

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED

CONSOLIDATED AND SEPARATE FINANCIAL STATEMENTS

31 December 2020

Independent Auditor's Report

To the Shareholders of PTT Exploration and Production Public Company Limited

My opinion

In my opinion, the consolidated financial statements and the separate financial statements present fairly, in all material respects, the consolidated financial position of PTT Exploration and Production Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial position of the Company as at 31 December 2020, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRS).

What I have audited

The consolidated financial statements and the separate financial statements comprise:

- the consolidated and separate statements of financial position as at 31 December 2020;
- the consolidated and separate statements of income for the year then ended;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then ended; and
- the notes to the consolidated and separate financial statements, which include significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated and separate financial statements section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants issued by the Federation of Accounting Professions that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key audit matters

Key audit matters are those matters that, in my professional judgement, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Key audit matter	How my audit addressed the key audit matter
<p><i>Impairment assessments of goodwill and long-lived assets</i></p> <p>As at 31 December 2020, the Group has goodwill net of allowance for impairment of US Dollar 1,903.80 million, long-lived assets comprising property, plant and equipment net with allowance for impairment of US Dollar 9,837.54 million, and exploration and evaluation assets net of allowance for impairment of US Dollar 2,886.22 million. The total net value of these assets represents 65% of the total consolidated assets. During 2020, the Group recognised an impairment loss for property, plant and equipment and the exploration and for evaluation assets in the amount of US Dollar 47.93 million and US Dollar 43.65 million, respectively as disclosed in Note 24. No impairment charge was recognised against the goodwill balance in the 2020 financial year as disclosed in Note 21.</p> <p>Management tests impairment of goodwill annually and tests impairment of long-lived assets whenever there is an indicator that these assets may be impaired. The impairment test is performed at the level of the cash generating unit (CGU).</p> <p>The determination of the recoverable amount (the higher of value in use or fair value less costs of disposal) of the CGUs, which are long-lived assets and goodwill, requires management's significant judgement in identifying both the relevant CGUs and assumptions used in the valuation. The assumptions include global oil price trends, estimated petroleum reserves, exploration plans, production plans, cost profiles, growth rate and discount rate applied to the discounted cash flow forecasts.</p> <p>The management considered the following factors in assessing whether there were any impairment indicators:</p> <ul style="list-style-type: none">• unsuccessful exploration during the year• the recent significant decrease in global oil prices• changes to exploration plans, and• changes to petroleum reserves estimate.	<p>I carried out the following procedures to assess management's impairment testing of goodwill and long-lived assets:</p> <ul style="list-style-type: none">• Evaluated the appropriateness of impairment indicators assessed by the management.• Evaluated the appropriateness of management's identification of the Group's CGUs and the controls over the impairment assessment process.• Held discussions with the management to understand the basis of the assumptions used in the estimation of discounted cash flow and assessed whether the impairment testing process and assumptions had been applied consistently across the Group.• Challenged management's significant assumptions used in impairment testing for goodwill and long-lived assets, specifically global oil price trends, petroleum reserves estimate, exploration plans, production plans, cost profiles, growth rate and discount rate. The procedures included comparing the key assumptions to the external sources and to the approved business plan.• Assessed the reasonableness of the business plan by comparing the plans of 2020 with actual results.• Assessed the discount rate by taking into account data from publicly available information for other companies in the industry, obtained independently by the auditor's expert, to see whether the discount rate used by management was within an acceptable range compared with other companies in the industry.• Tested the sensitivity analysis over key assumptions in the model prepared by the management. This was to assess factors sensitive to assumptions and the potential impact of a range of possible outcomes. <p>Based on the results of the procedures performed, I determined that the key assumptions used by the management were reasonable and within the acceptable range. They were consistent with supporting evidence.</p>

Key audit matter	How my audit addressed the key audit matter
<p>I focused on the impairment assessment of these assets due to their significant values and the fact that determining the recoverable amount depends on a number of assumptions and judgements to determine the appropriate level of impairment to be recognised.</p> <ul style="list-style-type: none"> • goodwill of US Dollar 974.56 million arising from the acquisition of the exploration and production business in Southeast Asia and goodwill of US Dollar 725.96 million arising from the acquisition of the exploration and production business in Africa, and • long-lived assets of US Dollar 12,723.76 million. 	
<p><i>Fair value estimate from the 2019 business acquisition</i></p> <p>As for the business acquisition of Murphy Oil Corporation in Malaysia on 10 July 2019 as disclosed in Note 38, during 2020, the Group measured the fair value of net identifiable assets acquired, which reflected additional information obtained about the facts and circumstances that existed as of the acquisition date of the business combination. This information affected the fair value of the net identifiable assets and goodwill as reported in the financial statements for the year ending 31 December 2019 which the measurement period did not exceed one year from the acquisition date in accordance with the requirements of Thai Financial Reporting Standard No. 3 (TFRS 3) - Business combinations.</p> <p>The management assigned geologists and reservoir engineers to assess the estimates of petroleum reserve in the Malaysian assets, using production plan and investment plan as the key assumptions. The Group found that the petroleum reserve estimate was higher than initial assessment as at the acquisition date, resulting in the change in the estimated discounted cash flow. The Group has recognised the addition of the exploration and evaluation assets of US Dollar 240.83 million, deferred income tax liabilities of US Dollar 83.78 million, and the decrease in goodwill of US Dollar 157.05 million.</p>	<p>I carried out the following procedures to obtain sufficient evidence for management's determination of the fair value of net identifiable assets acquired as at the acquisition date of which the complete assessment:</p> <ul style="list-style-type: none"> • Obtained an understanding of the terms and conditions by reading the complete sale and purchase agreements and all related documents. • Challenged and assessed management's conclusions against the requirements of the relevant financial reporting standards, which included the determination once control has transferred to the Group. • Evaluated the competency, qualifications, experience and independence of management's experts. • Assessed the appropriateness of assumptions used in the estimate of the fair value of net identifiable assets acquired by performing the following procedures: <ul style="list-style-type: none"> - Tested key assumptions applied in the valuation models use for estimating fair value, including comparing cash flow forecasts with the approved project plans and available public information. - Assessed the discount rate by taking into account data from publicly available information for other companies in the industry, obtained independently by the auditor's expert, to see whether the discount rate used by management was within an acceptable range compared with other companies in the industry. - Considered the valuation methodology in the models against the requirements of the financial reporting standards. • Tested the mathematical accuracy of the fair value of net identifiable assets acquired and the goodwill from the business acquisitions.

Key audit matter	How my audit addressed the key audit matter
<p>I focused on how the fair value of net identifiable assets acquired as at the acquisition date of which the complete assessment was determined due to the significance of the transaction and the fair value estimate methodology that involved significant assumptions and judgements made by management.</p>	<p>Based on the results of the procedures performed, I determined that the methodology and assumptions used by management in assessing the fair value from the business acquisition and goodwill were appropriate.</p>

Other information

The directors are responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to the audit committee.

Responsibilities of the directors for the consolidated and separate financial statements

The directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRS, and for such internal control as the directors determine is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group's and the Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated and separate financial statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with the audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide the audit committee with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with the audit committee, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

PricewaterhouseCoopers ABAS Ltd.

Amornrat Pearmpoonvatanasuk
Certified Public Accountant (Thailand) No. 4599
Bangkok
15 February 2021

PTT Exploration and Production Public Company Limited
Statement of Financial Position
As at 31 December 2020

Consolidated financial statements					
Unit: US Dollar					
Unit: Baht					
Notes	31 December 2020	31 December 2019	31 December 2020	31 December 2019	
Assets					
Current assets					
Cash and cash equivalents	13	3,704,002,851	2,822,897,310	111,257,372,357	85,121,635,618
Short-term investments		100,000,000	200,000,000	3,003,706,574	6,030,799,292
Trade and other receivables	14	790,762,914	983,201,092	23,752,181,193	29,647,436,192
Inventories	16	338,105,414	330,336,327	10,155,694,555	9,960,960,417
Current tax assets		56,168,105	55,338,391	1,687,122,238	1,668,672,379
Derivative assets	9	4,361,594	12,342,074	131,009,492	372,162,847
Other current financial assets	15	-	213,702,922	-	6,443,997,154
Other current assets		90,847,346	95,472,046	2,728,786,032	2,878,863,203
Total current assets		5,084,248,224	4,713,290,162	152,715,872,441	142,124,527,102
Non-current assets					
Investments in associates	18	216,865,375	227,626,116	6,513,999,725	6,863,837,299
Investments in joint ventures	18	233,344,008	225,370,160	7,008,969,316	6,795,811,001
Long-term loans to related parties	17	74,945,214	86,055,526	2,251,134,312	2,594,918,018
Property, plant and equipment	19	9,837,537,005	10,661,984,455	295,490,744,503	321,501,441,133
Right-of-use assets	20	482,778,015	-	14,501,234,962	-
Goodwill	21	1,903,802,428	1,903,802,428	57,184,638,697	57,407,251,692
Intangible assets	22	130,453,364	131,976,248	3,918,436,272	3,979,611,307
Exploration and evaluation assets	23	2,886,220,358	2,880,319,108	86,693,590,641	86,853,134,655
Deferred tax assets	25	1,098,682,102	961,729,427	33,001,185,983	28,999,985,605
Rights to receive reimbursement from decommissioning funds		265,788,947	237,264,583	7,983,520,067	7,154,475,393
Derivative assets	9	49,050,856	83,677,515	1,473,343,773	2,523,211,486
Other non-current financial assets		757,344	869,601	22,748,396	26,221,958
Other non-current assets	26	228,972,965	171,316,077	6,877,676,016	5,165,864,405
Total non-current assets		17,409,197,981	17,571,991,244	522,921,222,663	529,865,763,952
Total assets		22,493,446,205	22,285,281,406	675,637,095,104	671,990,291,054

(Phongsthorn Thavisin)
Chief Executive Officer

(Sermak Satchawannakul)
Senior Vice President, Accounting Division

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Financial Position
As at 31 December 2020

