

GRI Standards	Required Data	Unit	Data Collection Period											
			2020 ⁽¹⁾			2021 ⁽²⁾			2022			2023		
			Thailand	International	Global	Thailand	International	Global	Thailand	International	Global	Thailand	International	Global
	Flare	Tonne CO ₂ equivalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,560,291	489,174	3,049,465
	Stationary combustion	Tonne CO ₂ equivalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,027,215	777,227	2,804,442
	Mobile combustion	Tonne CO ₂ equivalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	340,584	272,638	613,222
	Process and vent	Tonne CO ₂ equivalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	18,244	18,635	36,879
	Fugitive	Tonne CO ₂ equivalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	78,721	161,498	240,219
305-2 (11-1)	Indirect GHG emissions (Scope 2)													
	Location based	Tonne CO ₂ equivalent	6,382	7,990	14,372	7,426	6,558	13,984	8,259	6,659	14,918	8,542	8,781	17,323
	Market based		6,382	7,990	14,372	7,426	6,558	13,984	8,259	6,659	14,918	8,542	8,781	17,323
305-3 (11-1)	Other relevant indirect GHG emissions - Comprised of business travel and downstream transportation and distribution	Tonne CO ₂ equivalent	11,414	888	12,302	9,006	496	9,502	16,356	1,472	17,828	23,681	2,770	26,451
305-4 (11-1)	GHG intensity	Tonne CO ₂ equivalent/ thousand tonne production	269.64	235.30	258.79	260.65	147.85	223.47	285.52	148.41	234.34	253.6	136.3	208.0
GRI 11 Flare and Vent														
11-1	Total flaring	MMSCF	39,915	11,753	51,668	42,445	6,469	48,914	41,133	7,163	48,296	44,377	7,236	51,613
	Hydrocarbon flaring	Tonne	990,131	540,503	1,530,634	1,015,829	623,140	1,638,969	988,954	629,754	1,618,708	1,079,671	708,846	1,788,517
	Hydrocarbon flaring intensity	Tonne/ thousand tonne production	69.19	81.80	73.17	65.48	81.70	70.83	64.38	68.84	66.05	54.15	55.82	54.80
	Total venting	MMSCF	NA	NA	NA	NA	NA	NA	0	86	86	0	786	786
	Hydrocarbon venting	Tonne	NA	NA	NA	NA	NA	NA	0	2,038	2,038	0	18,635	18,635
	Hydrocarbon venting intensity	Tonne/ thousand tonne production	NA	NA	NA	NA	NA	NA	0	0.22	0.08	0	1.47	0.57
GRI: 305, 11 Emissions														
305-6	Ozone-depleting substances (hydrochlorofluorocarbon: HCFC) ⁽⁷⁾	Kg of CFC11 equivalent	41	18	59	17	12	29	30	15	45	6	18	24
305-7 (11-3)	Volatile organic compounds (VOCs)	Tonne VOC	14,945	8,201	23,146	15,360	9,461	24,821	15,024	9,570	24,594	16,560	10,851	27,411
	VOCs intensity	Tonne VOC/ thousand tonne production	1.04	1.24	1.11	0.99	1.24	1.07	0.98	1.05	1.00	0.83	0.85	0.84
	Nitrogen oxides (NOx)	Tonne NO ₂	7,131	5,284	12,415	8,364	6,073	14,437	10,842	6,513	17,355	18,692	10,628	29,320
	NOx intensity	Tonne NO ₂ / thousand tonne production	0.50	0.80	0.59	0.54	0.80	0.62	0.71	0.71	0.71	0.94	0.84	0.90
	Sulfur oxides (SOx)	Tonne SO ₂	313	358	671	434	448	882	714	488	1,202	1,399	864	2,263
	SOx intensity	Tonne SO ₂ / thousand tonne production	0.02	0.05	0.03	0.03	0.06	0.04	0.05	0.05	0.05	0.07	0.07	0.07
	Direct methane emission	Tonne	7,151	6,455	13,606	4,789	3,275	8,064	6,963	7,843	14,806	6,944	8,430	15,374
GRI: 306, 11 Spills														
306-3	Spills	Case	7	4	11	7	1	8	6	3	9	7	3	10

