Topics	GRI Topic	Disclosure	GRI SECTOR STANDARD	Page or Website	Comments/ Omissions	External Assurance
Environmental Management System	GRI 3: Management of Material Topic	3-3	11.2.1	29-36		
			11.3.1	29-36		
			11.4.1	Click		
	GRI 304: Biodiversity 2016	304-2	11.4.3			
	GRI 306: Effluents and Waste 2020	306-3	11.8.2	33, 65		Yes
Climate and Net Zero Strategy, and Air Quality Management	GRI 307: Environmental Compliance 2016	307-1	-	33, 65		
		GRI 305: Emissions 2016	305-7	11.3.2	36, 64	
	GRI 3: Management of Material Topic	3-3	-	38-45		
		GRI 201: Economic Performance 2016	201-2	11.2.2	42	
	GRI 305: Emissions 2016	305-1	11.1.5	43, 63		Yes
		305-2	11.1.6	44, 63		Yes
		305-3	11.1.7	Click		Yes
		305-4	11.1.8	43, 63		Yes
		305-5	11.2.3	42-43		



Topic Specific Disclosure

Thaioil Sustainability Material Topics	GRI Topic	Disclosure	GRI SECTOR STANDARD 11: Oil and Gas	Page or Website	Comments/ Omissions	External Assurance								
Climate and Net Zero Strategy, and Air Quality Management	GRI: Sector Standard: Oil and Gas 2021 (Additional Sector Disclosure)	N/A	11.2.4	N/A	Thaioil Group aligns our climate change commitment with Thailand's Net Zero GHG Emissions targets.									
Circular Economy	GRI 3: Management of Material Topic	3-3	11.1.1	 Click										
			11.5.1											
			11.6.1											
	GRI 302: Energy 2016	302-1	11.1.2			To avoid double counting, Thaioil does not report energy consumption / sold of electricity, heating, cooling, and steam, since all were self-generated from primary fuel. Only electricity was sold out to external.	Yes							
				302-3				11.1.4						
				302-4				N/A						
				302-5				N/A						
				GRI 303: Water and Effluents 2018				303-1	11.6.2			The standard, methodologies and consumptions used to calculate water withdrawal are not reported.	Yes	
										303-2				11.6.3
										303-3				11.6.4
										303-4				11.6.5
										303-5				11.6.6
				GRI 306: Waste 2020				306-1	11.5.2					
	306-2	11.5.3												
	306-3	11.5.4												
	306-4	11.5.5												
306-5	11.5.6													
Human Rights	GRI 3: Management of Material Topic	3-Mar	11.11.1	 Click										
			GRI 402: Labour Management Relations 2016		402-1	11.10.5								
							GRI 405: Diversity and Equal Opportunity 2016	405-1	N/A					
			GRI 406: Non-discrimination 2016		406-1	11.11.6						Yes		
							GRI 409: Forced or Compulsory Labor 2016	409-1	11.12.2					
			GRI 412: Human Rights Assessment 2016		412-1	N/A								
			Human Health and Safety		GRI 3: Management of Material Topic	3-3	11.8.1							
11.9.1	46-49													
GRI: Sector Standard: Oil and Gas 2021 (Additional Sector Disclosure)	OG13	11.8.3 & 11.8.4												
				49, 58										
GRI 403: Occupational Health and Safety 2018	403-1	11.9.2												
				403-2				11.9.3	47-49					
				403-3				11.9.4	47-49					
				403-4				11.9.5	47-49					
				403-5				11.9.6	47-49					
				403-6				11.9.7	47-49					
				403-7				11.9.8	47-49					
				403-8				11.9.9	47-49					
				403-9a, 403-9b				11.9.10	48, 57-58	Yes				
			403-10a, 403-10b	11.9.11				48, 57-58	Yes					

