

# PTT Performance Summary

## Economic

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 201-1	<b>Direct economic value generated</b>					
	Sales revenues	Million baht	1,995,722	2,336,155	2,219,739	1,615,665
	<b>Economic value distributed</b>					
	Operating costs	Million baht	1,688,461	2,023,039	1,967,529	1,446,649
	Employee wages and benefits <sup>[1]</sup>	Million baht	10,683	9,953	9,865	8,149 <sup>[2]</sup>
	Dividend payments for the performance of the year	Million baht	57,108	57,123	57,125	28,563 <sup>[3]</sup>
	Social investment	Million baht	1,186	1,559	1,404	620
<b>Economic value retained</b>						
		Million baht	209,977	190,834	150,826	131,684
<b>Tax</b>						
GRI 201-4	Tax privileges from the Board of Investment, Thailand <sup>[4]</sup>	Million baht	6,180	1,525	0	0
"GRI 201-1 GRI 207-4 (2019) Tax Strategy"	Income taxes payment	Million baht	28,307	53,647	32,989	25,166

### Remarks:

[1] Employee wages and benefits for employees managed by PTT include: PTT's employees, PTT's secondment and employees in subsidiaries under PTT's financial management. The scope does not include the Chief Executive Officer and the top executives. Employee wages and benefits include salaries, bonuses, contributions to provident funds, etc. (if applicable).

[2] Employee wages and benefits in 2020 have decreased from 2019 to around 1,700 million baht due to:

- The notice of the minimum standards of employment conditions in state-owned enterprises from the State Enterprise Labor Relations Committee resulting in the increase of maximum threshold of compensation for retirees shown in the fiscal year 2019;
- Smaller amount of bonus paid correlating with decreasing revenue;
- Due to the COVID-19 pandemic, PTT announced a Work@Home policy, in accordance with the government's announcement, causing a decrease in travel expenses from both domestically and internationally and training expense in 2020 from 2019.

[3] Dividend payment from the 2<sup>nd</sup> half of 2020 performance is subjected to approval from the 2021 Annual General Meeting (AGM).

[4] Amount of PTT's Tax privileges only.

# Social

## People

GRI	Required Data	Unit	2017		2018		2019		2020		
			Male	Female	Male	Female	Male	Female	Male	Female	
GRI 102-8	Permanent employees	Manpower	3,073	1,614	2,303	1,412	2,200	1,378	2,157	1,349	
	Outsourced workers <sup>[1]</sup>	Service Point	2,139		1,019		1,051		1,058		
	Employees by area										
	• Bangkok	Manpower	1,586	1,398	1,128	1,216	1,042	1,181	1,015	1,154	
	• Others <sup>[2]</sup>	Manpower	1,451	199	1,148	181	1,131	186	1,123	189	
• Overseas	Manpower	36 <sup>[3]</sup>	17 <sup>[3]</sup>	27 <sup>[4]</sup>	15 <sup>[5]</sup>	27 <sup>[6]</sup>	11 <sup>[7]</sup>	19 <sup>[8]</sup>	6 <sup>[9]</sup>		
GRI 405-1	Employees by level and age group										
	Executive (Level 14-19)	%	3.29	1.81	3.23	2.34	3.41	2.43	3.54	2.42	
	• Over 50 years old	%	2.52	1.47	2.34	1.67	2.38	1.82	2.57	1.85	
	• 30-50 years old	%	0.77	0.34	0.89	0.67	1.03	0.61	0.97	0.57	
	• Below 30 years old	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Middle management (Level 11-13)	%	8.02	6.02	7.81	6.81	8.58	7.24	9.61	7.47	
	• Over 50 years old	%	3.39	2.52	2.77	2.69	2.74	2.77	2.80	3.05	
	• 30-50 years old	%	4.63	3.50	5.03	4.12	5.84	4.47	6.82	4.42	
	• Below 30 years old	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Senior (Level 9-10)	%	18.09	10.37	18.22	12.57	18.45	13.47	18.94	14.58	
	• Over 50 years old	%	4.42	2.20	3.74	2.02	3.63	2.10	3.71	1.83	
	• 30-50 years old	%	13.65	8.11	14.32	10.39	14.67	11.26	15.06	12.64	
	• Below 30 years old	%	0.02	0.06	0.16	0.16	0.14	0.11	0.17	0.11	
	Employee (Level 8 and below)	%	36.16	16.24	32.73	16.29	31.05	15.37	29.44	14.00	
	• Over 50 years old	%	1.79	0.47	1.24	0.32	1.17	0.28	1.03	0.23	
	• 30-50 years old	%	20.91	8.85	18.65	8.75	18.59	8.66	19.48	8.30	
• Below 30 years old	%	13.46	6.91	12.84	7.21	11.29	6.43	8.93	5.48		
GRI 401-1	Total new employees	Manpower	280		224		76		46		
	New employees	Manpower	149	131	120	104	33	43	24	22	
	New hire rate	%	3.18	2.79	3.23	2.80	0.92	1.20	0.68	0.63	
	New employees by area										
	• Bangkok	Manpower	109	118	92	91	15	29	7	14	
		%	2.33	2.52	2.48	2.45	0.42	0.81	0.20	0.40	
	• Other <sup>[2]</sup>	Manpower	40	13	28	13	18	14	17	8	
		%	0.85	0.28	0.75	0.35	0.50	0.39	0.48	0.23	
	New employees by age										
	• Over 50 years old	Manpower	0	1	2	0	1	0	1	0	
		%	0.00	0.02	0.05	0.00	0.03	0.00	0.03	0.03	
	• 30-50 years old	Manpower	11	21	12	22	7	8	4	5	
		%	0.23	0.45	0.32	0.59	0.20	0.22	0.11	0.14	
• Below 30 years old	Manpower	138	109	106	82	25	35	19	17		
	%	2.94	2.33	2.85	2.21	0.70	0.98	0.54	0.48		
Total employee turnover	Manpower	83		71		57		42			
Employee turnover rate	%	1.77		1.91		1.59		1.20			
Employee turnover	Manpower	44	39	44	27	29	28	22	20		

