


# PERFORMANCE SUMMARY

THAI OIL PUBLIC COMPANY LIMITED



 Economic Performance <sup>(1)</sup>	Unit	2020	2021	2022	2023
<b>Economic Value Generated</b>					
Sales Revenue	Million THB	242,840	335,827	505,703	459,402
<b>Economic Value Distributed</b>					
Cost of Sales of Goods and Services <sup>(2)</sup>	Million THB	255,300	319,555	481,137	436,164
<b>Economic Value Retained</b>					
EBITDA	Million THB	(2,056)	28,142	37,187	35,453
Net Profit/ (Loss)	Million THB	(3,301)	12,578	32,668	19,443
<b>Financial Position</b>					
Total Assets	Million THB	306,188	362,144	444,581	419,993
Total Liabilities	Million THB	186,069	239,050	285,924	251,681
Total Equity	Million THB	120,118	123,094	158,657	168,312
<b>Financial Ratio</b>					
Interest Coverage Ratio	Times	(0.5)	7.8	9.6	8.7
Current Ratio	Times	4	2.6	1.5	1.7
Net Debt to Equity Ratio	Times	0.7	1.4	1	0.9
Return on Total Equity <sup>(4)</sup>	Percent	(2.4)	10.7	23.5	12.0
Return on Total Asset	Percent	(1)	3.9	8.2	4.5
<b>Stock Data</b>					
Net Profit/ (Loss) per Share	THB/ Share	(1.62)	6.17	15.63	8.70
Annual Average of Daily Closing Stock Price <sup>(3)</sup>	THB/ Share	43.95	54.38	53.93	50.40
Market Capitalization	Million THB	89,659	110,937	114,752	120,069
Dividend Payment	THB/ Share	0.7	2.6	3.7	3.40
Dividend Yield	Percent	1.6	4.8	6.9	6.7
Book Value	THB/ Share	56.97	59.25	69.85	75.35

**Remarks:**

- (1) Economic performance reporting scope is aligned with the Financial Statements 2023.
- (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.

**Contributions to Organizations and External Associations <sup>(1)</sup>**

Type of Organization	Topic	Name of the Organization	Unit	2020	2021	2022	2023
Trade Associations	Support responsible oil spill management for the environment and society	International Fund for Compensation for Oil Pollution Damage	THB	833,016	0 <sup>(2)</sup>	6,691,436 <sup>(4)</sup>	8,022,619
		Oil Spill Response Limited (OSRL)	THB	1,736,839	1,740,193	2,012,460	2,255,153
		Oil Industry Environmental Safety Group Association (IESG)	THB	1,778,000	1,683,000	1,693,000	1,834,000
	Support the enhancement of competitiveness with peer industry groups through operational excellence	Petroleum Institute of Thailand (PTIT)	THB	824,381	819,309	886,553	1,075,058
		Federation of Thai Industries <sup>(5), (6)</sup>	THB	186,180	167,990	177,620	180,188
		Thai National Shippers' Council (TNSC)	THB	53,500	53,500	53,500	53,500
		Association of Private Power Producers	THB	85,600	42,800	42,800	42,800
		Thai Chamber of Commerce	THB	24,610	24,610	24,610	24,610
		Investor Club Association <sup>(3)</sup>	THB	0	0	0	6,420
		Board of Trade of Thailand	THB	0 <sup>(2)</sup>	0 <sup>(2)</sup>	25,680	0 <sup>(2)</sup>
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) <sup>(7)</sup>	THB	0	0	0	0	
	Global Compact Network Thailand	THB	35,000	35,000	35,000	35,000	
Tax Exemption Group	-	-	-	-	-	-	
Lobbying, interest representatives, or similar	-	-	-	-	-	-	
Local, regional, or national political campaigns/ candidates	-	-	-	-	-	-	
Others (e.g., spending related to ballot measures or referendums)	-	-	-	-	-	-	
<b>Total</b>			<b>THB</b>	<b>5,807,126</b>	<b>4,816,402</b>	<b>11,892,659</b>	<b>13,779,348</b>