Topic Specific Disclosure




Thaioil Sustainability Material Topics	GRI Topic	Disclosure	GRI SECTOR STANDARD 11: Oil and Gas	Page or Website	Comments/ Omissions	External Assurance
Human Capital Development, and Talent Attraction & Retention	GRI 3: Management of Material Topic	3-3	11.10.1	Click		
	GRI 401: Employment 2016	401-1	11.10.2	59		
		401-2	11.10.3	Click		
		401-3	11.10.4	60		
	GRI 404: Training and Education 2016	404-1	11.10.6	60		
		404-2	11.10.7	Click		
		404-3	N/A	60		
Community Engagement and Social Value Creation	GRI 3: Management of Material Topic	3-3	11.14.1	Click		
	GRI 203: Indirect Economic Impacts 2016		11.15.1			
		203-1	11.14.4			
	GRI 413: Local Communities 2016	203-2	11.14.5			
		413-1	11.15.2			
	413-2	11.15.3				
	GRI: Sector Standard: Oil and Gas 2021 (Additional Sector Disclosure)	N/A	11.15.4			
Governance, and Business Ethics and Code of Conduct	GRI 3: Management of Material Topic	3-3	11.20.1	Click		
	GRI 205: Anti-Corruption 2016	205-1	11.20.2			
		205-2	11.20.3			
		205-3	11.20.4			
	GRI: Sector Standard: Oil and Gas 2021 (Additional Sector Disclosure)	N/A	11.20.5	N/A	Not applicable to Thaioil Group as the Company does not engage in oil drilling activities.	
		N/A	11.20.6	N/A		
Digital Transformation	GRI 3: Management of Material Topic	3-3	N/A	Click		
Business Diversifications	GRI 3: Management of Material Topic	3-3	N/A	23-25		
Innovation & Customer Relationship Management	GRI 3: Management of Material Topic	3-3	N/A	50-54		
Sustainable Supply Chain Management	GRI 3: Management of Material Topic	3-3	11.12.1	Click		
	GRI 308: Supplier Environmental Assessment 2016	308-1	N/A			
		308-2	N/A			
	GRI 414: Supplier Social Assessment 2016	414-1	11.12.3			
414-2		11.10.9				
Closure and Rehabilitation	GRI 3: Management of Material Topic	3-3	11.7.1	N/A	Not applicable to Thaioil Group as the Company does not engage in oil drilling activities.	
	GRI 402: Labor/Management Relations 2016	402-1	11.7.2	N/A		
	GRI 404: Training and Education 2026	404-2	11.7.3	N/A		
	GRI: Sector Standard: Oil and Gas 2021 (Additional Disclosures)	N/A	11.7.4	N/A		
			11.7.5			
		11.7.6				
Land and Resource Rights	GRI 3: Management of Material Topic	3-3	11.16.1	N/A	Not applicable to Thaioil Group as majority of areas in the Company's operations are state-owned lands (industrial development area).	
	GRI: Sector Standard: Oil and Gas 2021 (Additional Disclosures)	N/A	11.16.2	N/A		
Reporting on Land and Resource Rights	GRI 3: Management of Material Topic	3-3	11.17.1	N/A	Not applicable to Thaioil Group as majority of areas in the Company's operations are state-owned lands (industrial development area).	
	GRI 411: Rights of Indigenous People 2016	411-1	11.17.2	N/A		
	GRI: Sector Standard: Oil and Gas 2021 (Additional Disclosures)	N/A	11.17.3	N/A		
			11.17.4			
Payments to Governments	GRI 3: Management of Material Topic	3-3	11.21.1	Click		

Topic Specific Disclosure

Thailand Sustainability Material Topics	GRI Topic	Disclosure	GRI SECTOR STANDARD 11: Oil and Gas	Page or Website	Comments/ Omissions	External Assurance
Payments to Governments	GRI 201: Economic Performance 2016	201-1	11.21.2			
		201-2	11.21.3			
	GRI 207: Tax 2019	207-1	11.21.4			
		207-2	11.21.5			
		207-3	11.21.6			
		207-4	11.21.7			
GRI: Sector Standard: Oil and Gas 2021 (Additional Disclosures)	N/A	11.21.8				
	Public Policy	GRI 3: Management of Material Topic	3-3	11.22.1		
GRI 415: Public Policy 2016		415-1	11.22.2			