GRI	Required Data	Unit	2017		2018		2019		2020		
			Male	Female	Male	Female	Male	Female	Male	Female	
	Employee turnover rate by gender	%	0.94	0.83	1.18	0.73	0.81	0.78	0.63	0.57	
	Employee turnover by area										
	• Bangkok	Manpower	30	35	36	25	24	25	18	19	
		%	0.64	0.75	0.97	0.67	0.67	0.70	0.51	0.54	
	• Others <sup>2]</sup>	Manpower	14	4	8	2	5	2	4	1	
		%	0.30	0.09	0.22	0.05	0.14	0.06	0.11	0.03	
	Employee turnover by age <sup>[10]</sup>										
	• Over 50 years old	Manpower	7	9	7	5	5	3	10	7	
		%	0.15	0.19	0.19	0.13	0.14	0.08	0.29	0.20	
	• 30-50 years old	Manpower	18	17	26	15	14	21	8	12	
		%	0.38	0.36	0.70	0.40	0.39	0.59	0.23	0.34	
	• Below 30 years old	Manpower	19	13	11	7	10	4	4	1	
%		0.41	0.28	0.30	0.19	0.28	0.11	0.11	0.03		
GRI 401-3	Number of employees entitled to parental leave	Manpower	3,073	1,614	2,303	1,412	2,200	1,378	2,157	1,349	
	Number of employees taking parental leave	Manpower	79	44	66	49	68	40	63	43	
	Number of employees returning to work after parental leave	Manpower	79	44	65	48	68	35	63	39	
	Number of employees returning to work after parental leave who are still employed for the next 12 months	Manpower	70	38	0	0	0	0	0	0	
	Number of employees entitled to parental leave	%	88.61	86.36	0.00	0.00	0.00	0.00	0.00	0.00	
	Average hours of training per employee <sup>[11]</sup>	Hour per employee	37.85	43.51	76.69	68.78	71.25	74.81	32.72	28.74	

#### Remarks:

[1] Outsourced workers refers to contractors who deliver tasks specified in the annual TOR and do not include short-term outsourced workers during the year e.g. sub-contractors, consultants, housekeepers, etc.