Consolidated financial statements					
Unit: US Dollar					
Unit: Baht					
Notes	31 December 2020	31 December 2019	31 December 2020	31 December 2019	
Liabilities and equity					
Current liabilities					
Trade and other payables	27	893,694,180	888,925,204	26,843,943,805	26,804,645,154
Current portion of lease liabilities due within one year	28	135,475,131	18,281,361	4,069,275,404	551,256,111
Income tax payable		504,785,221	862,953,072	15,162,266,881	26,021,483,863
Short-term provisions		150,217,767	131,500,284	4,512,101,036	3,965,259,111
Derivative liabilities	9	29,674,906	15,213,837	891,347,108	458,757,976
Other current liabilities		159,073,974	133,969,338	4,778,113,730	4,039,710,172
Total current liabilities		1,872,921,179	2,050,843,096	56,257,047,964	61,841,112,387
Non-current liabilities					
Debentures	28	2,830,374,756	2,704,746,265	85,016,152,606	81,558,909,291
Long-term loans	28	594,659,466	593,261,202	17,861,825,474	17,889,196,191
Lease liabilities	28	371,552,398	125,413,411	11,160,343,816	3,781,715,550
Deferred tax liabilities	25	1,445,792,455	1,442,489,022	43,427,363,004	43,496,808,866
Provision for employee benefits	31	265,510,520	245,248,060	7,975,139,259	7,395,204,113
Provision for decommissioning costs	29	3,140,384,595	2,967,512,233	94,327,938,525	89,482,353,377
Provision for remuneration for the renewal of petroleum production	30	103,243,295	190,757,774	3,101,125,645	5,752,109,238
Derivative liabilities	9	673,803	-	20,239,051	-
Other non-current liabilities		69,215,793	123,836,573	2,079,039,332	3,734,167,589
Total non-current liabilities		8,821,407,081	8,393,264,540	264,969,166,712	253,090,464,215
Total liabilities		10,694,328,260	10,444,107,636	321,226,214,676	314,931,576,602

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Financial Position
As at 31 December 2020

Consolidated financial statements				
Unit: US Dollar				
Unit: Baht				
Notes	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Liabilities and equity (continued)				
Equity				
Share capital				
Authorised share capital				
			3,969,985,400	3,969,985,400
			3,969,985,400	3,969,985,400
	150,683,762	150,683,762	3,969,985,400	3,969,985,400
	3,439,036,612	3,439,036,612	105,417,619,764	105,417,619,764
	156,570,483	187,434,503	4,981,992,349	6,018,033,688
Retained earnings				
Appropriated				
	15,048,319	15,048,319	396,998,540	396,998,540
	431,231,212	431,231,212	16,900,000,000	16,900,000,000
	7,672,902,320	7,630,675,250	248,775,592,669	247,150,263,826
	(66,354,763)	(12,935,888)	(26,031,308,294)	(22,794,186,766)
	11,799,117,945	11,841,173,770	354,410,880,428	357,058,714,452
	22,493,446,205	22,285,281,406	675,637,095,104	671,990,291,054

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Financial Position
As at 31 December 2020

		Separate financial statements			
		Unit: US Dollar		Unit: Baht	
Notes	31 December 2020	31 December 2019	31 December 2020	31 December 2019	
Assets					
Current assets					
Cash and cash equivalents	13	1,119,258,052	715,768,020	33,619,227,696	21,583,266,339
Short-term investments		100,000,000	200,000,000	3,003,706,574	6,030,799,292
Trade and other receivables	14	466,349,493	716,089,764	14,007,770,392	21,592,968,207
Short-term loans to a related party	17	78,316,549	362,000,567	2,352,399,330	10,915,763,811
Inventories	16	99,553,262	104,057,691	2,990,287,874	3,137,755,265
Current tax assets		10,678,431	15,036,646	320,748,727	453,414,956
Derivative assets		-	253,020	-	7,629,569
Other current financial assets	9	-	210,414	-	6,344,815
Other current assets	15	39,482,691	63,541,724	1,185,944,187	1,916,036,937
Total current assets		1,913,638,478	2,176,957,846	57,480,084,780	65,643,979,191
Non-current assets					
Investments in associates	18	25,577,427	25,577,427	768,270,869	771,261,656
Investments in subsidiaries	18	1,082,369,085	924,403,328	32,511,191,360	27,874,454,685
Long-term loans to related parties	17	6,795,974,559	6,410,306,980	204,131,134,568	193,296,373,984
Property, plant and equipment	19	2,754,254,495	3,305,867,193	82,729,723,323	99,685,107,639
Right-of-use assets	20	52,412,190	-	1,574,308,401	-
Goodwill	21	75,157,587	75,157,587	2,257,513,385	2,266,301,616
Intangible assets	22	81,959,613	78,178,825	2,461,826,289	2,357,404,014
Deferred tax assets	25	769,778,878	639,817,402	23,121,898,766	19,293,051,670
Derivative assets	9	33,515,790	64,096,092	1,006,715,968	1,932,753,308
Other non-current financial assets		235,472	47,837	7,072,896	1,442,486
Other non-current assets	26	20,725,924	22,976,760	622,545,942	692,841,119
Total non-current assets		11,691,961,020	11,546,429,431	351,192,201,767	348,170,992,177
Total assets		13,605,599,498	13,723,387,277	408,672,286,547	413,814,971,368

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Financial Position
As at 31 December 2020

		Separate financial statements			
		Unit: US Dollar		Unit: Baht	
Notes	31 December 2020	31 December 2019	31 December 2020	31 December 2019	
Liabilities and equity					
Current liabilities					
Trade and other payables	27	301,154,664	313,508,831	9,045,802,434	9,453,544,160
Current portion of lease liabilities due within one year	28	25,616,997	298,557	769,459,416	9,002,691
Income tax payable		443,603,545	679,934,364	13,324,548,860	20,502,738,410
Short-term provisions		135,433,239	97,890,430	4,068,017,105	2,951,787,688
Derivative liabilities	9	22,655,931	12,026,567	680,517,691	362,649,045
Other current liabilities		34,066,737	53,898,088	1,023,264,829	1,625,242,763
Total current liabilities		962,531,113	1,157,556,837	28,911,610,335	34,904,964,757
Non-current liabilities					
Debentures	28	379,264,083	377,762,214	11,391,980,197	11,391,040,460
Lease liabilities	28	31,225,314	761,949	937,916,805	22,975,809
Provision for employee benefits	31	188,324,302	179,375,616	5,656,709,447	5,408,891,691
Provision for decommissioning costs	29	1,663,810,040	1,571,621,696	49,975,971,536	47,390,675,072
Provision for remuneration for the renewal of petroleum production	30	87,568,283	174,922,380	2,630,294,279	5,274,608,833
Other non-current liabilities		29,892,684	28,326,701	897,888,511	854,163,227
Total non-current liabilities		2,380,084,706	2,332,770,556	71,490,760,775	70,342,355,092
Total liabilities		3,342,615,819	3,490,327,393	100,402,371,110	105,247,319,849

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Income
For the year ended 31 December 2020

Consolidated financial statements				
Unit: US Dollar				
Unit: Baht				
Notes	2020	2019	2020	2019
Revenues				
Revenue from sales	5,043,170,157	6,046,416,158	157,505,982,839	187,434,256,385
Revenue from pipeline transportation	92,349,680	116,396,137	2,894,695,500	3,618,478,463
Other income				
Gain on foreign exchange rates	26,062,266	108,597,530	818,411,415	3,364,162,379
Gain on remeasuring of financial instruments	99,330,899	-	3,212,764,944	-
Gain on debt modification	28 22,307,226	-	679,959,369	-
Interest income	36,728,927	86,234,821	1,150,127,763	2,691,774,670
Other income	37,011,375	55,390,651	1,156,211,729	1,713,008,987
Total revenues	5,356,960,530	6,413,035,297	167,418,153,559	198,821,680,884
Expenses				
Operating expenses	795,111,922	750,682,327	24,855,923,681	23,174,701,610
Exploration expenses	104,313,775	128,097,990	3,239,216,705	3,950,741,535
Administrative expenses	314,116,740	383,776,512	9,754,164,853	11,870,413,978
Petroleum royalties	410,153,876	546,334,209	12,798,161,392	16,944,730,977
Depreciation, depletion and amortisation	2,086,082,793	2,026,055,587	65,249,767,043	62,810,841,149
Other expenses				
Loss on remeasuring of financial instruments	-	109,399,724	-	3,405,789,423
Impairment loss on assets	24 91,576,324	-	2,806,642,497	-
Other expenses	20,341,034	-	637,348,260	-
Finance costs	254,476,449	234,978,741	7,955,860,492	7,290,639,862
Total expenses	4,076,172,913	4,179,325,090	127,297,084,923	129,447,858,534
Share of profit of associates and joint ventures	41,636,115	12,351,839	1,307,225,677	380,419,707
Profit before income taxes	1,322,423,732	2,246,062,046	41,428,294,313	69,754,242,057
Income taxes	37 (602,880,218)	(676,998,045)	(18,764,283,327)	(20,951,704,151)
Profit for the year	719,543,514	1,569,064,001	22,664,010,986	48,802,537,906
Earnings per share				
Basic earnings per share	39 0.18	0.38	5.65	11.72

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Comprehensive Income
For the year ended 31 December 2020