**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 <sup>(1), (2)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
Total hours worked.	Hour	2,887,982		2,887,293		2,952,468		3,341,350	
• Employees		2,625,891	262,091	2,433,255	454,038	2,516,078	436,390	2,871,663	469,687
Total hours worked	Hour	18,085,177		13,554,027		18,890,846		21,888,660	
• Contractors		14,524,263	3,560,914	10,981,250	2,572,777	8,470,709	10,420,137	10,870,903	11,017,757
<b>Work-related Injuries <sup>(3)</sup></b>									
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	0		1		0		1	
• Contractors		0	0	0	1	0	0	1	0
	Case/ Million hours worked	0		0.07		0		0.05	
		0	0	0	0.39	0	0	0.09	0
Total recordable work-related injury rate (TRIR)	Case	2		1		1		4	
• Employees		2	0	1	0	1	0	4	0
	Case/ Million hours worked	0.69		0.35		0.34		1.2	
		0.76	0	0.41	0	0.4	0	1.39	0
Total recordable work-related injury rate (TRIR)	Case	4		4		6		4	
• Contractors		4	0	3	1	5	1	4	0
	Case/ Million hours worked	0.22		0.3		0.32		0.18	
		0.28	0	0.27	0.39	0.59	0.096	0.37	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		1		3		0	
• Contractors		1	0	0	1	2	1	0	0
	Case/ Million hours worked	0.06		0.07		0.16		0	
		0.07	0	0	0.39	0.24	0.1	0	0
Near misses <sup>(4)</sup>	Case	4,521		6,594		7,601		4,650	
• Employees and Contractors		4,521		6,594		7,601		4,650	
<b>Work-related Illnesses</b>									
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 Health and Safety Performance <sup>(1), (2)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
Occupational illness frequency rate (OFR) • Employees	Case	0		0		0		0	
	Case/ Million hours worked	0	0	0	0	0	0	0	0
Occupational illness frequency rate (OFR) • Contractors	Case	0		0		0		0	
	Case/ Million hours worked	0	0	0	0	0	0	0	0
<b>Process Safety <sup>(5)</sup></b>									
Process safety events – Tier-1	Event	1		1		1		1	
	Event/ Million hours worked	0.04		0.06		0.05		0.04	
Process safety events – Tier-2	Event	1		2		2		4	
	Event/ Million hours worked	0.04		0.12		0.09		0.16	

**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 <sup>(6)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
<b>GRI 405-1 Employees <sup>(1)</sup></b>									
Total number of employees	Person	1,749		1,799		1,851		1,936	
		1,329	420	1,351	448	1,369	482	1,412	524
	Percent	76	24	75	25	74	26	73	27
<b>Number of Employees by Level</b>									
<b>All Employees</b>									
• Executives <sup>(3)</sup>	Person	9	2	10	2	11	2	9	2
	Percent	82	18	83	17	85	15	82	18
• Management <sup>(4)</sup>	Person	90	64	93	69	102	77	101	84
	Percent	58	42	57	43	57	43	55	45
• Non-management	Person	1,230	354	1,248	377	1,256	403	1,302	438
	Percent	78	22	77	23	76	24	75	25
<b>Permanent Contract</b>									
• Executives <sup>(3)</sup>	Person	8	1	8	1	9	1	7	1
• Management <sup>(4)</sup>	Person	87	61	90	66	101	75	101	82
• Non-management	Person	1,229	354	1,248	376	1,256	402	1,301	436
<b>Temporary Contract <sup>(7)</sup></b>									
• Executives <sup>(3)</sup>	Person	1	1	2	1	2	1	2	1
• Management <sup>(4)</sup>	Person	3	3	3	3	1	2	0	2
• Non-management	Person	1	0	0	1	0	1	1	2
<b>Number of Employees by Age Group <sup>(1)</sup></b>									
• Below 30 years old	Person	492	79	471	83	438	81	459	112
• 30-50 years old	Person	524	278	545	301	591	338	611	347
• Over 50 years old	Person	313	63	335	64	340	63	342	65
<b>Number of Employees by Area of work</b>									
<b>Permanent Contract</b>									
• Depot	Person	2	1	2	1	2	1	3	2
• Bangkok office	Person	53	143	54	151	82	185	88	197