[2] Others refers to other provinces outside Bangkok where PTT's offices are situated.

[3] Including employees working abroad in Cambodia, Laos, Myanmar, Malaysia, the Philippines, Singapore, Indonesia, England and the United States of America.

[4] Including employees working abroad in Cambodia, Myanmar, Malaysia, the Philippines, Singapore, Indonesia and England.

[5] Including employees working abroad in Cambodia, Laos, the Philippines, Singapore, Indonesia, England, China and the United States of America.

[6] Including employees working abroad in Cambodia, Laos, Myanmar, Malaysia, the Philippines, Singapore, Indonesia and England.

[7] Including employees working abroad in Cambodia, Laos, Singapore and England.

[8] Including employees working abroad in Myanmar, Malaysia, the Philippines, Singapore and England.

[9] Including employees working abroad in Singapore and England.

[10] Employee turnover excludes retirement and death.

[11] Hours of training and further study are included in the average hours of training per year per employee.





**Remarks:**

NR: Not relevant

- Working hours at service stations include those working at PTT-owned and operated stations only. Reporting includes total workforce only.
- Working hours at NGV Service Stations cover NGV Mother Station and PTT-owned and operated service stations only.

GRI	Required Data <sup>[7]</sup>	Unit	PTT			
			2020	2019	2018	2017
GRI 403-9 (2018) <sup>[1]</sup>	Lost workday case (LWC) <sup>[2]</sup>					
	• Employee	Person	2	1	0	1
	• Contractor <sup>[5]</sup>	Person	2	7	2	2
	Lost day rate (LDR)					
	• Employee	Lost day per 200,000 hours worked	1.01	0.07	0	0.09
	• Contractor <sup>[5]</sup>	Lost day per 200,000 hours worked	0.11	0.61	0.11	0.54
	Total recordable injuries case (TRIC) <sup>[3]</sup>					
	• Employee	Person	4	2	2	3
	• Contractor <sup>[5]</sup>	Person	8	16	3	8
	Total recordable injuries rate (TRIR) <sup>[3]</sup>					
	• Employee	Person per 200,000 hours worked	0.09	0.04	0.06	0.09
	• Contractor <sup>[5]</sup>	Person per 200,000 hours worked	0.04	0.09	0.04	0.12
	Lost time injury frequency rate (LTIFR) <sup>[3]</sup>					
	• Employee	Person per 200,000 hours worked	0.04	0.02	0	0.03
	• Contractor <sup>[5]</sup>	Person per 200,000 hours worked	0.01	0.04	0.03	0.03
	High-consequence work-related injuries <sup>[6]</sup> (excluding fatalities)					
	• Employee	Person	NA	NA	NA	0
	• Contractor <sup>[5]</sup>	Person	NA	NA	NA	0
High-consequence work-related injuries rate <sup>[6]</sup> (excluding fatalities)						
• Employee	Person per 1,000,000 hours worked	NA	NA	NA	0	
• Contractor <sup>[5]</sup>	Person per 1,000,000 hours worked	NA	NA	NA	0	
GRI 403-10 (2018)	Occupational illness frequency rate (OIFR) <sup>[3]</sup>					
	• Employee	Person per 200,000 hours worked	0	0	0	0
	• Contractor <sup>[5]</sup>	Person per 200,000 hours worked	NA	NA	0	0

GRI	Required Data <sup>[7]</sup>	Unit	PTT			
			2020	2019	2018	2017
GRI 403-10 (2018)	Work-related ill health for all employee					
	The number of fatalities as a result of work-related ill health	Person	0	0	0	0
	The number of cases of recordable work-related ill health	Person	0	0	0	0
	Work-related ill health for all contractors <sup>[6]</sup>					
	The number of fatalities as a result of work-related ill health	Person	0	0	0	0
	The number of cases of recordable work-related ill health	Person	0	0	0	0
GRI 403-9 (2018)	Absentee Rate (AR)					
	• Employee	%	1.64	1.58	1.44	0.90
	• Contractor <sup>[5]</sup>	%	NA	NA	NA	NA
	Fatalities as a result of work-related injury					
	• Employee	%	0	0	0	0
	• Contractor <sup>[5]</sup>	%	0	1 <sup>[4]</sup>	0	0
	Fatality rate as a result of work-related injury					
	• Employee	Person per 1,000,000 hours worked	0	0	0	0
	• Contractor <sup>[5]</sup>	Person per 1,000,000 hours worked	0	0	0	0
	Near Misses					
• Employee and Contractor <sup>[5]</sup>	Case	104	113	75	76	
Zero accident	Number of accidents from using corporate vehicles	Case	13	6	6	1
		Target	6	10	5	3
	Number of land transport accidents	Case per 1,000,000 km	0.05	0.01	0.02	0.00
		Target	0.05	0.05	0.04	0.03