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Profit for the year	719,543,514	1,569,064,001	22,664,010,986	48,802,537,906
Other comprehensive income (expense)				
Items that will be reclassified subsequently to profit or loss				
Currency translation differences	(1,863,524)	3,666,799	(157,382,987)	(2,296,043,900)
Gain (loss) on remeasuring of financial assets	757,070	(38,246)	26,056,580	(1,306,085)
Income taxes relating to remeasuring of financial assets	-	1,134	-	37,087
Changes in hedging reserves	(38,707,802)	15,188,878	(1,233,846,536)	455,066,446
Income taxes relating to changes in hedging reserves	7,741,560	(3,037,776)	246,769,307	(92,552,256)
Share of other comprehensive income of associates and joint ventures - net of tax	712,424	4,408,259	20,917,074	137,371,586
Total items that will be reclassified subsequently to profit or loss	(31,360,272)	20,189,048	(1,097,486,562)	(1,797,427,122)
Items that will not be reclassified subsequently to profit or loss				
Currency translation differences	-	-	(1,407,506,632)	(22,753,270,182)
Loss on remeasuring of financial assets	(767,192)	-	(26,583,198)	-
Share of other comprehensive loss of associates	(44,146,212)	(30,753)	(1,394,988,154)	(940,226)
Gain (loss) from changes in actuarial assumptions of provision for employee benefits	1,431,600	(26,651,682)	44,608,970	(805,495,659)
Income taxes resulting from changes in actuarial assumptions of provision for employee benefits	-	12,021,516	-	363,224,671
Total items that will not be reclassified subsequently to profit or loss	(43,481,804)	(14,660,919)	(2,784,469,014)	(23,196,481,396)
Other comprehensive income (expense) for the year - net of tax	(74,842,076)	5,528,129	(3,881,955,576)	(24,993,908,518)
Total comprehensive income for the year	644,701,438	1,574,592,130	18,782,055,410	23,808,629,388

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Income
For the year ended 31 December 2020

	Notes	Separate financial statements			
		Unit: US Dollar		Unit: Baht	
		2020	2019	2020	2019
Revenues					
Revenue from sales		2,596,639,824	3,239,250,217	81,100,135,865	100,507,848,760
Other income					
Gain on foreign exchange rate		32,705,727	48,348,320	1,030,395,532	1,503,434,335
Interest income		256,408,728	315,066,394	8,025,652,321	9,775,532,625
Other income		143,099,645	144,354,658	4,463,782,415	4,463,376,042
Dividend income from related parties		28,930,433	46,175,204	921,684,211	1,412,601,869
Total revenues		3,057,784,357	3,793,194,793	95,541,650,344	117,662,793,631
Expenses					
Operating expenses		259,050,078	279,559,667	8,104,381,097	8,647,466,649
Exploration expenses		1,262,512	259,142	39,582,445	7,929,998
Administrative expenses		308,115,097	376,337,875	9,574,527,748	11,644,182,377
Petroleum royalties		324,645,182	404,906,293	10,139,606,184	12,563,481,576
Depreciation, depletion and amortisation		1,002,201,715	1,050,260,840	31,344,016,495	32,585,816,321
Other expenses					
Loss on remeasuring of financial instruments		8,369,954	73,572,180	282,621,914	2,302,963,481
Finance costs		84,829,269	108,285,400	2,647,254,364	3,369,991,182
Total expenses		1,988,473,807	2,293,181,397	62,131,990,247	71,121,831,584
Profit before income taxes		1,069,310,550	1,500,013,396	33,409,660,097	46,540,962,047
Income taxes	37	(335,326,250)	(364,292,665)	(10,409,785,348)	(11,265,866,207)
Profit for the year		733,984,300	1,135,720,731	22,999,874,749	35,275,095,840
Earnings per share					
Basic earnings per share	39	0.18	0.28	5.74	8.80

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Comprehensive Income
For the year ended 31 December 2020

	Separate financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Profit for the year	733,984,300	1,135,720,731	22,999,874,749	35,275,095,840
Other comprehensive income (expense)				
Items that will be reclassified subsequently to profit or loss				
Loss on remeasuring of financial assets	-	(5,670)	-	(185,437)
Income taxes relating to remeasuring of financial assets	-	1,134	-	37,087
Changes in hedging reserves	(32,051,653)	13,053,896	(1,020,763,334)	392,389,523
Income taxes relating to changes in hedging reserves	6,410,330	(2,610,779)	204,152,667	(79,452,826)
Total items that will be reclassified subsequently to profit or loss	(25,641,323)	10,438,581	(816,610,667)	312,788,347
Item that will not be reclassified subsequently to profit or loss				
Currency translation differences	-	-	(1,407,506,632)	(22,753,270,182)
Loss from changes in actuarial assumptions of provision for employee benefits	-	(24,116,038)	-	(728,863,049)
Income taxes resulting from changes in actuarial assumptions of provision for employee benefits	-	12,058,019	-	364,431,524
Total items that will not be reclassified subsequently to profit or loss	-	(12,058,019)	(1,407,506,632)	(23,117,701,707)
Other comprehensive expense for the year - net of tax	(25,641,323)	(1,619,438)	(2,224,117,299)	(22,804,913,360)
Total comprehensive income for the year	708,342,977	1,134,101,293	20,775,757,450	12,470,182,480

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Consolidated financial statements												Unit: US Dollar
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity				Total other components of equity	Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Share of other comprehensive income of associates and joint ventures		
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve			
Balance as at 1 January 2019	150,683,762	3,439,036,612	1,154,687,532	15,048,319	431,231,212	6,847,836,815	(53,981,693)	(719,958)	17,626,981	3,949,734	(33,124,936)	12,005,399,316
Changes in equity for the year												
Deferred income tax on surplus from business combination under common control	-	-	-	-	-	325,673	-	-	-	-	-	325,673
Interest expenses for subordinated capital debentures	-	-	-	-	-	(53,610,567)	-	-	-	-	-	(53,610,567)
Redemption of subordinated capital debentures	-	-	(967,253,029)	-	-	(23,593,066)	-	-	-	-	-	(990,846,095)
Income tax for subordinated capital debentures	-	-	-	-	-	3,073,806	-	-	-	-	-	3,073,806
Dividends paid	-	-	-	-	-	(697,760,493)	-	-	-	-	-	(697,760,493)
Profit for the year	-	-	-	-	-	1,569,064,001	-	-	-	-	-	1,569,064,001
Other comprehensive income (expense) for the year	-	-	-	-	-	(14,660,919)	3,666,799	(37,112)	12,151,102	4,408,259	20,189,048	5,528,129
Balance as at 31 December 2019	<u>150,683,762</u>	<u>3,439,036,612</u>	<u>187,434,503</u>	<u>15,048,319</u>	<u>431,231,212</u>	<u>7,630,675,250</u>	<u>(50,314,894)</u>	<u>(757,070)</u>	<u>29,778,083</u>	<u>8,357,993</u>	<u>(12,935,888)</u>	<u>11,841,173,770</u>

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Consolidated financial statements												Unit: US Dollar
Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity				Total other components of equity	Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Share of other comprehensive income (expense) of associates and joint ventures		
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve			
Balance as at 1 January 2020	150,683,762	3,439,036,612	187,434,503	15,048,319	431,231,212	7,630,675,250	(50,314,894)	(757,070)	29,778,083	8,357,993	(12,935,888)	11,841,173,770
Impact from changes in accounting policies	6	-	-	-	-	-	-	-	-	22,709,513	22,709,513	22,709,513
Adjusted balance as at 1 January 2020	150,683,762	3,439,036,612	187,434,503	15,048,319	431,231,212	7,630,675,250	(50,314,894)	(757,070)	29,778,083	31,067,506	9,773,625	11,863,883,283
Changes in equity for the year												
Interest expenses for subordinated capital debentures		-	-	-	-	(10,125,624)	-	-	-	-	-	(10,125,624)
Redemption of subordinated capital debentures	34	-	(30,864,020)	-	-	12,020	-	-	-	-	-	(30,852,000)
Income tax for subordinated capital debentures		-	-	-	-	2,511,018	-	-	-	-	-	2,511,018
Dividends paid	35	-	-	-	-	(671,000,170)	-	-	-	-	-	(671,000,170)
Profit for the year		-	-	-	-	719,543,514	-	-	-	-	-	719,543,514
Other comprehensive income (expense) for the year		-	-	-	-	1,286,312	(1,863,524)	(10,122)	(30,966,242)	(43,288,500)	(76,128,388)	(74,842,076)
Balance as at 31 December 2020	<u>150,683,762</u>	<u>3,439,036,612</u>	<u>156,570,483</u>	<u>15,048,319</u>	<u>431,231,212</u>	<u>7,672,902,320</u>	<u>(52,178,418)</u>	<u>(767,192)</u>	<u>(1,188,159)</u>	<u>(12,220,994)</u>	<u>(66,354,763)</u>	<u>11,799,117,945</u>

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Consolidated financial statements												Unit: Baht
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity					Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Share of other comprehensive income of associates and joint ventures	Total other components of equity	
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve			
Balance as at 1 January 2019	3,969,985,400	105,417,619,764	38,231,753,921	396,998,540	16,900,000,000	222,900,331,939	928,581,429	(24,787,582)	719,606,831	133,109,860	1,756,510,538	389,573,200,102
Changes in equity for the year												
Deferred income tax on surplus from business combination under common control	-	-	-	-	-	9,956,962	-	-	-	-	-	9,956,962
Interest expenses for subordinated capital debentures	-	-	-	-	-	(1,662,969,359)	-	-	-	-	-	(1,662,969,359)
Redemption of subordinated capital debentures	-	-	(32,213,720,233)	-	-	(716,290,408)	-	-	-	-	-	(32,930,010,641)
Income tax for subordinated capital debentures	-	-	-	-	-	94,437,501	-	-	-	-	-	94,437,501
Dividends paid	-	-	-	-	-	(21,834,529,501)	-	-	-	-	-	(21,834,529,501)
Profit for the year	-	-	-	-	-	48,802,537,906	-	-	-	-	-	48,802,537,906
Other comprehensive income (expense) for the year	-	-	-	-	-	(443,211,214)	(25,049,314,082)	(1,268,998)	362,514,190	137,371,586	(24,550,697,304)	(24,993,908,518)
Balance as at 31 December 2019	<u>3,969,985,400</u>	<u>105,417,619,764</u>	<u>6,018,033,688</u>	<u>396,998,540</u>	<u>16,900,000,000</u>	<u>247,150,263,826</u>	<u>(24,120,732,653)</u>	<u>(26,056,580)</u>	<u>1,082,121,021</u>	<u>270,481,446</u>	<u>(22,794,186,766)</u>	<u>357,058,714,452</u>