UNGC PRINCIPLES COP

United Nations Global Compact Principles

Principles		Page
Human Rights	Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights	
	Principle 2 Businesses should make sure that they are not complicit in human rights abuses	
Labour	Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	
	Principle 4 The elimination of all forms of forced and compulsory labour	
	Principle 5 The effective abolition of child labour	
	Principle 6 The elimination of discrimination in respect of employment and occupation	
Environment	Principle 7 Businesses should support a precautionary approach to environmental challenges	38-48
	Principle 8 Undertake initiatives to promote greater environmental responsibility	
	Principle 9 Encourage the development and diffusion of environmentally friendly technologies	
Anti-corruption	Principle 10 Businesses should work against corruption in all its forms, including extortion and bribery	

TCFD FRAMEWORK

Recommendation		Recommended Disclosure	Page
Governance	Disclose the organization's governance of climate-related risks and opportunities.	a) Describe the board's oversight of climate-related risks and opportunities	26-27, 39-40
		b) Describe management's role in assessing and managing climate-related risks and opportunities	26-27, 39-40
Strategy	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	41-42
		b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	41-42
		c) Describe the resilience of the organization's strategy, taking into consideration different climate related scenarios, including a 2° C or lower scenario.	41-42
Risk Management	Disclose how the organization identifies, assesses, and manages climate-related risks	a) Describe the organization's processes for identifying and assessing climate-related risks	42
		b) Describe the organization's processes for managing climate-related risks	42
		c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	26-27, 39-40
Metrics & Targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	43-45, 63
		b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks	43-45, 63
		c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	27-28, 43-45, 63










SDGs PROGRESS









Thaioil Group has assessed and analyzed the impacts of Environment, Social, and Governance (ESG) activities through materiality assessment. The Company has prioritized the management of negative impacts and strengthened positive impacts by setting targets that are aligned with the United Nations Sustainable Development Goals (SDGs). The process of Thaioil's assessment, monitoring, and reporting was developed based on "Integrating the SDGs into Corporate Reporting: A Practical Guide" which was established by the Global Reporting Initiative (GRI) and UN Global Compact (UNGC).












Thaioil's Commitment



In 2024, Thaioil Group determined 14 targets which are aligned with 9 out of the 17 United Nations Sustainable Development Goals (SDGs). The details of Thaioil's progress are shown in the table below:

UN Sustainable Development Goals	UN Sustainable Development Goal Targets	Corresponding Thaioil Targets	2024 Progress	More Information
SDG 3: Good Health and Well-being 	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.	To support accessibility of public health services for the communities in Laem Chabang District, Chon Buri Province, and other remote areas.	Thaioil Group's Health and Learning Center for Community: <ul style="list-style-type: none"> 45,760 beneficiaries accessed the Thaioil Group's Health and Learning Center. Health Promotion Project <ul style="list-style-type: none"> Organized a total of 23 yoga sessions and 64 aerobic sessions, with a total of 40 participants per session to promote mental clarity, physical flexibility, and overall balance. Organized 2 events for "100,000 km. Walk and Run Project", with 175 participants per event. Community Health Check-ups: <ul style="list-style-type: none"> 1,066 community households received home visits for preliminary health check-up assessments. 3,188 community members received screening tests for chronic non-communicable diseases (diabetes and hypertension). 	Corporate Social Responsibility 
SDG 4: Quality Education and Lifelong Learning Opportunities for All 	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university.	To support educational opportunities for community members of every gender, age, and promote the quality and development of basic education together with the promotion of educational development projects with educational institutions and scholarships supports.	Sponsored the teachers in skill development in the fields of Science, Technology, and Engineering, and promoted students' skills in sports through 10 projects under the PTT Group Model School and CONNEXT ED. Developed 2 Science and English Teachers as change-makers through Teach for Thailand program.	Corporate Social Responsibility 
SDG 7: Affordable and Clean Energy 	7.3 Double the global rate of improvement in energy efficiency. 7a By 2036, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	To be ranked in the top quartile of Energy Intensity Index (EII) in the global oil and gas industry in the long term. To support accessibility to clean energy for local communities and other remote communities together with the development of alternative energy and the promotion of energy efficiency.	Energy Intensity Index (EII) of Thaioil's refinery at 83.6 and ranked among leading companies in the oil and gas industry globally. Installed solar power systems for 3 hospitals and community health centers, and 3 border patrol police schools with a total capacity of 94 kilowatts.	Circular Economy  Corporate Social Responsibility 