People <sup>(6)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
• Sriracha office (Thaioil refinery)	Person	1,269	272	1,290	291	1,285	296	1,321	325
<b>Temporary Contract</b>									
• Depot	Person	0	0	0	0	0	0	0	0
• Bangkok office	Person	3	4	4	5	3	4	3	5
• Sriracha office (Thaioil refinery)	Person	2	0	1	0	0	0	0	0
<b>Attraction</b>									
<b>GRI 401-1 New Employees Hired <sup>(1)</sup></b>									
Total number of new employees hired	Person	148		94		99		158	
		127	21	54	40	51	48	95	63
<b>Number of New Employees by Level</b>									
• Executives <sup>(3)</sup>	Person	0	0	1	1	0	0	0	0
• Management <sup>(4)</sup>	Person	0	2	2	0	0	0	0	0
• Non-management	Person	127	19	51	39	41	48	95	63
<b>Number of New Employees by Age Group</b>									
• Below 30 years old	Person	122	14	45	27	41	31	85	45
• 30-50 years old	Person	5	7	8	12	10	17	10	18
• Over 50 years old	Person	0	0	1	1	0	0	0	0
<b>Number of Employees by Religion <sup>(10)</sup></b>									
• Buddhism	Percent	97.88		97.61		95.73		94.47	
• Christianity	Percent	1.14		1.22		1.19		1.19	
• Islam	Percent	0.91		1.11		1.03		0.98	
• Atheism	Percent	0.06		0.06		0.05		0.05	
• Not specified	Percent					2		3.31	
Total new hire rate	Percent of total number of employees	8.46		5.23		5.35		8.16	
		9.56	5	4	8.93	3.73	9.96	6.73	12.02
Ability to recruit employees	Percent of total number of open positions	100		90		92		92	
Cost of new employee recruitment	THB/ FTE	42,000		36,000		54,000		47,000	
<b>Retention</b>									
<b>GRI 401-1 Employee Turnover <sup>(1), (5)</sup></b>									
Total employee turnover	Person	47		49		92		70	
		30	17	37	12	60	32	47	23
• Below 30 years old	Person	6	6	12	2	19	10	12	8
• 30-50 years old	Person	4	4	5	4	6	15	7	10
• Over 50 years old	Person	20	7	20	6	35	7	28	5
Turnover rate	Percent of number of total employees	2.69		2.72		4.97		3.62	
		2.26	4.05	2.74	2.68	4.38	6.64	3.33	4.39
Voluntary resignation rate	Percent of number of total employees	1.03		1.17		2.81		2.01	
		0.6	2.38	1.11	1.34	1.9	5.39	1.49	3.44
<b>DJSI 3.5.8 Employee Engagement</b>									
Employee engagement score	Percent	92		94		89		92	
		91	94	95	92	81	89	92	92
<b>Employee Engagement by Level</b>									
• Executives <sup>(3)</sup>	Percent					100		100	
• Management <sup>(4)</sup>	Percent					83		95	
• Non-management	Percent					92		91	
<b>Employee Engagement by Age Group</b>									
• Below 30 years old	Percent					66		75	
• 30-50 years old	Percent					91		87	
• Over 50 years old	Percent					92		96	