**Remarks:**

NA: Not available

[1] The reporting boundary covers domestic operations only, not broken down at the regional level. OH&S data is also not broken down by gender because PTT equally regards the importance of safety for all, employees, in accordance with PTT's Code of Business Ethics. The data excludes contractors working on construction projects that have not yet been handed over to PTT, such as the Natural Gas Transmission Pipeline Project.

[2] Monitored by calendar day, and is recorded after the day on which the incident occurred. 2020 target is equal to zero.

[3] Do not include first aid cases.

[4] In 2018, there were accidents resulting in one fatality. PTT has investigated and taken actions to prevent recurrence. The incident was raised as a lesson-learned for relevant parties.

[5] Definition of contractors according to GRI 403: Occupational Health and Safety 2018 is all workers who are not employees but whose work and/or workplace is controlled by the organization

[6] Work-related injury that results in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within 6 months (exclude fatality).

[7] Workers were recategorized according to GRI 2016 for the year 2016-2018.





Reporting Scope	Year	PTT Operated Business														2020 Coverage (%)	
		PTT Building				Gas Separation Plant (GSP)	Gas Transmission (GTM)	Terminal			Retail	Lubrication	Transportation	NGV	Café Amazon Roasting Plant		
		Head Office	Prakanong Office	PTT Innovation Institute	Rayong Office			Gas Terminal	Oil Terminal	Aviation							
Sulphur dioxide (SO <sub>2</sub> )	2020	NR	NR	NR	NR	.	.	NR	NR	NR	NR	NR	NR	NR	NR	NR	100
	2019	NR	NR	NR	NR	.	.	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	2018	NR	NR	NR	NR	.	.	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	2017	NR	NR	NR	NR	.	.	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Volatile Organic Compounds (VOCs)	2020	NR	NR	NR	NR	.	.	.	.	NR	NR	NR	NR	NR	NR	NR	100
	2019	NR	NR	NR	NR	.	.	.	.	NR	NR	NR	NR	NR	NR	NR	
	2018	NR	NR	NR	.	.	.	.	.	.	NR	NR	NR	NR	.	.	
	2017	NR	NR	NR	.	NR	.	.	NA	NA	NA	NA	NA	NR	NA	NA	
Volume of methane (CH <sub>4</sub> ) emitted	2020	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	100
	2019	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	
	2018	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	
	2017	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	
Direct methane (CH <sub>4</sub> ) emissions	2020	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	100
	2019	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	
	2018	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	
	2017	.	.	.	.	.	.	.	.	.	.	.	.	.	NR	NR	

**Remarks:**

NA: Not available

NR: Not relevant

# Water

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 303-3 (2018)	Water withdrawal by source					
	Total water withdrawal	Million Liters	3,695.62	3,676.14	2,423.15	1,844.43
	Surface water	Million Liters	343.24	234.30	136.84	142.97
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	343.24	234.30	136.84	142.97
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Groundwater	Million Liters	135.08	148.70	37.07	44.16
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	135.08	148.70	37.07	44.16
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Produced Water	Million Liters	0.00	0.00	0.00	0.00
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Seawater	Million Liters	21.23	21.02	87.54	93.64
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	• Other water $>1,000$ mg/l TDS	Million Liters	21.23	21.02	87.54	93.64
	Third-party water	Million Liters	3,196.07	3,272.12	2,161.71	1,563.67
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	3,196.07	3,272.12	2,161.71	1,563.67
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Total water withdrawal from all areas with water stress	Million Liters	753.42	831.60	286.74	265.66
	Surface water	Million Liters	218.40	174.34	76.64	71.65
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	218.40	174.34	76.64	71.65
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Groundwater	Million Liters	19.08	35.38	35.27	38.33
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	19.08	35.38	35.27	38.33
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Produced Water	Million Liters	0.00	0.00	0.00	0.00
	• Freshwater $\leq 1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	• Other water $>1,000$ mg/l TDS	Million Liters	0.00	0.00	0.00	0.00