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Consolidated financial statements													Unit: Baht
Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity					Total equity	
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Total other components of equity			
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve		Share of other comprehensive income (expense) of associates and joint ventures		
Balance as at 1 January 2020	3,969,985,400	105,417,619,764	6,018,033,688	396,998,540	16,900,000,000	247,150,263,826	(24,120,732,653)	(26,056,580)	1,082,121,021	270,481,446	(22,794,186,766)	357,058,714,452	
Impact from changes in accounting policies	6	-	-	-	-	-	-	-	-	684,782,576	684,782,576	684,782,576	
Adjusted balance as at 1 January 2020	3,969,985,400	105,417,619,764	6,018,033,688	396,998,540	16,900,000,000	247,150,263,826	(24,120,732,653)	(26,056,580)	1,082,121,021	955,264,022	(22,109,404,190)	357,743,497,028	
Changes in equity for the year													
Interest expenses for subordinated capital debentures		-	-	-	-	(314,980,577)	-	-	-	-	-	(314,980,577)	
Redemption of subordinated capital debentures	34	-	(1,036,041,339)	-	-	459,070	-	-	-	-	-	(1,035,582,269)	
Income tax for subordinated capital debentures		-	-	-	-	77,761,632	-	-	-	-	-	77,761,632	
Dividends paid	35	-	-	-	-	(20,841,870,796)	-	-	-	-	-	(20,841,870,796)	
Profit for the year		-	-	-	-	22,664,010,986	-	-	-	-	-	22,664,010,986	
Other comprehensive income (expense) for the year		-	-	-	-	39,948,528	(1,564,889,619)	(526,618)	(987,077,229)	(1,369,410,638)	(3,921,904,104)	(3,881,955,576)	
Balance as at 31 December 2020	<u>3,969,985,400</u>	<u>105,417,619,764</u>	<u>4,981,992,349</u>	<u>396,998,540</u>	<u>16,900,000,000</u>	<u>248,775,592,669</u>	<u>(25,685,622,272)</u>	<u>(26,583,198)</u>	<u>95,043,792</u>	<u>(414,146,616)</u>	<u>(26,031,308,294)</u>	<u>354,410,880,428</u>	

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Separate financial statements										Unit: US Dollar
	Issued and paid-up share capital	Subordinated Share premium	Subordinated capital debentures	Retained earnings			Other components of equity			Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)	Remeasuring of financial assets	Cash flow hedge reserve	
Balance as at 1 January 2019	150,683,762	3,439,036,612	301,226,483	15,048,319	431,231,212	5,597,858,914	4,536	17,626,981	17,631,517	9,952,716,819
Changes in equity for the year										
Interest expenses for subordinated capital debentures	-	-	-	-	-	(13,632,287)	-	-	-	(13,632,287)
Redemption of subordinated capital debentures	-	-	(144,656,000)	-	-	(649,000)	-	-	-	(145,305,000)
Income tax for subordinated capital debentures	-	-	-	-	-	2,939,552	-	-	-	2,939,552
Dividends paid	-	-	-	-	-	(697,760,493)	-	-	-	(697,760,493)
Profit for the year	-	-	-	-	-	1,135,720,731	-	-	-	1,135,720,731
Other comprehensive income (expense) for the year	-	-	-	-	-	(12,058,019)	(4,536)	10,443,117	10,438,581	(1,619,438)
Balance as at 31 December 2019	150,683,762	3,439,036,612	156,570,483	15,048,319	431,231,212	6,012,419,398	-	28,070,098	28,070,098	10,233,059,884

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Separate financial statements

Unit: US Dollar

	Note	Retained earnings					Other components of equity			Total equity	
		Issued and paid-up share capital	Subordinated Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Total other components of equity
								Remeasuring of financial assets	Cash flow hedge reserve		
Balance as at 1 January 2020		150,683,762	3,439,036,612	156,570,483	15,048,319	431,231,212	6,012,419,398	-	28,070,098	28,070,098	10,233,059,884
Changes in equity for the year											
Interest expenses for subordinated capital debentures		-	-	-	-	-	(9,443,622)	-	-	-	(9,443,622)
Income tax for subordinated capital debentures		-	-	-	-	-	2,024,610	-	-	-	2,024,610
Dividends paid	35	-	-	-	-	-	(671,000,170)	-	-	-	(671,000,170)
Profit for the year		-	-	-	-	-	733,984,300	-	-	-	733,984,300
Other comprehensive expense for the year		-	-	-	-	-	-	-	(25,641,323)	(25,641,323)	(25,641,323)
Balance as at 31 December 2020		150,683,762	3,439,036,612	156,570,483	15,048,319	431,231,212	6,067,984,516	-	2,428,775	2,428,775	10,262,983,679

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

	Separate financial statements										Unit: Baht
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity			Total other components of equity	Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)				
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve		
Balance as at 1 January 2019	3,969,985,400	105,417,619,764	9,661,771,205	396,998,540	16,900,000,000	187,500,874,929	(1,492,579,975)	148,350	609,176,074	(883,255,551)	322,963,994,287
Changes in equity for the year											
Interest expenses for subordinated capital debentures	-	-	-	-	-	(422,134,817)	-	-	-	-	(422,134,817)
Redemption of subordinated capital debentures	-	-	(4,679,778,856)	-	-	(20,990,128)	-	-	-	-	(4,700,768,984)
Income tax for subordinated capital debentures	-	-	-	-	-	90,908,054	-	-	-	-	90,908,054
Dividends paid	-	-	-	-	-	(21,834,529,501)	-	-	-	-	(21,834,529,501)
Profit for the year	-	-	-	-	-	35,275,095,840	-	-	-	-	35,275,095,840
Other comprehensive income (expense) for the year	-	-	-	-	-	(364,431,525)	(22,753,270,182)	(148,350)	312,936,697	(22,440,481,835)	(22,804,913,360)
Balance as at 31 December 2019	<u>3,969,985,400</u>	<u>105,417,619,764</u>	<u>4,981,992,349</u>	<u>396,998,540</u>	<u>16,900,000,000</u>	<u>200,224,792,852</u>	<u>(24,245,850,157)</u>	<u>-</u>	<u>922,112,771</u>	<u>(23,323,737,386)</u>	<u>308,567,651,519</u>

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Changes in Equity
For the year ended 31 December 2020

Separate financial statements											Unit: Baht
Note	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Retained earnings			Other components of equity				Total equity
				Legal reserve	Reserve for expansion	Unappropriated	Other comprehensive income (expense)			Total other components of equity	
							Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve		
Balance as at 1 January 2020	3,969,985,400	105,417,619,764	4,981,992,349	396,998,540	16,900,000,000	200,224,792,852	(24,245,850,157)	-	922,112,771	(23,323,737,386)	308,567,651,519
Changes in equity for the year											
Interest expenses for subordinated capital debentures	-	-	-	-	-	(294,226,031)	-	-	-	-	(294,226,031)
Income tax for subordinated capital debentures	-	-	-	-	-	62,603,295	-	-	-	-	62,603,295
Dividends paid	35	-	-	-	-	(20,841,870,796)	-	-	-	-	(20,841,870,796)
Profit for the year	-	-	-	-	-	22,999,874,749	-	-	-	-	22,999,874,749
Other comprehensive expense for the year	-	-	-	-	-	-	(1,407,506,632)	-	(816,610,667)	(2,224,117,299)	(2,224,117,299)
Balance as at 31 December 2020	3,969,985,400	105,417,619,764	4,981,992,349	396,998,540	16,900,000,000	202,151,174,069	(25,653,356,789)	-	105,502,104	(25,547,854,685)	308,269,915,437

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Cash flows from operating activities				
Profit before income taxes	1,322,423,732	2,246,062,046	41,428,294,313	69,754,242,057
Adjustments for:				
Share of profit of associates and joint ventures	(41,636,115)	(12,351,839)	(1,307,225,677)	(380,419,707)
Depreciation, depletion and amortisation	2,086,082,793	2,026,055,587	65,249,767,043	62,810,841,149
Allowance for impairment loss on assets	91,576,324	-	2,806,642,497	-
Allowance for decrease in value of inventories to net realisable value	473,989	(1,363,744)	14,824,356	(43,712,350)
Write-off of exploration expenses	62,139,598	76,756,433	1,943,211,886	2,368,682,811
Other amortised expenses	10,208,531	32,049,621	319,349,132	972,885,487
Loss on disposal of assets	24,214,793	19,049,055	757,334,714	587,146,421
Income recognised from deferred income	(2,550,062)	(3,541,237)	(79,754,981)	(109,902,234)
Loss on remeasuring financial instruments	43,648,839	57,849,873	1,327,976,795	1,782,312,946
Other provisions	-	8,133,535	-	245,821,184
Gain on foreign exchange rates	(10,229,025)	(8,014,338)	(319,919,969)	(248,724,877)
Interest income lower than interest expenses	212,035,514	147,107,031	6,631,560,130	4,565,464,609
Gain on debt modification	(22,307,226)	-	(679,959,369)	-
Other expenses	37,371,126	35,252,078	1,169,989,415	1,106,330,638
Cash flows before changes in working capital	3,813,452,811	4,623,044,101	119,262,090,285	143,410,968,134
Changes in working capital				
Trade and other receivables	178,744,910	85,635,225	5,590,373,024	2,657,687,968
Inventories	(29,760,557)	(14,750,669)	(930,782,383)	(457,786,813)
Other current financial assets	200,546,001	(128,999,785)	6,272,217,514	(4,003,506,473)
Other current assets	6,258,447	(18,304,834)	195,737,349	(568,090,247)
Rights to receive reimbursement from decommissioning funds	(20,987,209)	(26,903,288)	(656,389,751)	(834,943,161)
Other non-current assets	(25,212,388)	40,970,330	(788,535,211)	1,271,513,632
Trade and other payables	(110,971,882)	(107,913,335)	(3,470,723,797)	(3,349,088,808)
Other current liabilities	24,173,475	39,268,024	756,042,457	1,218,682,588
Provisions	(125,778,800)	(112,677,624)	(3,933,820,617)	(3,496,948,444)
Other non-current liabilities	(53,139,134)	370,903	(1,661,963,875)	11,510,968
Net cash provided by operating activities	3,857,325,674	4,379,739,048	120,634,244,995	135,859,999,344
Interest received from bank deposits	24,370,832	66,838,520	762,214,954	2,074,332,527
Cash paid for income taxes	(1,110,196,221)	(926,972,067)	(34,722,169,194)	(28,768,564,890)
Net cash flows provided by operating activities	2,771,500,285	3,519,605,501	86,674,290,755	109,165,766,981