People <sup>(6)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
<b>GRI 401-3 Parental Leave <sup>(8)</sup></b>									
Total number of employees that took parental leave	Person	37		47		43		46	
		22	15	33	14	26	17	35	11
Total number of employees that returned to work after taking parental leave	Person	37		47		43		46	
		22	15	33	14	26	17	35	11
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
<b>Employee Development</b>									
<b>GRI 404-1 Average Training Hours <sup>(1), (2), (10)</sup></b>									
Total training hours	Hour	94,716		103,102		124,421		136,655	
		78,454	16,262	82,920	20,182	103,117	21,303	115,138	21,516
Average training hours of all employees	Hour/ FTE/ Year	59	39	57	46	68	45	75	42
• Executives <sup>(3)</sup>	Hour/ FTE/ Year	138	201	157	47	83	47	34	18
• Management <sup>(4)</sup>	Hour/ FTE/ Year	46	54	56	57	74	74	59	46
• Non-management	Hour/ FTE/ Year	60	37	56	43	67	39	76	41
<b>Average Training &amp; Development by Hours and Costs <sup>(10)</sup></b>									
Average training hours and costs by all types of training	Hour			293		316		351	
	THB/ FTE			266,344		296,488		349,984	
<b>Average Training &amp; Development hours and costs by Type of Training <sup>(10)</sup></b>									
• Classroom Training	Hour			54		62		67	
	THB/ FTE			10,454		15,288		29,538	
• Coaching and On the Job Training (OJT)	Hour			221		233		262	
	THB/ FTE			251,280		275,540		313,876	
• Online Training	Hour			18		21		22	
	THB/ FTE			4,610		5,660		5,740	
<b>Average Training Hours and Costs by Age Group <sup>(10)</sup></b>									
• Below 30 years old	Hour			275		294		338	
	THB/ FTE			265,575		298,760		360,473	
• 30-50 years old	Hour			284		302		331	
	THB/ FTE			270,529		301,386		357,237	
• Over 50 years old	Hour			253		281		312	
	THB/ FTE			255,996		284,828		343,414	
<b>Average Training Hours and Costs by Employee Level <sup>(10)</sup></b>									
• Executives <sup>(3)</sup>	Hour			327		331		335	
	THB/ FTE			292,765		301,287		347,101	
• Management <sup>(4)</sup>	Hour			270		278		327	
	THB/ FTE			266,067		277,644		343,414	
• Non-management	Hour			275		281		309	
	THB/ FTE			265,873		298,495		350,682	
<b>Individual Development Plan</b>									
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	98		99		99		99	

People <sup>(6)</sup>	Unit	2020		2021		2022		2023	
		Male	Female	Male	Female	Male	Female	Male	Female
<b>Human Rights</b>									
<b>GRI 405-2: Gender Pay Ratio between Women and Men <sup>(9)</sup></b>									
Executives <sup>(3)</sup> (Base salary only)	Average THB/ Person			6,674,000	6,048,000	6,658,000	5,857,000		
Executives <sup>(3)</sup> (Base salary and other cash incentives)	Average THB/ Person			10,787,000	10,180,000	11,224,000	9,981,000		
Management <sup>(4)</sup> (Base salary only)	Average THB/ Person			2,227,000	1,937,000	2,269,000	1,991,000		
Management <sup>(4)</sup> (Base salary and other cash incentives)	Average THB/ Person			3,743,000	3,231,000	3,824,000	3,327,000		
Non-management (Base salary only)	Average THB/ Person			582,000	612,000	574,000	598,000		
Non-management (Base salary and other cash incentives)	Average THB/ Person			1,095,000	1,117,000	1,085,000	1,099,000		
Executives <sup>(3)</sup> (Base salary only)	Ratio of average salary of women to men			0.91		0.88			
Executives <sup>(3)</sup> (Base salary and other cash incentives)	Ratio of average salary of women to men			0.94		0.89			
Management <sup>(4)</sup> (Base salary only)	Ratio of average salary of women to men			0.87		0.88			
Management <sup>(4)</sup> (Base salary and other cash incentives)	Ratio of average salary of women to men			0.86		0.87			
Non-management (Base salary only)	Ratio of average salary of women to men			1.05		1.04			
Non-management (Base salary and other cash incentives)	Ratio of average salary of women to men			1.02		1.01			
<b>Employee Grievance</b>									
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	
<b>Labor Union</b>									
Number of employees in the Labor Union	Percent	74.65		75.24		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 074-075).
- (10) FTE or Full Time Equivalent is the number of working hours per full-time employee per year.