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
	Seawater	Million Liters	0.00	0.00	0.00	0.00
	• Freshwater $\leq$ 1,000 mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	• Other water >1,000 mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
	Third-party water	Million Liters	515.94	621.88	174.83	155.68
	- Surface water	Million Liters	515.94	621.88	174.83	155.68
	- Groundwater	Million Liters	0.00	0.00	0.00	0.00
	- Seawater	Million Liters	0.00	0.00	0.00	0.00
	- Produced Water	Million Liters	0.00	0.00	0.00	0.00
	• Freshwater $\leq$ 1,000 mg/l TDS	Million Liters	515.94	621.88	174.83	155.68
	• Other water >1,000 mg/l TDS	Million Liters	0.00	0.00	0.00	0.00
GRI 303-5 (2018)	Total water consumption	Million Liters	2,166.10	2,209.77	1,926.12	1,579.35
	• Total water consumption from areas without water stress area	Million Liters	1,734.72	1,763.76	1,660.36	1,334.02
	• Total water consumption from areas from water stress area	Million Liters	431.38	446.01	265.75	245.33

**Remarks:**

- Data collection and disclosure are adjusted in alignment with the GRI 303-3 Water Withdrawal (2018 Version).
- In 2020, the total volume of water withdrawal has decreased due to the Water Conservation project and the reduction of production from Rayong Gas Separation Plant Unit 1.
- Since 2019, OR's data is excluded from the scope, resulting in the reduction of water withdrawal.
- In 2018, surface water withdrawal decreased as PTT sold the WEcoZi asset. In addition, there were other sources of water withdrawal from other organizations to cover the scope of data collection and disclosure to service stations operated and owned by PTT launching in 2018.
- Revise 2017-2019 data for better accuracy.

## Effluents

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 303-4 (2018)	Total water discharge	Million Liters	1,529.52	1,466.04	497.03	265.08
	- Surface water	Million Liters	746.27	544.94	490.65	258.53
	- Groundwater	Million Liters	0.00	0.00	0.00	0.00
	- Seawater	Million Liters	10.56	10.22	5.98	6.01
	- Produced Water	Million Liters	772.69	910.88	0.40	0.54
	• Water discharge by Freshwater ( $\leq 1,000$ mg/l Total Dissolved Solids)	Million Liters	1,529.52	1,466.37	497.03	265.08
	• Water discharge by other water ( $> 1,000$ mg/l Total Dissolved Solids)	Million Liters	0.00	0.00	0.00	0.00

### Remarks:

- Data collection and disclosure are adjusted in alignment with the GRI 303-4 Water discharge (2018 version)
- Water discharge remained in line with the legal requirements
- Water discharge of the organization is in accordance with the definition prescribed in the regulation.
- Since 2019, the data excludes that of PTT Oil and Retail Business Public Company (Limited) - resulting in reduced overall water discharge
- Revise 2017-2019 data for better accuracy.