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Cash flows from investing activities				
Cash paid for short-term investments	(100,000,000)	(744,750,000)	(3,127,570,472)	(23,113,305,629)
Cash received from investing in short-term investments	200,000,000	1,365,410,338	6,255,140,944	42,375,490,353
Cash paid for investment in other financial assets	-	(36,530)	-	(1,133,712)
Cash received from investment in other financial assets	-	10,444,330	-	324,139,633
Cash received from long-term loans to related parties	11,085,655	10,800,587	346,711,691	335,196,063
Dividend received from related parties	26,806,833	14,716,091	838,402,586	456,713,672
Cash paid for business acquisition	-	(2,713,300,641)	-	(84,207,246,710)
Net cash paid for expense related to divestment of asset	-	(19,626,748)	-	(609,115,844)
Cash paid for investment in joint venture	(3,138,215)	(79,411,697)	(98,149,885)	(2,464,540,889)
Cash received from investment in joint venture	393,300	-	12,300,735	-
Cash received from lease receivables	377,746	-	11,814,281	-
Interest received from short-term investments	5,842,500	15,376,377	182,728,305	477,205,647
Interest received from loans to related parties	2,277,204	5,218,266	71,221,152	161,948,823
Increase in property, plant and equipment	(1,093,139,692)	(1,063,093,098)	(34,188,714,226)	(32,993,079,128)
Increase in intangible assets	(28,466,404)	(26,146,817)	(890,306,852)	(811,466,087)
Increase in exploration and evaluation assets	(93,651,045)	(119,228,176)	(2,929,002,435)	(3,700,244,754)
Net cash flows used in investing activities	(1,071,612,118)	(3,343,627,718)	(33,515,424,176)	(103,769,438,562)
Cash flows from financing activities				
Cash received from short-term loan	-	259,580,550	-	8,056,078,675
Cash paid for repayment of short-term loan	-	(258,825,547)	-	(8,032,647,151)
Cash paid for repayment of debentures	(730,443,433)	(418,199,073)	(22,845,133,139)	(12,978,802,274)
Cash received from issuance of debentures	850,000,000	1,130,045,316	26,584,349,012	35,070,940,278
Cash paid for lease liabilities	(96,362,004)	(7,784,707)	(3,013,789,574)	(241,598,267)
Cash received from long-term loans	-	600,000,000	-	18,620,991,444
Finance costs paid for issuance of debentures and long-term loans	(9,945,000)	(7,613,542)	(311,036,902)	(236,286,174)
Cash paid for interest	(147,594,114)	(109,932,149)	(4,616,109,926)	(3,411,742,705)
Cash paid for redemption of subordinated capital debentures	(30,852,000)	(990,846,095)	(964,918,042)	(30,750,894,428)
Interest paid for subordinated capital debentures	(10,125,624)	(53,610,567)	(316,686,006)	(1,663,803,190)
Net cash received from financial derivative contracts	-	1,353,260	-	41,998,395
Dividends paid	(671,000,170)	(697,760,493)	(20,986,003,196)	(21,654,986,972)
Net cash flows used in financing activities	(846,322,345)	(553,593,047)	(26,469,327,773)	(17,180,752,369)

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Net increase (decrease) in cash and cash equivalents	853,565,822	(377,615,264)	26,689,538,806	(11,784,423,950)
Cash and cash equivalents at the beginning of the year	2,822,897,310	3,180,095,315	85,121,635,618	103,193,560,790
Adjustment for the impact of exchange rate changes	27,539,719	20,417,259	(553,802,067)	(6,287,501,222)
Cash and cash equivalents at the end of the year	3,704,002,851	2,822,897,310	111,257,372,357	85,121,635,618
Non-cash transactions				
Outstanding payable from purchases of assets	346,979,242	246,424,994	10,852,020,328	7,647,796,187
Changes in right-of-use assets	98,367,212	-	3,076,503,868	-

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2020

	Separate financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Cash flows from operating activities				
Profit before income taxes	1,069,310,550	1,500,013,396	33,409,660,097	46,540,962,047
Adjustments for:				
Depreciation, depletion and amortisation	1,002,201,715	1,050,260,840	31,344,016,495	32,585,816,321
Write-off of exploration expenses	1,191,135	-	37,358,321	-
Other amortised expenses	2,596,167	18,947,870	81,152,238	574,645,123
Loss on disposal of assets	14,058,546	2,647,971	447,268,424	79,178,715
Income recognised from deferred income	(1,657,774)	(1,110,595)	(51,848,056)	(34,467,284)
Loss on remeasuring financial instruments	10,716,475	9,047,624	361,266,419	288,510,615
Dividend income from related parties	(28,930,433)	(46,175,204)	(921,684,211)	(1,412,601,869)
Other provision	-	9,763,436	-	295,081,965
(Gain) loss on foreign exchange rates	(2,415,206)	2,730,310	(75,537,259)	84,735,149
Interest income higher than interest expenses	(172,040,630)	(207,477,753)	(5,392,781,807)	(6,427,251,682)
Other expenses	15,108,675	31,251,247	472,547,888	980,361,471
Cash flows before changes in working capital	1,910,139,220	2,369,899,142	59,711,418,549	73,554,970,571
Changes in working capital				
Trade and other receivables	57,322,804	3,249,252	1,792,811,085	100,840,481
Inventories	(7,208,509)	(1,063,826)	(225,451,199)	(33,015,836)
Other current financial assets	-	70,000,000	-	2,172,449,002
Other current assets	27,214,483	(32,651,005)	851,152,131	(1,013,323,479)
Other non-current assets	53,296	426,414	1,666,866	13,233,762
Trade and other payables	(40,430,073)	(5,345,236)	(1,264,479,012)	(165,889,311)
Other current liabilities	(19,881,711)	22,922,113	(621,814,526)	711,387,466
Provisions	(110,011,352)	(90,231,073)	(3,440,682,543)	(2,800,320,063)
Other non-current liabilities	(3,735,549)	(5,020,084)	(116,831,934)	(155,798,244)
Net cash provided by operating activities	1,813,462,609	2,332,185,697	56,687,789,417	72,384,534,349
Interest received from bank deposits	8,685,034	25,862,231	271,630,568	802,633,981
Cash paid for income taxes	(693,139,853)	(518,342,197)	(21,678,437,365)	(16,086,742,696)
Net cash flows provided by operating activities	1,129,007,790	1,839,705,731	35,280,982,620	57,100,425,634

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

PTT Exploration and Production Public Company Limited
Statement of Cash Flows
For the year ended 31 December 2020

	Separate financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Cash flows from investing activities				
Cash paid for short-term investments	(100,000,000)	(744,750,000)	(3,127,570,472)	(23,113,305,629)
Cash received from investing in short-term investments	200,000,000	1,007,580,338	6,255,140,944	31,270,241,405
Cash paid for investment in other financial assets	-	(36,530)	-	(1,133,712)
Cash received from investment in other financial assets	-	10,444,330	-	324,139,633
Decrease in short-term loans to related party	299,588,385	814,909,261	9,369,837,845	25,290,697,295
Cash received from long-term loans to related parties	105,120,931	205,200,000	3,287,731,205	6,368,379,074
Cash paid for long-term loans to related parties	(489,413,928)	(1,195,617,478)	(15,306,765,502)	(37,105,971,377)
Cash paid for business acquisition	-	(71,398,811)	-	(2,215,861,080)
Cash paid for investment in subsidiaries	(157,965,757)	(128,691,609)	(4,940,490,366)	(3,993,942,255)
Dividend received from related parties	28,930,433	46,175,204	904,819,690	1,433,046,808
Cash received from lease receivables	377,746	-	11,814,281	-
Interest received from short-term investments	5,842,500	9,848,587	182,728,305	305,650,754
Interest received from loans to related parties	420,940,714	47,953,529	13,165,217,467	1,488,237,081
Increase in property, plant and equipment	(295,478,913)	(264,756,583)	(9,241,311,240)	(8,216,716,749)
Increase in intangible assets	(22,084,324)	(19,469,000)	(690,702,802)	(604,220,145)
Net cash flows used in investing activities	(4,142,213)	(282,608,762)	(129,550,645)	(8,770,758,897)
Cash flows from financing activities				
Cash received from short-term loan	-	259,580,550	-	8,056,078,675
Cash paid for repayment of short-term loan	-	(258,825,547)	-	(8,032,647,151)
Cash paid for repayment of debentures	-	(418,199,073)	-	(12,978,802,274)
Cash paid for lease liabilities	(22,250,801)	(266,900)	(695,909,452)	(8,283,244)
Cash paid for interest	(21,388,375)	(32,294,311)	(668,936,491)	(1,002,253,461)
Cash paid for redemption of subordinated capital debenture	-	(145,305,000)	-	(4,509,538,603)
Interest paid for subordinated capital debenture	(9,443,622)	(13,632,287)	(295,355,957)	(423,077,837)
Net cash received from financial derivative contracts	-	876,960	-	27,216,432
Dividends paid	(671,000,170)	(697,760,493)	(20,986,003,196)	(21,654,986,972)
Net cash flows used in financing activities	(724,082,968)	(1,305,826,101)	(22,646,205,096)	(40,526,294,435)
Net increase in cash and cash equivalents	400,782,609	251,270,868	12,505,226,879	7,803,372,302
Cash and cash equivalents at the beginning of the year	715,768,020	462,093,407	21,583,266,339	14,994,853,673
Adjustment for the impact of exchange rate changes	2,707,423	2,403,745	(469,265,522)	(1,214,959,636)
Cash and cash equivalents at the end of the year	1,119,258,052	715,768,020	33,619,227,696	21,583,266,339
Non-cash transactions				
Outstanding payable from purchases of assets	61,499,068	35,521,871	1,923,426,700	1,102,420,752
Changes in right-of-use assets	47,374,993	-	1,481,686,302	-

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

1 General information

PTT Exploration and Production Public Company Limited (the Company) is registered as a company in Thailand and listed on the Stock Exchange of Thailand. The address of its registered office is 555/1 Energy Complex Building A, 6th and 19th - 36th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok 10900.