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	Other water (>1,000 mg/L Total Dissolved Solids)	Million cubic meter	5.43	0	5.43	4.83	0	4.83	5.56	0	5.56	9.04	0	9.04
	Water discharged to surface water	Million cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
	Water discharged to ground water	Million cubic meter	8.25	0	8.25	0	0	0	0	0	0	0	0	0
	Water discharged to seawater	Million cubic meter	0	5.43	5.43	0	4.57	4.57	0	4.96	4.96	0	2.98	2.98
	Third-party water discharged	Million cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
	Injection from produced water and process wastewater	Million cubic meter	7.69	0	7.69	7.91	0	7.91	8.64	0	8.64	13.19	0	13.19
11-6	Produced water discharged	Million cubic meter	NA	NA	NA	NA	NA	NA	0	4.96	4.96	0	2.98	2.98
	Process wastewater discharged	Million cubic meter	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0
	Produced water	Million cubic meter	7.82	5.65	13.47	7.79	4.57	12.36	8.46	4.96	13.42	12.57	2.98	15.55
	Injection	Million cubic meter	7.52	0	7.52	7.79	0	7.79	8.46	0	8.46	12.57	0	12.57
	Disposed by evaporation	Million cubic meter	0.301	0.000	0.301	0.000	0.000	0.000	0.004	0.000	0.004	0.004	0.000	0.004
	Treated & discharged	Million cubic meter	0	5.65	5.65	0	4.57	4.57	0	4.96	4.96	0	2.98	2.98
	Disposed by waste processor	Million cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
	Process wastewater	Million cubic meter	0.17	0	0.17	0.12	0	0.12	0.18	0	0.18	0.62	0	0.62
	Injection	Million cubic meter	0.17	0	0.17	0.12	0	0.12	0.18	0	0.18	0.62	0	0.62
	Disposed by waste processor	Million cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
	Treated & discharged	Million cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
GRI: 303 (2018), 11 Water Consumption														
303-5 (11-6)	Total net freshwater consumption (A+B+C-D)	Million cubic meter			0.66			0.65			0.71			0.76
	A. Withdrawal: total municipal water supplies (or from other water utilities)	Million cubic meter			0.09			0.08			0.14			0.30
	B. Withdrawal: Fresh surface water (lakes, rivers, etc.) excluding seawater	Million cubic meter			0.03			0.03			0.03			0.05
	C. Withdrawal: fresh groundwater	Million cubic meter			0.54			0.54			0.54			0.41
	D. Discharge: Water returned to the source of extraction at similar or higher quality as raw water extracted (only applies to B and C)	Million cubic meter			0			0			0			0
	Total water consumption from all areas with water stress (A+B+C-D)	Million cubic meter			0.56			0.57			0.57			0.49

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			Thailand	International	Global	Thailand	International	Global	Thailand	International	Global	Thailand	International	Global
	A. Withdrawal: total municipal water supplies with water stress (or from other water utilities)	Million cubic meter			0.02			0.03			0.03			0.10
	B. Withdrawal: Fresh surface water with water stress (lakes, rivers, etc.) excluding seawater	Million cubic meter			0			0			0			0
	C. Withdrawal: fresh groundwater with water stress	Million cubic meter			0.54			0.54			0.54			0.39
	D. Discharge with water stress: Water returned to the source of extraction at similar or higher quality as raw water extracted (only applies to B and C)	Million cubic meter			0			0			0			0
	Total net fresh water consumption ⁽²⁰⁾ (A-B)	Million cubic meter			0.24			0.65			0.53			0.14
	A. Water withdrawal (excluding saltwater)	Million cubic meter			14.14			13.02			14.13			16.31
	B. Water discharge (excluding saltwater)	Million cubic meter			13.90			12.37			13.60			16.17
GRI: 306 Waste ^{(13) (14) (15) (16)}														
(2020), 11														
306-3 (11-5)	Total Waste Generated	Tonne	174,384	1,971	176,355	158,188	12,332	170,520	232,492	1,013	233,505	422,144	15,648	437,792
	Hazardous waste generated	Tonne	111,841	1,020	112,861	62,775	1,738	64,513	50,592	917	51,509	49,674	1,048	50,722
	Non-hazardous waste generated	Tonne	62,543	951	63,494	95,413	10,594	106,007	181,900	96	181,996	372,470	14,600	387,070
	Total Waste Disposed and Recycled	Tonne	144,290	2,122	146,412	144,866	1,500	146,366	274,980	257	275,237	422,939	16,882	439,821
	Hazardous waste disposed and recycled	Tonne	81,767	1,194	82,961	53,560	1,220	54,780	50,298	165	50,463	49,616	2,271	51,887
	Non-hazardous waste disposed and recycled	Tonne	62,523	928	63,451	91,306	280	91,586	224,682	92	224,774	373,323	14,611	387,934
306-4 (11-5)	Waste diverted from disposal ⁽¹⁸⁾	Tonne	118,914	789	119,703.5	137,938.0	25.0	137,963.0	266,213.0	17.2	266,230.2	414,227.2	14,352.8	428,580.0
	Hazardous waste diverted from disposal	Tonne	57,084	6	57,090	47,477.0	6.0	47,483.0	42,990.0	0.1	42,990.1	42,967.0	5.0	42,972.0
	Preparation for reuse	Tonne	2	2	5	0	1.0	1.0	0	0.1	0.1	0	4.0	4.0
	Recycling	Tonnes	57,082	4	57,085	42,391.0	5.0	42,396.0	42,990.0	0	42,990.0	42,967.0	1.0	42,968.0
	Other recovery operations	Tonne	0	0	0	5,086.0	0	5,086.0	0	0	0	0	0	0
	Exported hazardous waste under the Basel Convention	Tonne	0	0	0	0	0	0	0	0	0	0	0	0
	Non-hazardous waste diverted from disposal	Tonne	61,830	783	62,613	90,461.0	19.0	90,480.0	223,223.0	17.1	223,240.1	371,260.2	14,347.8	385,608.0
	Preparation for reuse	Tonne	4.5	0.1	5	2.0	0.0	2.0	0.0	0.1	0.1	0.0	0.4	0.4
Recycling	Tonne	8,400	1.0	841	1,382.0	13.0	1,395.0	2,352.0	17.0	2,369.0	1,235.0	92.0	1,327.0	