UN Sustainable Development Goals	UN Sustainable Development Goal Targets	Corresponding Thaioil Targets	2024 Progress	More Information
<p>SDG 8: Decent Work and Economic Growth</p> 	<p>8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity, and innovation, and encourage the formalization and growth of micro-, small and medium-sized enterprises (MSMEs), including through access to financial services.</p>	<p>To support job creation and sustainable self-reliance in local communities and other remote communities through social enterprise projects.</p>	<p>Organized a total of 5 job training sessions, with a total of 30 people from the Laem Chabang community to promote community economy and support community members to have primary and secondary income.</p>	<p>Corporate Social Responsibility </p>
	<p>8.8 Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.</p>	<p>To achieve a total recordable injury frequency rate (TRIR) in the top 10% of the oil and gas industry by 2024.</p>	<p>Total recordable injury frequency rate (TRIFR) of all workers at 0.25 cases per million hours worked which is better than the target of less than 0.30 cases per million hours worked. Moreover, Thaioil Group continued to maintain the performance in the top 10% among companies in the oil and gas industry.</p>	<p>Human Health and Safety Page 46-49 or </p>
		<p>To achieve zero incident of process safety: Loss of Primary Containment (LOPC) Tier-1.</p>	<p>Zero Tier-1 process safety events.</p>	
		<p>To implement the Human Rights Due Diligence process in Thaioil operations and to assess human rights risks for all critical suppliers.</p>	<p>The human rights risk assessment covered 100% of the business activities of Thaioil Group and of suppliers. The sufficient risk management plan and mitigation measures have been developed for all identified risks.</p>	<p>Human Rights </p>
<p>SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p> 	<p>9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, especially in developing countries, including encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.</p>	<p>To promote an innovative culture and enhance business opportunities in innovation.</p>	<p>According to the evaluation assessment of the innovation maturity level of Thaioil Group, the Company's innovation level was at level 3 out of 5 levels.</p>	<p>Innovation & Customer Stewardship Page 26-28 or </p>
<p>SDG 12: Responsible consumption and production</p> 	<p>12.2 Achieve the sustainable management and efficient use of natural resources.</p>	<p>To achieve a business target following the circular economy principles for cost reduction and maximization of the efficiency despite limited resources by efficient production processes and utilization of natural resources.</p>	<p>33% of freshwater consumption was replaced by distilled water from desalination.</p>	<p>Circular Economy </p>
			<p>100% of waste diverted from disposal by 3Rs method (Reduce, Reuse, Recycle).</p>	