For reporting purposes, the Company and its subsidiaries are together referred to as the Group.

The principal business operations of the Group are exploration and production of petroleum in Thailand and overseas, and related business associated with the Group's strategy.

These consolidated and separate financial statements were authorised for issue by the Board of Directors on 15 February 2021.

2 Significant events during the current period

- Due to COVID-19 pandemic in the beginning of 2020, it resulted in a decrease in demand for oil consumption and a sharp drop in crude oil price. However, for the second half of the year 2020, the demand for consumption has increased when compare to the first half of the year 2020. The main factor was from easing of shutdown measures in many countries which leads to an increase in sales volume. Also, the overall average selling price has increased as a consequence of decrease in production capacity as a result of mutual agreement between the Organisation of Petroleum Exporting Countries and its partnership. Nevertheless, there is a decrease in selling gas price as a result of retrospectively adjustment of the selling price in accordance with the agreement (lag time). In addition, the Group's financial position is strong with sufficient liquidity from the outstanding cash and cash equivalents and short-term investments as at 31 December 2020 of US Dollar 3,804.00 million (Baht 114,261.08 million). The Group is certain that it has the ability to maintain its liquidity and sustain operations through the current oil price volatility period.
- On 30 December 2020, the Company has received an exclusive right to develop the Integrated Domestic Gas to Power Project in Myanmar and signed the Notice to Proceed with Ministry of Electricity and Energy (MOEE). The Company expects to make a Final Investment Decision (FID) of the project in 2022.

3 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai Financial Reporting Standards (TFRS) and the financial reporting requirements issued under the Securities and Exchange Act.

The Company's management has determined US Dollar as the functional currency of the Company and presents the consolidated and separate financial statements in US Dollar. However, the Stock Exchange of Thailand and the Department of Business Development require the Company to present its consolidated and separate financial statements in Thai Baht, so the Company also presents its financial statements in Thai Baht by translating from US Dollar.

Where the Group has entered into joint interest operations in the Concession or the Production Sharing Contract with other parties to participate in exploration and production of petroleum businesses, the Group records its share of expenses, assets and liabilities incurred in accordance with the Statements of Expenditures prepared by the operators of the Concession or the Production Sharing Contract. The Statements of Expenditures have been audited by other independent auditors and the joint venture committee on a regular basis.

The consolidated and separate financial statements have been prepared under the historical cost convention except as disclosed in the accounting policies.

The preparation of financial statements in conformity with TFRS requires the Group's management to use certain critical accounting estimates and to exercise its judgement in applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas that are more likely to be materially adjusted due to changes in estimates and assumptions are disclosed in Note 10.

An English version of the consolidated and separate financial statements have been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

4 Reclassification

The Department of Business Development announced the notification for the minimum requirement of the content in the financial statements (No. 3) B.E. 2562 dated 26 December 2019, which impacted on the preparation of financial statements for the period beginning on or after 1 January 2020. As a result, the Group has reclassified the comparative figures presented in the statement of financial position for the year ended 31 December 2019 to comply with the Notification of the Department of Business Development as referred above, including the reclassification of the comparative figures to comply with the new financial reporting standards as disclosed in Note 5.

PTT Exploration and Production Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2020

	Consolidated financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Previously reported	Reclassifications	As reclassified	Previously reported	Reclassifications	As reclassified
Statement of financial position						
As at 31 December 2019						
Assets						
Current assets						
Investments in trading securities	213.70	(213.70)	-	6,444.00	(6,444.00)	-
Trade and other receivables	-	983.20	983.20	-	29,647.44	29,647.44
Accounts receivable - parent company	534.84	(534.84)	-	16,127.48	(16,127.48)	-
Trade accounts receivable	258.93	(258.93)	-	7,807.65	(7,807.65)	-
Other accounts receivable	121.50	(121.50)	-	3,663.73	(3,663.73)	-
Inventories	32.10	298.24	330.34	967.79	8,993.17	9,960.96
Materials and supplies	298.24	(298.24)	-	8,993.17	(8,993.17)	-
Other current financial assets	-	213.70	213.70	-	6,444.00	6,444.00
Working capital from co-venturers	60.70	(60.70)	-	1,830.47	(1,830.47)	-
Accrued interests receivable	7.23	(7.23)	-	218.11	(218.11)	-
Other current assets - Others	95.47	(95.47)	-	2,878.86	(2,878.86)	-
Other current assets	-	95.47	95.47	-	2,878.86	2,878.86
Non-current assets						
Available-for-sale investments	0.52	(0.52)	-	15.81	(15.81)	-
Other long-term investments	0.35	(0.35)	-	10.41	(10.41)	-
Other non-current financial assets	-	0.87	0.87	-	26.22	26.22
Prepaid expenses	17.87	(17.87)	-	538.89	(538.89)	-
Deferred remuneration under agreement	11.30	(11.30)	-	340.81	(340.81)	-
Other non-current assets - Others	142.15	(142.15)	-	4,286.16	(4,286.16)	-
Other non-current assets	-	171.32	171.32	-	5,165.86	5,165.86
Liabilities and equity						
Current liabilities						
Trade and other payable	-	888.93	888.93	-	26,804.65	26,804.65
Trade accounts payable	107.06	(107.06)	-	3,228.42	(3,228.42)	-
Working capital to co-venturers	12.44	(12.44)	-	375.12	(375.12)	-
Current portion of long-term financial liabilities	18.28	(18.28)	-	551.26	(551.26)	-
Current portion of lease liabilities	-	18.28	18.28	-	551.26	551.26
Accrued expenses	749.65	(749.65)	-	22,604.82	(22,604.82)	-
Accrued interests payable	19.78	(19.78)	-	596.29	(596.29)	-
Non-current liabilities						
Long-term loans	718.67	(125.41)	593.26	21,670.91	(3,781.71)	17,889.20
Lease liabilities	-	125.41	125.41	-	3,781.71	3,781.71
Deferred income	5.04	(5.04)	-	151.84	(151.84)	-
Other non-current liabilities - Others	118.80	(118.80)	-	3,582.33	(3,582.33)	-
Other non-current liabilities	-	123.84	123.84	-	3,734.17	3,734.17

PTT Exploration and Production Public Company Limited
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2020

Statement of financial position	Separate financial statements					
	Unit: Million US Dollar			Million Baht :Unit		
	Previously reported	Reclassifications	As reclassified	Previously reported	Reclassifications	As reclassified
As at 31 December 2019						
Assets						
Current assets						
Investments in trading securities	0.21	(0.21)	-	6.34	(6.34)	-
Trade and other receivables	-	716.09	716.09	-	21,592.97	21,592.97
Account receivable - parent company	353.32	(353.32)	-	10,653.92	(10,653.92)	-
Trade accounts receivable	1.19	(1.19)	-	35.75	(35.75)	-
Other accounts receivable	72.76	(72.76)	-	2,193.95	(2,193.95)	-
Inventories	5.33	98.73	104.06	160.72	2,977.04	3,137.76
Materials and supplies	98.73	(98.73)	-	2,977.04	(2,977.04)	-
Other current financial assets	-	0.21	0.21	-	6.34	6.34
Working capital from co-venturers	7.85	(7.85)	-	236.57	(236.57)	-
Accrued interests receivable	280.98	(280.98)	-	8,472.78	(8,472.78)	-
Other current assets - Others	63.54	(63.54)	-	1,916.04	(1,916.04)	-
Other current assets	-	63.54	63.54	-	1,916.04	1,916.04
Non-current assets						
Other long-term investments	0.05	(0.05)	-	1.44	(1.44)	-
Other non-current financial assets	-	0.05	0.05	-	1.44	1.44
Deferred remuneration under agreement	11.30	(11.30)	-	340.81	(340.81)	-
Other non-current assets - Others	11.68	(11.68)	-	352.03	(352.03)	-
Other non-current assets	-	22.98	22.98	-	692.84	692.84
Liabilities and equity						
Current liabilities						
Trade and other payable	-	313.51	313.51	-	9,453.54	9,453.54
Trade accounts payable	23.48	(23.48)	-	707.85	(707.85)	-
Working capital to co-venturers	1.15	(1.15)	-	34.54	(34.54)	-
Current portion of long-term liabilities	0.30	(0.30)	-	9.00	(9.00)	-
Current portion of lease liabilities	-	0.30	0.30	-	9.00	9.00
Accrued expenses	285.82	(285.82)	-	8,618.75	(8,618.75)	-
Accrued interests payable	3.06	(3.06)	-	92.40	(92.40)	-
Non-current liabilities						
Long-term loans	0.76	(0.76)	-	22.98	(22.98)	-
Lease liabilities	-	0.76	0.76	-	22.98	22.98
Deferred income	3.05	(3.05)	-	91.81	(91.81)	-
Other non-current liabilities - Others	25.28	(25.28)	-	762.35	(762.35)	-
Other non-current liabilities	-	28.33	28.33	-	854.16	854.16

5 New and amended financial reporting standards

5.1 New financial reporting standards that are effective for accounting period beginning on or after 1 January 2020 and have significant impacts to the Group

a) Financial instruments

The new financial standards related to financial instruments are as follows:

TAS 32	Financial instruments: Presentation
TFRS 7	Financial instruments: Disclosures
TFRS 9	Financial instruments
TFRIC 16	Hedges of a net investment in a foreign operation
TFRIC 19	Extinguishing financial liabilities with equity instruments

The new financial reporting standards related to financial instruments introduce new classification and measurement requirements for financial instruments as well as provide derecognition guidance on financial assets and financial liabilities. The new guidance also provides an option for the Group to apply hedge accounting to reduce accounting mismatch between hedged item and hedging instrument. In addition, the new rule provides detailed guidance on financial instruments issued by the Group whether it is a liability or an equity and requires extensive details disclosure on financial instruments and related risks.