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304-1 (11-4)	Total number of sites and areas in close proximity to critical biodiversity	Number of sites	1	1	2	1	1	2	1	1	2	1	2	3
		Area (Hectare)	23,200	77	23,277	23,200	77	23,277	5	66	71	5	138	143
		%	1.80	0.01	0.82	1.80	0.01	0.82	0.05	5.02	0.58	0.03	7.67	0.55
	Total number of sites and areas in close proximity to critical biodiversity that have a biodiversity management plan	Number of sites	1	1	2	1	1	2	1	1	2	1	2	3
		Area (Hectare)	23,200	77	23,277	23,200	77	23,277	5	66	71	5	138	143
	Total number of sites and areas in close proximity to critical biodiversity that the progress of biodiversity management plans are monitored	Number of sites	NA	NA	NA	NA	NA	NA	1	1	2	1	2	3
Area (Hectare)		NA	NA	NA	NA	NA	NA	5	66	71	5	138	143	
Environmental Management and Legal Compliance ⁽¹⁸⁾														
	Total expenses	Million USD	16.17			17.65			21.07			113.86		
	Capital investments	Million USD	5.90			6.67			3.39			107.51		
	Operating expenses	Million USD	10.27			10.98			17.68			6.35		
	Saving, cost avoidance income, etc.	Million USD	27.83			36.69			73.38			25.85		
2-27	Amount of significant environmental fines / penalties (more than \$10,000 USD)	USD	0			0			0			0		
	Significant Environmental violations	Number of violations of legal obligations / regulations	0			0			0			0		
	Total actual and opportunity costs from water-related incidents	USD	0			0			0			0		
	Significant Environmental liability accrued at year end	USD	0			0			0			0		
Renewable Generation for 3 rd Party ⁽¹⁹⁾														
	Gross generation	GWh	NA			0.23			0.2426			9.2320		
	Solar		NA			0.23			0.2400			9.2294		
	Wind		NA			0.23			0.0026			0.0026		
	Installed capacity	MW	NA			0.25			0.2512			10.2312		
	Solar		NA			0.25			0.2500			10.2300		
	Wind		NA			0.25			0.0012			0.0012		

Remarks:

- ⁽¹⁾ Since 2020, international column includes Myanmar and Malaysia assets.
- ⁽²⁾ In 2021, G2 asset in Thailand column includes activities during transition period only.
- ⁽³⁾ Since 2021, total direct energy consumption separated into 2 categories, non-renewable energy consumption and renewable energy consumption.
- ⁽⁴⁾ Total indirect energy consumption by primary energy source (electricity purchased) calculation in 2020-2022 is revised, and reflects to total energy intensity.
- ⁽⁵⁾ GHG emissions from well service venting is not included.
- ⁽⁶⁾ Since 2022, GHG emission factor from indirect emission of Malaysia is revised by using 2017 CDM Electricity Baseline for Malaysia.
- ⁽⁷⁾ Ozone-depleting substances (ODS) includes Hydrochlorofluorocarbon (HCFC) only.
- ⁽⁸⁾ Volume of significant hydrocarbon spill is over than 1 barrel.
- ⁽⁹⁾ Since 2020, water and effluent data was reported in accordance to GRI: 303 (2018).
- ⁽¹⁰⁾ Total water withdrawal from all areas has increased due to include produced water in accordance to GRI: 303 (2018).
- ⁽¹¹⁾ Since 2018, water risk assessment has covered international assets, including Myanmar and Malaysia.
- ⁽¹²⁾ Since 2020, water stress area classified by WRI Aqueduct Tool.

⁽¹³⁾ Waste generation and disposal include both production and drilling activities.

⁽¹⁴⁾ The difference between waste generation and disposal amount is accounted for on-site storage.

⁽¹⁵⁾ Since 2021, waste disposal data was reported in accordance to GRI: 306 (2020).

⁽¹⁶⁾ The waste disposal method used by the company has been re-aligned with the GRI waste grouping, resulting in GRI 306 waste reporting from 2021 to 2023.

⁽¹⁷⁾ Total number and the total area of your own operational sites mean operational sites where PTTEP has operational control, located in or adjacent to protected areas and areas of high biodiversity value outside protected areas.

⁽¹⁸⁾ Environmental expenditure is based on a new systematic environmental management accounting methodology as PTT Group Guideline, which has been implemented in Q3, 2019 onward.

⁽¹⁹⁾ The renewable generation (Solar and Wind) for 3rd party including Energy Complex Co., Ltd. under PTTEP subsidiary.

⁽²⁰⁾ Total net fresh water consumption definitions are referred by DJSI, 2024

NA: Not Applicable

ND: No Data