# Waste

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 306-2 (2016)	Waste from routine operations	Tonne	20,202.40	19,534.53	5,862.73	5,452.11
	Total hazardous waste disposal	Tonne	3,486.96	4,290.97	3,971.01	2,938.18
	• Secure landfill	Tonne	60.22	34.43	6.26	-
	• Reuse	Tonne	0.00	7.09	0.24	-
	• Recycle	Tonne	445.84	926.01	413.90	719.86
	• Recover	Tonne	2,501.32	2,946.80	3,029.51	1,997.50
	• Others (incineration, compositing, deep well injection)	Tonne	479.59	376.65	521.10	220.83
	Total non-hazardous waste disposal	Tonne	16,715.43	15,243.55	1,891.72	2,513.93
	• Landfill	Tonne	1,328.92	358.93	27.39	24.05
	• Reuse	Tonne	59.00	143.85	1.44	1.20
	• Recycle	Tonne	2,889.10	964.48	99.48	866.71
	• Recover	Tonne	247.68	433.59	554.00	254.10
	• Domestic waste	Tonne	12,159.47	13,079.20	953.35	1,116.95
	• Others (incineration, compositing, deep well injection)	Tonne	31.27	263.49	256.06	250.92
	Waste from non-routine operations (e.g. construction waste, spill clean-up waste, crisis management waste)	Tonne	1,252.67	489.45	1,844.52	324.11
	Total hazardous waste disposal	Tonne	1,009.61	0.45	5.26	0.45
	• Secure landfill	Tonne	43.05	-	-	-
	• Reuse	Tonne	-	-	-	-
	• Recycle	Tonne	0.76	0.03	-	-
	• Recover	Tonne	950.76	0.00	2.54	0.45
• Others	Tonne	15.04	0.42	2.72	-	
GRI 306-2 (2016)	Total non-hazardous waste disposal	Tonne	243.05	489.00	1,839.26	323.66
	• Landfill	Tonne	0.00	0.00	-	-
	• Reuse	Tonne	208.25	489.00	1,838.00	-
	• Recycle	Tonne	33.34	-	-	5.00
	• Recover	Tonne	-	-	1.26	-
	• Domestic waste	Tonne	1.46	0.00	-	0.65
	• Others (incineration, compositing, deep well injection)	Tonne	-	-	-	318.01
	On-site waste storage	Tonne	102.93	225.36	95.67	29.78
• Hazardous waste	Tonne	81.81	52.78	83.69	21.73	
• Non-hazardous waste	Tonne	22.11	172.58	11.98	8.05	

## Remarks:

- Waste to landfill from PTT's routine operations is separated from the beginning, allowing for more appropriate waste disposal methods and alignment with the Group Strategic Goal 2020 "Zero industrial waste to landfill"
- The amount of waste from non-routine operations includes waste generated from the construction of capital projects, oil and chemical spills management, and risk & crisis management.
- There is no established minimum threshold for hazardous waste reporting but all operations must report their total volume of hazardous waste sent for disposal.
- Domestic waste disposed by municipality cannot be tracked on disposal method; either landfill and/or incineration due to limited access to municipal data.
- Since 2019, performance data does not include OR's domestic waste and therefore resulting in decreased domestic waste volume.
- Revise 2017-2019 data for better accuracy.
- Other hazardous waste disposal method covers incineration, compositing, deep well injection etc.
- Other non-hazardous waste disposal method covers incineration, compositing, deep well injection etc.

# Spills

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 306-3 (2016)	Oil and chemical spills					
	From PTT operational boundary					
	• Number of hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): truck transportation					
	• Number of hydrocarbon spills	Number of spills	3	0	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	18.66	0.00	0.00	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): ship and barge transportation					
	• Number of hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	Significant spill (Volume ≥ 100 barrel)					
	From PTT operational boundary					
	• Number of hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
• Number of non-hydrocarbon spills	Number of spills	0	0	0	0	
• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00	
GRI 306-3 (2016)	From 3 <sup>rd</sup> party (transportation): truck transportation					
	• Number of hydrocarbon spills	Number of spills	0	2	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	59.00	0.00	0.00
GRI 306-3 (2016)	• Number of non-hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	From 3 <sup>rd</sup> party (transportation): ship and barge transportation					
	• Number of hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00
	• Number of non-hydrocarbon spills	Number of spills	0	0	0	0
	• Volume of non-hydrocarbon spills	m <sup>3</sup>	0.00	0.00	0.00	0.00

## Remarks:

- Volume of hydrocarbon and non-hydrocarbon spills include spills which occur in operational areas, as well as those from truck and shipping transportation, that result in a volume of more than 1 barrel of oil spilled to the environment. In spill cases, PTT executes spill response procedures to control spills within the shortest time possible in order to minimize widespread environmental impacts, for instance, with the use of booms and skimmers.