The new classification requirements of financial assets require the Group to assess both i) business model for holding the financial assets; and ii) cash flow characteristics of the asset whether the contractual cash flows represent solely payments of principal and interest (Solely Payments of Principal and Interest: SPPI). The classification affects the financial assets' measurement. The new guidance requires assessment of impairment of financial assets and recognition of expected credit loss from initial recognition.

On 1 January 2020, the Group has adopted the financial reporting standards related to financial instruments in its financial statements. However, the Group applied the accounting policy relating to financial instruments for the reporting period before 1 January 2020. Therefore, the impact from the adoption of these financial standards related to financial instruments will affect to classification of financial liabilities and equity, classification and measurement of investments in equity instruments (previously classified as other long-term investments) as well as classification and measurement. The impact from the adoption has been disclosed in Note 6.

b) TFRS 16, Leases

Where the Group is a lessee, TFRS 16, Leases will result in almost all leases being recognised on the balance sheet as the distinction between operating and finance leases is removed. A right-of-use asset and a lease liability will be recognised, with exception on short-term and low-value leases.

On 1 January 2020, the Group has adopted the new lease standard in its financial statements. The impact from the adoption has been disclosed in Note 6.

5.2 Amended financial reporting standards that are effective for accounting period beginning or after 1 January 2021 and the Group did not apply those financial reporting standards before effective date

- a) **Revised Conceptual Framework for Financial Reporting** added the following key principals and guidance:
- Measurement basis, including factors in considering difference measurement basis
 - Presentation and disclosure, including classification of income and expenses in other comprehensive income
 - Definition of a reporting entity, which maybe a legal entity, or a portion of an entity
 - Derecognition of assets and liabilities

The amendment also includes the revision to the definition and the basis in grouping of an asset and liability in the financial statements. In addition, it clarifies the objectivity of the management and procuring the economic resources of the Group, conservatism principle and uncertainty of measurement basis in the financial reporting.

- b) **Amendment to TFRS 3, Business combinations** amended the definition of a business which requires an acquisition to include an input and a substantive process that together contribute to the ability to significantly create outputs. The definition of the term 'outputs' is amended to focus on goods and services provided to customers and to exclude the reference to the ability to reduce cost from the definition.
- c) **Amendment to TFRS 9, Financial instruments and TFRS 7, Financial instruments: disclosures** amended to provide a relief from applying specific hedge accounting requirements to the uncertainty arising from interest rate benchmark reform such as Interbank offer rates - IBORs. The amendment also requires the disclosure of hedging relationships directly affected by the uncertainty.
- d) **Amendment to TAS 1, Presentation of financial statements and TAS 8, Accounting policies, changes in accounting estimates and errors** amended the definition of materiality and make it consistent on both the Thai Financial Reporting Standards and the Conceptual Framework for Financial Reporting. It also clarified when information is material and incorporates some of the guidance in TAS 1 about immaterial information.

6 Impacts from initial application of the new financial reporting standards

The Group has adopted new financial reporting standard relating to financial instruments (TAS 32, TFRS 7 and TFRS 9) and lease standard (TFRS16) from 1 January 2020 by applying the modified retrospective approach from 1 January 2020. Additionally, the comparative figures have not been restated which is a applicable method in accordance to those accounting policies. The adjustments and the reclassifications arising from the changes in accounting policies were therefore recognised in the statement of financial position as of 1 January 2020.

The impact of first-time adoption of new financial reporting standards relating to financial instruments (TAS 32 and TFRS 9) and leases (TFRS 16) as follows:

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Consolidated financial statements				
Unit: Million US Dollar				
	As at 31 December 2019 Previously reported	TAS 32 and IFRS 9 Adjustments	IFRS 16 Adjustments	As at 1 January 2020 After adjusted
Assets				
Current assets				
Trade and other receivables	983.20	-	0.18	983.38
Non-current assets				
Investments in associates	227.63	22.71	-	250.34
Property, plant and equipment	10,661.98	-	(122.43)	10,539.55
Right-of-use assets	-	-	495.58	495.58
Intangible assets	131.97	-	(4.85)	127.12
Other non-current assets	171.32	-	(6.71)	164.61
Liabilities and equity				
Current liabilities				
Current portion of lease liabilities due within one year	18.28	-	83.32	101.60
Non-current liabilities				
Lease liabilities	125.41	-	278.45	403.86
Equity				
Other components of equity	(12.94)	22.71	-	9.77

Consolidated financial statements				
Unit: Million Baht				
	As at 31 December 2019 Previously reported	TAS 32 and IFRS 9 Adjustments	IFRS 16 Adjustments	As at 1 January 2020 After adjusted
Assets				
Current assets				
Trade and other receivables	29,647.44	-	5.54	29,652.98
Non-current assets				
Investments in associates	6,863.84	684.78	-	7,548.62
Property, plant and equipment	321,501.44	-	(3,691.76)	317,809.68
Right-of-use assets	-	-	14,943.68	14,943.68
Intangible assets	3,979.61	-	(146.41)	3,833.20
Other non-current assets	5,165.86	-	(202.29)	4,963.57
Liabilities and equity				
Current liabilities				
Current portion of lease liabilities due within one year	551.26	-	2,512.29	3,063.55
Non-current liabilities				
Lease liabilities	3,781.72	-	8,396.47	12,178.19
Equity				
Other components of equity	(22,794.18)	684.78	-	(22,109.40)

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	Separate financial statements			
	Unit: Million US Dollar			
	As at 31 December 2019 Previously reported	TAS 32 and IFRS 9 Adjustments	IFRS 16 Adjustments	As at 1 January 2020 After adjusted
Assets				
Current assets				
Trade and other receivables	716.09	-	0.18	716.27
Non-current assets				
Property, plant and equipment	3,305.87	-	(0.97)	3,304.90
Right-of-use assets	-	-	31.42	31.42
Other non-current assets	22.98	-	(0.62)	22.36
Liabilities and equity				
Current liabilities				
Current portion of lease liabilities due within one year	0.30	-	17.06	17.36
Non-current liabilities				
Lease liabilities	0.76	-	12.95	13.71

	Separate financial statements			
	Unit: Million Baht			
	As at 31 December 2019 Previously reported	TAS 32 and IFRS 9 Adjustments	IFRS 16 Adjustments	As at 1 January 2020 After adjusted
Assets				
Current assets				
Trade and other receivables	21,592.97	-	5.54	21,598.51
Non-current assets				
Property, plant and equipment	99,685.10	-	(29.28)	99,655.82
Right-of-use assets	-	-	947.37	947.37
Other non-current assets	692.84	-	(18.55)	674.29
Liabilities and equity				
Current liabilities				
Current portion of lease liabilities due within one year	9.00	-	514.53	523.53
Non-current liabilities				
Lease liabilities	22.97	-	390.55	413.52

6.1 Impact of new financial reporting standards relating to financial instruments (TAS 32, IFRS 7 and IFRS 9)

The Group has adopted the new financial reporting standards relating to financial instruments other than the accounting policy relating to financial instruments as disclosed in the financial statements for the year ended 31 December 2019, from 1 January 2020. The Group recognised the cumulative impacts on the date of initial application to the brought forward retained earnings (modified retrospective).

The adoption of the new financial reporting standards on financial instruments mainly affects the Group's accounting treatment as follows:

Classification of financial liabilities and equity

As at 1 January 2020, the Group has subordinated capital debentures which are classified as equity in the consolidated financial statements in the amount of US Dollar 187.43 million (Baht 6,018.03 million) and separate financial statements in the amount of US Dollar 156.57 million (Baht 4,981.99 million). The Group has considered that the subordinated capital debentures will be settled upon the winding-up of the issuing company or as per the redemption rights as stipulated in the debentures' term and condition. The issuer may elect to defer the payment of a distribution at its sole discretion without any limit as to the number of times. The deferred distributions will be accumulated but will not bear additional interest. However, in accordance with TAS 32, Financial instruments: Presentation, which is effective in the period, there are certain conditions in the indenture of subordinated capital debentures, which stated in case the court orders the issuer for restructuring, it can be interpreted as the debentures' holders will have the right to redeem the debentures prior to the liquidation, as such, the subordinated capital debentures has to be classified as financial liabilities. However, in accordance with an announcement issued by the Thailand Federation of Accounting Professions (TFAC) no. 95/2562, it allows the classification of the subordinated capital debentures which was issued and paid-up before 31 December 2019 to be presented as equity. The relief is granted until 31 December 2022 or when the Group has changed the conditions in the indenture to conform with equity classification in accordance with TAS 32, Financial instruments: Presentation.

Classification and measurement of investments in equity instruments (previously classified as other long-term investments)

As at 1 January 2020, the Group has equity instruments measured at cost in the amount of US Dollar 0.35 million (Baht 10.41 million) and equity instruments measured at cost through investment in associate in the amount of US Dollar 149.03 million (Baht 4,493.70 million) and classified as other non-current financial assets and investments in associates, respectively. These equity instruments will be measured at fair value through other comprehensive income (FVOCI) in accordance with the new financial reporting standards. On 1 January 2020, the Group recognised a corresponding fair value adjustment of US Dollar 22.71 million (Baht 684.78 million) to other components of equity.

The fair value measurement of the investment was classified as level 3.

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Classification and measurement

On 1 January 2020 (the date of initial application), the Group's management has assessed the business models to be applied to the financial assets and financial liabilities, and has classified the financial assets and liabilities as below.