UN Sustainable Development Goals	UN Sustainable Development Goal Targets	Corresponding Thaioil Targets	2024 Progress	More Information
<p>SDG 12: Responsible consumption and production</p> 	<p>12.4 Achieve the environmentally sound management of chemicals and all waste throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water, and soil in order to minimize their adverse impacts on human health and the environment.</p> <p>12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.</p> <p>12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.</p>	<p>To achieve the target of maximization of efficiency of natural resource consumption to minimize impacts to environment and society.</p> <p>To achieve the business target following the circular economy principles for efficient consumption of limited resources and waste generation reduction.</p> <p>To promote sustainable green procurement in the organization and enhance Environment, Social, and Governance (ESG) practices with suppliers.</p>	<p>4,243 tons of NO_x emissions.</p> <p>6,568 tons of SO_x emissions.</p> <p>1,023 tons of VOCs emissions.</p> <p>Zero Waste to Landfill.</p> <p>100% of new suppliers acknowledged Sustainable Code of Conduct for Suppliers of Thaioil Group (SCOC) and responded to the ESG self-assessment survey.</p> <p>Increased spending on environmental-friendly products for the materials, equipment, and office supplies product group by 99% of expenses in this category. This was equivalent to 1,852.4 tons of carbon dioxide reduction.</p>	<p>Environmental Impact Management Page 29-37 or  Click</p> <p>Circular Economy  Click</p> <p>Sustainable Supply Chain Management  Click</p> <p>Circular Economy  Click</p>
<p>SDG 13: Climate Action</p> 	<p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.</p>	<p>Achieved Net Zero GHG Emissions organization by 2060.</p>	<p>GHG emission intensity scope 1&2 at 0.0318 tons of carbon dioxide equivalent per barrel of crude oil equivalent.</p> <p>919,559 tons of carbon dioxide equivalent of avoided emissions from the use of low-carbon products.</p>	<p>Climate Change Management Page 38-45 or  Click</p>
<p>SDG 15: Life on Land</p> 	<p>15.2 Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.</p>	<p>To promote Nature-based solutions through the restoration, conservation, and increase areas of forest and mangrove to create a balanced ecosystem in the community which absorbs carbon. This aims to foster Thaioil Group's Net Zero GHG Emissions by 2060.</p>	<p>Implemented afforestation and mangrove reforestation projects to support the transition to a low-carbon society through forest restoration and conservation projects, including carbon credit benefits. As a result, the project is expected to absorb over 88,000 tons of carbon dioxide equivalent throughout the 10-year project duration.</p>	<p>Corporate Social Responsibility  Click</p>
<p>SDG 16: Peace, Justice, and Strong Institutions</p> 	<p>16.5 Substantially reduce corruption and bribery in all forms.</p>	<p>To have a clear, transparent, and fair compliance system in place and to maintain zero corruption and fraud incidents, as well as to take position of no corruption in any cases.</p>	<p>Zero case of non-compliance with laws and regulations, or conducts that could lead to corruption and bribery by Thaioil Group's employees.</p> <p>100% of Thaioil Group's employees responded to the annual conflict of interest reporting.</p>	<p>Fight Against Corruption  Click</p>





SURVEY OF READERS' OPINIONS



Scan for the Survey

[Click here](#)

The information from the Survey of Readers' Opinions of the 2024 Integrated Report will be used to enhance and develop the Integrated Report for the next year.

Thank you for your kind cooperation.

Please mark an in the box and please provide your feedback in the blank space.

1. Which group of readers would you describe yourself?

- Shareholder/ Investor Customer Employee Community surrounding Thaioil Group's operations
- Supplier Government agency Academia Student
- Media Others (Please specify

2. How did you receive or access to this Integrated Report?

- Shareholders' Annual General Meeting Seminar/ Exhibition/ Lecture Thaioil Group's employee
- Thaioil Group's Website Others (Please specify

3. What is your purpose in reading this Integrated Report?

- To gain information about Thaioil Group To support an investment decision
- To prepare your own sustainability report and/ or Integrated Report For research and/ or educational purpose
- Others (Please specify

4. Based on your interest and opinion, please rate Thaioil Group's sustainability performances

Economic and Governance Dimension

- Customer Relationship Management High Medium Poor
- Business Diversification High Medium Poor

Environmental Dimension

- Climate and Net Zero Strategy High Medium Poor
- Environmental Management System High Medium Poor

Social Dimension

- Human Health and Safety High Medium Poor

5. Please rate completeness and reliability of this Integrated Report

- Your understanding of Thaioil Group's material topics High Medium Poor
- The alignment of Thaioil Group's performances and strategies High Medium Poor
- The content's appropriateness and reliability High Medium Poor
- The content's relevance to your interests High Medium Poor

6. In your opinion, does the content cover all material topics relevant to the Thaioil Group's sustainability?

- Yes No

If not, please specify the topic(s) that you think should be addressed.

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7. Please provide feedback or suggestions for further improvement in the next annual Integrated Report

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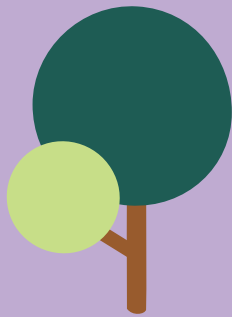


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