# Emissions

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 305-7 (2016)	Volatile Organic Compounds (VOCs)	Tonne	10,384.24	9,670.56	1,995.88	1,800.71
	VOCs Intensity	Tonne per million barrel oil equivalent (mboe)	25.47	23.66	5.37	5.00
	Nitrogen oxides (NOx)	Tonne	1,097.85	1,033.61	888.47	795.59
	NOx intensity	Tonne per million barrel oil equivalent (mboe)	2.69	2.53	2.39	2.21
	Sulphur dioxide (SO <sub>2</sub> )	Tonne	106.58	60.00	48.79	26.91
	SO <sub>2</sub> intensity	Tonne per million barrel oil equivalent (mboe)	0.26	0.15	0.13	0.07

**Remarks:**

- Strategic Objective 2020: Zero emission rate of SO<sub>2</sub>, NOx, and VOCs.
- SO<sub>2</sub> and NOx emissions from all facilities remain below the legal threshold for air quality.
- In 2019, data excludes that of OR, resulting in decreased VOCs emissions
- Revise 2019 data for better accuracy.



# Energy

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
GRI 302-1 (2016)	Total direct energy consumption	GJ	45,351,329	44,415,197	45,464,198	41,975,966
	Total indirect energy consumption	GJ	2,330,158	2,340,957	1,968,011	1,703,994
	• Electricity purchased	GJ	2,330,158	2,340,957	1,968,011	1,703,994
	Total energy sold	GJ	0	0	0	0
	• Electricity sold	GJ	0	0	0	0

GRI	Required Data	Unit	PTT Group			
			2017	2018	2019	2020
GRI 302-1 (2016)	Total energy consumption	GJ	330,098,149	314,737,645	309,966,042	335,237,634
	Total direct energy consumption • PTT operational control	GJ	314,370,090	300,101,305	294,432,610	321,786,919
	Total indirect energy consumption	GJ	15,728,059	14,636,340	15,532,720	13,450,716
GRI 302-3 (2016)	Direct energy intensity					
	• Oil and gas production	GJ/mboe	188,682	205,577	198,080	212,244
	• Refinery	GJ/Tonne refinery throughout	2.42	1.57	1.51	1.55
	• Petrochemical	GJ/Tonne petrochemical throughout	8.29	5.62	5.60	5.77

## Remarks:

- The organizational boundary of PTT Group based on the equity share approach includes all domestic subsidiaries in which PTT directly owns more than 20% of shares or indirectly owns 100% of shares.
- PTT's indirect energy consumption solely comes from electricity purchase.

# GHG Emissions

GRI	Required Data		Unit	PTT			
				2017	2018	2019	2020
	Total GHG emissions	Tonne CO <sub>2</sub> equivalent		11,280,532	11,211,694	11,813,668	11,230,599
GRI 305-1 (2016)	Direct (Scope 1) GHG emissions	Tonne CO <sub>2</sub> equivalent		11,050,978	10,985,990	11,637,769	11,049,816
GRI 305-2 (2016)	GHG Scope 2	Tonne CO <sub>2</sub> equivalent		229,554	225,704	204,511	180,782
GRI 305-3 (2016)	GHG Scope 3	Tonne CO <sub>2</sub> equivalent		124,488,019	127,046,865	81,862,930	75,115,542

GRI	Required Data		Unit	PTT Group			
				2017	2018	2019	2020
GRI 305-1 (2016)	GHG Scope 1						
	• PTT operational control	Tonne CO <sub>2</sub> equivalent		30,163,397	29,880,469	29,938,655	28,971,192
	• PTT equity share	Tonne CO <sub>2</sub> equivalent		20,047,851	20,186,466	20,590,912	19,691,449
GRI 305-2 (2016)	GHG Scope 2						
	• PTT operational control	Tonne CO <sub>2</sub> equivalent		1,669,446	1,437,035	1,530,104	1,229,452
	• PTT equity share	Tonne CO <sub>2</sub> equivalent		921,565	818,830	850,142	644,090
GRI 305-3 (2016)	GHG Scope 3	Tonne CO <sub>2</sub> equivalent		124,488,019	127,046,865	126,355,782	116,150,201
GRI 305-4 (2016)	GHG Intensity						
	• Oil and gas production	Tonne CO <sub>2</sub> equivalent/Million barrel oil equivalent		38,257	38,672	36,398	38,247
	• Refinery	Tonne CO <sub>2</sub> equivalent/Ton refinery throughput		0.1540	0.1275	0.1324	0.1441
	• Petrochemical	Tonne CO <sub>2</sub> equivalent/Tonne petrochemical product		0.5782	0.3857	0.3995	0.4423