Society and Community Development	Unit	2020	2021	2022	2023
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	53,642	22,223	32,114	42,430
Community engagement score	Percent	94.89	96.74	95.85	95.19
Number of employee volunteer hours	Hour	16,470	12,488	6,450	7,488
Value of employee volunteering during paid hours	Million THB	12.4	5.12	4.61	4.66
Cost of management	Million THB	33	31	36	38.73

Supply Chain Management <sup>(1)</sup>	Unit	2020	2021	2022	2023
<b>Supplier Screening</b>					
Total number of Tier-1 suppliers	Number of suppliers			1,025	1,015
Total number of significant suppliers in Tier-1	Number of suppliers			41	37
Total spend on significant suppliers in Tier-1	Percent			23	11
Total number of significant suppliers in Non Tier-1	Number of suppliers			10	0
Total number of significant suppliers (Tier-1 and Non Tier-1 )	Number of suppliers			51	37
<b>Supplier Assessment</b>					
Total number of significant suppliers assessed via desk assessments/ on-site assessments	Number of suppliers			45	32
Significant suppliers assessed	Percent			88	86
Target of significant suppliers assessed	Percent			80	85
Number of significant suppliers assessed with substantial actual/ potential negative impacts	Number of suppliers			7	0
Significant suppliers with substantial actual/ potential negative impacts with agreed corrective action/ improvement plan	Percent			100	100
Number of significant suppliers with substantial actual/ potential negative impacts that were resolved	Number of suppliers			0	0
<b>Corrective action plan support</b>					
Total number of significant suppliers supported in corrective action plan implementation	Number of suppliers			7	0
Significant suppliers assessed with substantial actual/ potential negative impacts supported in corrective action plan implementation	Percent			100	100
Target of significant suppliers assessed with substantial actual/ potential negative impacts supported in corrective action plan implementation	Percent			100	100
<b>Capacity building programs</b>					
Total number of significant suppliers in capacity building programs	Number of suppliers			24	30
Significant suppliers in capacity building programs	Percent			47	81
Target of significant suppliers in capacity building programs	Percent			50	50
<b>GRI 308-1 and GRI 414-1 Suppliers</b>					
New suppliers acknowledged SCOC	Percent	100	100	100	100
Supplier satisfaction score	Percent	94	93	98	98

**Remarks:**

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

Customer Responsibility Management	Unit	2020	2021	2022	2023
<b>GRI 308-1 and GRI 414-8 Customers</b>					
Customer engagement index <sup>(1)</sup>	Percent	98	94	95	94