## Remarks:

- The organizational boundary of PTT Group based on the equity share approach which includes all domestic subsidiaries that PTT directly holds more than 20% of shares or indirectly holds 100% of shares.
- Scope 3 emissions includes the combustion of fuel sold by PTT only.
- In 2017, PTT sold equity shares of PTTAC, PTTMCC, PTTPL, PTTTPM and HMC to PTTGC.
- 2019 other indirect GHG emissions includes emissions from the combustion of fuel sold by PTT and PTTOR only.

# Methane Emissions

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
	Volume of methane emitted (leakage, venting, and flaring)	m <sup>3</sup>	24,873,057	25,663,465	25,298,193	25,808,053
	Direct CH4 emissions (extracted from GHG)	Tonne	16,807	17,339	17,092	17,436
G4-OG6	Volume of flared hydrocarbon	Mm <sup>3</sup>	155,751	192,662	198,481	118,880
	Volume of vented hydrocarbon	Mm <sup>3</sup>	30,317	23,911	21,143	19,630

GRI	Required Data	Unit	PTT Group			
			2017	2018	2019	2020
	Volume of methane emitted (leakage, venting, and flaring)	m <sup>3</sup>	64,181,617	63,556,610	67,111,071	58,338,103
	Direct CH4 emissions (extracted from GHG)	Tonne	43,448	43,023	46,751	39,469
G4-OG6	Volume of flared hydrocarbon	Mm <sup>3</sup>	1,224,651	1,282,503	1,167,933	1,004,366
	Volume of vented hydrocarbon	Mm <sup>3</sup>	30,636	24,003	21,219	17,046

## Remarks:

- The volume of methane emitted includes leakage (fugitive), gas vented from processes (CO2 separation and ethylene production), methane emitted from vented emissions, and flaring.
- Direct CH4 emissions include those from aforementioned sources, as well as direct CH4 emitted from combustion sources.

# Environmental Management

GRI	Required Data	Unit	PTT			
			2017	2018	2019	2020
2.2.3 Environmental Policy/ Management System						
	Capital investments	Million Baht	123	163	55	6
	Operating expenses	Million Baht	322	331	348	323
	Total expenses (Capital Investment + Operating Expense)	Million Baht	445	494	403	329
	Savings, cost avoidance, income, tax incentives, etc.	Million Baht	285	43	288	42
	Operations covered (by revenue, production volume, or employees, etc.)	%	100	100	100	100
2.2.4 Environmental Violations						
GRI 307-1 (2016)	Number of violations of legal obligations/regulations	Case	0	0	0	0
	Amount of fines/penalties related to the above	Baht	0	0	0	0
	Environmental liability accrued at year end	Baht	0	0	0	0

## Remarks:

- Environmental investment refers to investment made to gain environmental assets, specifically for PTT
- Since 2016, PTT improved the methodologies for completeness and to be in accordance with the Environmental Management Accounting Procedures and Principles developed by the United Nations. Return on environmental investment calculation was improved by including the projects registered under PTT's Productivity Improvement Circle Programs.
- Eventhough PTT's and Oil Retail Business' assets have been separated since July 1st, 2018; environmentally-related assets has increased compares to 2017. In 2018, PTT worked to raise investment for implementation of Selective Catalyst Reduction (SCR) type NOx emission reduction system at Waste Heat Recovery Unit (WHRU) of Gas Separation Plan No. 5, and was able to raised more.
- In 2019, PTT has developed e-Expense system, enabling more comprehensive collection of corporate environmental expenditure. PTT is also investing in 'Regenerative Thermal Oxidizer (RTO) type remover of hydrogen sulfide contaminantin acaidic gaseous by-product' and 'SO2 Scrubber' of Natural gas Separation Plan No.5, Rayong.'