**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	2020	2021	2022	2023
Refinery throughput <sup>(1)</sup>	Metric Ton	13,478,448	13,664,652	14,294,851	14,938,285
Energy and chemicals production	Million barrels of crude oil equivalent (MBOE) <sup>(12)</sup>	98	97	104	109
<b>Environment-Related Expenditure</b>					
Total Environment-Related Expenditure	Million THB	11,991	15,294	23,405	19,712
• Capital investment on energy efficiency improvement	Million THB	57.4	425	13.14	0
• Expenses to operate environmental management system	Million THB	11,934	14,869	23,392	19,497
Investment benefits <sup>(11)</sup>	Million THB	112	65	74	215
<b>Energy Management and Greenhouse Gases <sup>(2), (4)</sup></b>					
Total energy consumption <sup>(2)</sup>	Million GJ	44.66	47.18	47.34	49.76
Refinery energy intensity	GJ/ BOE <sup>(12)</sup>	0.46	0.49	0.45	0.46
Non-renewable energy consumption	Million GJ	44.66	47.18	47.34	49.76
	Megawatt-Hour	12,404,307	13,108,617	13,149,763	13,820,127
Renewable energy consumption	Million GJ	0	0	0	5,060
	Megawatt-Hour	0	0	0	1,406
Total fuel consumption <sup>(2)</sup>	Million GJ	50.26	52.76	52.74	54.52
Refinery fuel consumption intensity	GJ/ BOE <sup>(12)</sup>	0.51	0.54	0.51	0.50
• Natural gas	Million GJ	33.1	33.32	34.43	34.38
• Fuel oil	Million GJ	5.195	4.30	4.27	4.94
• Fuel gas	Million GJ	10.85	14.07	12.87	14.34
• Coke	Million GJ	1.09	1.04	0.98	0.84
• LPG	Million GJ	Less than 0.01	Less than 0.01	Less than 0.01	Less than 0.01
• Diesel	Million GJ	0.021	0.016	0.019	0.016
• 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	972,237	980,290	1,059,335	1,123,932
	Million GJ	3.5	3.53	3.81	4.05
Electricity purchased from external source	Megawatt-Hour	0	0	0	21,561
Electricity sold <sup>(4)</sup>	Megawatt-Hour	1,556,176	1,548,619	1,499,678	1,324,051
Energy consumption reduction	GJ	762,264	312,741	138,473	464,839
Investments in renewable energy	Million THB	1,442	1,413	1,624	1,831
Direct greenhouse gas emissions (Scope 1) <sup>(3)</sup>	Million tons of CO2 equivalent	3.03	3.15	3.26	3.38
• Stationary combustion	Tons of CO2 equivalent			3,262,488	3,215,700
• Mobile Combustion	Tons of CO2 equivalent			1,516	1,377
• Fugitive emission	Tons of CO2 equivalent			0	0
• Process (Electricity distribution system/ Refrigerant-Cooling system/ Fire extinguisher)	Tons of CO2 equivalent				159,086
Indirect greenhouse gas emissions (Scope 2) <sup>(3)</sup>	Tons of CO2 equivalent	0	0	0	8,244
• Location based	Tons of CO2 equivalent				8,244
• Market based	Tons of CO2 equivalent				NAP
Greenhouse gas emissions intensity (Scope 1 and 2)	Tons of CO2 equivalent/ BOE <sup>(12)</sup>	0.031	0.032	0.031	0.031
Greenhouse gas emissions reduction (Scope 1) as a result of energy efficiency improvement projects	Tons of CO2 equivalent	51,084	17,545	16,759	28,003
Methane emission	Ton	61.59	61.20	63.39	63.97
	Percent of gross direct GHG emissions (Scope 1)	0.05	0.049	0.058	0.060
<b>Air Emission <sup>(5), (6)</sup></b>					
• Nitrogen Oxides emissions (NO <sub>x</sub> )	Ton	4,526	4,527	4,426	4,461
• Sulphur Oxides emissions (SO <sub>x</sub> )	Ton	6,612	5,197	6,542	6,889
• Volatile Organic Compounds emissions (VOCs)	Ton	1,297	1,270	1,275	1,137

Environmental Performance	Unit	2020	2021	2022	2023
<b>Waste Management</b>					
Total waste generated	Ton		5,889	11,250	14,273
<b>Total waste generated and managed</b>	<b>Ton</b>	<b>10,820</b>	<b>5,862</b>	<b>10,950</b>	<b>10,311</b>
• Hazardous waste generated	Ton	8,201	5,078	9,586	9,750
• Non-hazardous waste generated	Ton	2,619	784	1,364	561
<b>Total waste leftover onsite at the end of the year</b>	<b>Ton</b>		<b>27</b>	<b>327</b>	<b>3,962</b>
• Total hazardous waste leftover onsite at the end of the year	Ton		25	68	2,411
• Non-hazardous waste leftover onsite at the end of the year	Ton		2	259	1,551
<b>Total waste diverted from disposal</b>	<b>Ton</b>	<b>10,786</b>	<b>5,856</b>	<b>10,950</b>	<b>10,639</b>
<b>Onsite</b>	<b>Ton</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Total hazardous waste utilized	Ton	0	0	0	0
• By reusing	Ton	0	0	0	0
• By recycling	Ton	0	0	0	0
• Others <sup>(7)</sup>	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 <sup>(7)</sup>	Ton	0	0	0	0
<b>Offsite</b>	<b>Ton</b>	<b>10,786</b>	<b>5,856</b>	<b>10,950</b>	<b>10,639</b>
Total hazardous waste utilized	Ton	8,167	5,078	9,586	9,819
• By reusing	Ton	0	0	0	0
• By recycling	Ton	1,312	944	1,084	411
• Others <sup>(7)</sup>	Ton	6,855	4,134	8,502	9,408
Total non-hazardous waste utilized	Ton	2,619	778	1,364	820
• By reusing	Ton	0	0	0	0
• By recycling	Ton	2,448	432	441	0
• By recycling as alternative energy	Ton	171	346	923	820
• Others <sup>(7)</sup>	Ton	0	0	0	0
<b>Total waste disposed</b>	<b>Ton</b>	<b>34</b>	<b>6</b>	<b>0</b>	<b>0</b>
<b>Onsite</b>	<b>Ton</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
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 <sup>(7)</sup>	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 <sup>(7)</sup>	Ton	0	0	0	0
<b>Offsite</b>	<b>Ton</b>	<b>34</b>	<b>6</b>	<b>0</b>	<b>0</b>
Total hazardous waste disposed	Ton	34	0	0	0
• By incineration with energy recovery	Ton	0	0	0	0
• By incineration without energy recovery	Ton	6	0	0	0
• By landfill	Ton	0	0	0	0
• Others <sup>(7)</sup>	Ton	28	0	0	0
Total non-hazardous waste disposed	Ton	0	6	0	0
• By incineration with energy recovery	Ton	0	6	0	0
• By incineration without energy recovery	Ton	0	0	0	0
• By landfill	Ton	0	0	0	0
• Others <sup>(7)</sup>	Ton	0	0	0	0
<b>Oil and Chemical Spill <sup>(8)</sup></b>					
Significant oil and chemical spills on land	Case	0	0	0	0

Environmental Performance	Unit	2020	2021	2022	2023
Significant oil and chemical spills in the sea	Case	0	0	0	1
<b>Environmental Laws and Regulations Compliance</b>					
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		
		2020	2021	2022	2023			
<b>Water <sup>(9)</sup></b>								
Water withdrawal by source	Total seawater <sup>(10)</sup>	Million m <sup>3</sup>	18.41	18.19	18.19	19.74	0	
	• Freshwater (≤ 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	0	0	0	0	0	
	• Other water (> 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	18.41	18.19	18.19	19.74	0	
	Total water withdrawal from other sources	Million m <sup>3</sup>	3.34	3.88	3.67	4.16	0	
	• Freshwater (≤ 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	3.34	3.88	3.67	4.16	0	
	• Other water (> 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	0	0	0	0	0	
	Total third-party water withdrawal by source	Surface water	Million m <sup>3</sup>	3.34	3.88	3.67	4.16	0
		Groundwater	Million m <sup>3</sup>	0	0	0	0	0
		Seawater	Million m <sup>3</sup>	0	0	0	0	0
		Produced water	Million m <sup>3</sup>	0	0	0	0	0
Water withdrawal	From all water sources	Million m <sup>3</sup>	21.75	22.07	21.86	23.90	0	
Water discharge by destination	Discharged into the sea	Million m <sup>3</sup>	17.43	18.10	18.74	20.05	0	
Total water discharge <sup>(7)</sup>	All discharge destinations	Million m <sup>3</sup>	17.43	18.10	18.74	20.05	0	
Total water discharge by treatment level	Freshwater (≤ 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	0	0	0	0	0	
	Other water (> 1,000 mg/ L Total Dissolve Solids)	Million m <sup>3</sup>	17.43	18.10	18.74	20.05	0	
Water consumption for industrial purposes	Total water consumption	Million m <sup>3</sup>	4.32	3.97	3.11	3.84	0	
	Total net freshwater consumption in water-stressed areas <sup>(13)</sup>	Million m <sup>3</sup>	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 100 Barrels 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.