	Consolidated financial statements			
	Unit: Million US Dollar			
	Classification and measurement under TAS 105	Classification and measurement under TFRS 9	Carrying amounts TAS 105	Carrying amounts TFRS 9
Current financial assets				
Cash and cash equivalents	Amortised cost	Amortised cost	2,822.90	2,822.90
Short-term investments	Held-to-maturity	Amortised cost	200.00	200.00
Trade and other receivables	Amortised cost	Amortised cost	983.20	983.20
Derivative assets	Fair value through profit or loss (FVPL)	FVPL	12.34	12.34
Other current financial assets	FVPL	FVPL	213.70	213.70
Other current assets	Amortised cost	Amortised cost	40.19	40.19
Non-current financial assets				
Long-term loans to related parties	Amortised cost	Amortised cost	86.06	86.06
Derivative assets	FVPL	FVPL	83.68	83.68
	- Hedge derivatives	- Hedge derivatives		
Other non-current financial assets				
- Available for sale investments	Available for sale	FVOCI	0.52	0.52
- Other long term investments	Cost less impairment	FVOCI	0.35	0.35
Other non-current assets				
- Pension scheme investments from joint operation	FVPL	FVPL	44.88	44.88
- Others	Amortised cost	Amortised cost	60.11	60.11
Current financial liabilities				
Trade and other payables	Amortised cost	Amortised cost	888.93	888.93
Derivative liabilities	FVPL	FVPL	15.21	15.21
Other current liabilities	Amortised cost	Amortised cost	66.03	66.03
Non-current financial liabilities				
Debentures	Amortised cost	Amortised cost	2,704.75	2,704.75
Long-term loans	Amortised cost	Amortised cost	593.26	593.26
Other non-current liabilities				
- Contingent considerations from business acquisition	FVPL	FVPL	7.10	7.10
- Contingent considerations from participating interest acquisition in a joint venture	FVPL	FVPL	51.98	51.98
- Others	Amortised cost	Amortised cost	0.30	0.30

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	Consolidated financial statements			
	Unit: Million Baht			
	Classification and measurement under TAS 105	Classification and measurement under TFRS 9	Carrying amounts TAS 105	Carrying amounts TFRS 9
Current financial assets				
Cash and cash equivalents	Amortised cost	Amortised cost	85,121.64	85,121.64
Short-term investments	Held-to-maturity	Amortised cost	6,030.80	6,030.80
Trade and other receivables	Amortised cost	Amortised cost	29,647.44	29,647.44
Derivative assets	FVPL	FVPL	372.16	372.16
Other current financial assets	FVPL	FVPL	6,444.00	6,444.00
Other current assets	Amortised cost	Amortised cost	1,211.75	1,211.75
Non-current financial assets				
Long-term loans to related parties	Amortised cost	Amortised cost	2,594.92	2,594.92
Derivative assets	FVPL	FVPL	2,523.21	2,523.21
	- Hedge derivatives	- Hedge derivatives		
Other non-current financial assets				
- Available for sale investments	Available for sale	FVOCI	15.81	15.81
- Other long term investments	Cost less impairment	FVOCI	10.41	10.41
Other non-current assets				
- Pension scheme investments from joint operation	FVPL	FVPL	1,353.50	1,353.50
- Others	Amortised cost	Amortised cost	1,812.43	1,812.43
Current financial liabilities				
Trade and other payables	Amortised cost	Amortised cost	26,804.65	26,804.65
Derivative liabilities	FVPL	FVPL	458.76	458.76
Other current liabilities	Amortised cost	Amortised cost	1,991.13	1,991.13
Non-current financial liabilities				
Debentures	Amortised cost	Amortised cost	81,558.91	81,558.91
Long-term loans	Amortised cost	Amortised cost	17,889.20	17,889.20
Other non-current liabilities				
- Contingent considerations from business acquisition	FVPL	FVPL	213.94	213.94
- Contingent considerations from participating interest acquisition in a joint venture	FVPL	FVPL	1,563.84	1,563.84
- Others	Amortised cost	Amortised cost	8.93	8.93

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	Separate financial statements			
	Unit: Million US Dollar			
	Classification and measurement under TAS 105	Measurement categories TFRS 9	Carrying amounts TAS 105	Carrying amounts TFRS 9
Current financial assets				
Cash and cash equivalents	Amortised cost	Amortised cost	715.77	715.77
Short-term investments	Held-to-maturity	Amortised cost	200.00	200.00
Trade and other receivables	Amortised cost	Amortised cost	716.09	716.09
Short-term loans to a related party	Amortised cost	Amortised cost	362.00	362.00
Other financial derivatives	FVPL	FVPL	0.25	0.25
Other current financial assets	FVPL	FVPL	0.21	0.21
Other current assets	Amortised cost	Amortised cost	37.04	37.04
Non-current financial assets				
Long-term loans to related parties	Amortised cost	Amortised cost	6,410.31	6,410.31
Derivative assets	FVPL	FVPL	64.10	64.10
	- Hedge derivatives	- Hedge derivatives		
Other non-current financial assets	Cost less impairment	FVOCI	0.05	0.05
Other non-current assets	Amortised cost	Amortised cost	4.98	4.98
Current financial liabilities				
Trade and other payables	Amortised cost	Amortised cost	313.51	313.51
Derivative liabilities	FVPL	FVPL	12.03	12.03
Other current liabilities	Amortised cost	Amortised cost	3.10	3.10
Non-current financial liabilities				
Debentures	Amortised cost	Amortised cost	377.76	377.76

	Separate financial statements			
	Unit: Million Baht			
	Classification and measurement under TAS 105	Classification and measurement under TFRS 9	Carrying amounts TAS 105	Carrying amounts TFRS 9
Current financial assets				
Cash and cash equivalents	Amortised cost	Amortised cost	21,583.27	21,583.27
Short-term investments	Held-to-maturity	Amortised cost	6,030.80	6,030.80
Trade and other receivables	Amortised cost	Amortised cost	21,592.97	21,592.97
Short-term loans to a related party	Amortised cost	Amortised cost	10,915.76	10,915.76
Derivatives assets	FVPL	FVPL	7.63	7.63
Other current financial assets	FVPL	FVPL	6.34	6.34
Other current assets	Amortised cost	Amortised cost	1,116.78	1,116.78
Non-current financial assets				
Long-term loans to related parties	Amortised cost	Amortised cost	193,296.37	193,296.37
Derivative assets	FVPL	FVPL	1,932.75	1,932.75
	- Hedge derivatives	- Hedge derivatives		
Other non-current financial assets	Cost less impairment	FVOCI	1.44	1.44
Other non-current assets	Amortised cost	Amortised cost	150.07	150.07

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	Separate financial statements			
	Unit: Million Baht			
	Classification and measurement under TAS 105	Classification and measurement under TFRS 9	Carrying amounts TAS 105	Carrying amounts TFRS 9
Current financial liabilities				
Trade and other payables	Amortised cost	Amortised cost	9,453.54	9,453.54
Derivative liabilities	FVPL	FVPL	362.65	362.65
Other current liabilities	Amortised cost	Amortised cost	93.36	93.36
Non-current financial liabilities				
Debentures	Amortised cost	Amortised cost	11,391.04	11,391.04

6.2 Impact of new financial reporting standard relating to leases (TFRS 16)

On adoption of TFRS 16 as at 1 January 2020, the Group recognised lease liabilities in relation to leases which had previously been classified as 'operating leases' under the principles of TAS 17 Leases. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rates. The weighted average lessee's incremental borrowing rates applied to the lease liabilities for the Group and the Company were 3.10% and 2.79% per annum, respectively.

For leases previously classified as finance leases the Group recognised the carrying amount of the lease asset and lease liability immediately before the transition as the carrying amount of the right-of-use assets and the lease liabilities at the date of initial application. The measurement principles of TFRS 16 are only applied after that date.

The reconciliations of lease liabilities as at 1 January 2020 are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Operating lease commitments disclosed as at 31 December 2019	161.79	4,877.76	11.64	350.57
(Less): Impact from using the lessee's incremental borrowing rate at the date of initial application	(9.20)	(277.57)	(1.83)	(55.17)
(Less): Short-term leases recognised on a straight-line basis as expense	(9.63)	(290.50)	(1.60)	(48.31)
Add: Lease impact from joint operation	57.51	1,734.09	-	-
Add: Adjustments related to extension and termination options of lease contracts	146.51	4,417.71	0.21	6.33
Add: Others	14.79	447.28	21.58	651.66
Lease liability recognised from adoption of TFRS 16 as at 1 January 2020	361.77	10,908.77	30.00	905.08
Add: Finance lease liabilities recognised as at 31 December 2019	143.69	4,332.97	1.06	31.98
Lease liability recognised as at 1 January 2020	505.46	15,241.74	31.06	937.06
Current lease liabilities	101.60	3,063.55	17.36	523.53
Non-current lease liabilities	403.86	12,178.19	13.70	413.53

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The recognised right-of-use assets relate to the following type of assets:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	1 January 2020	31 December 2020	1 January 2020
Petroleum exploration and production assets	467.97	466.86	14,056.51	14,077.53
Others	14.81	28.72	444.72	866.15
Total right-of-use assets	482.78	495.58	14,501.23	14,943.68
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	1 January 2020	31 December 2020	1 January 2020
Petroleum exploration and production assets	39.99	5.94	1,201.32	179.13
Others	12.42	25.48	372.99	768.24
Total right-of-use assets	52.41	31.42	1,574.31	947.37

Practical expedients applied

In applying TFRS 16 for the first time, the Group elects not to reassess whether a contract is, or contains a lease as defined under TFRS 16 at the date of initial application, but relied on its assessment made applying TAS 17 and TFRIC 4 Determining whether an Arrangement contains a Lease and no assessments on whether leases are onerous and consider the operating leases with a remaining lease term of less than 12 months as at 1 January 2020 to be short-term leases.

7 Accounting policies

The principal accounting policies applied in the preparation of these consolidated and separate financial statements are set out below.

7.1 Principles of consolidation accounting

a) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are consolidated from the date on which control is transferred to the Group until the date that control ceases.

In the separate financial statements, investments in subsidiaries are accounted for using cost method less impairment (if any).

List of subsidiaries has been presented in Note 18.

b) Associates

Associates are all entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting.

In the separate financial statements, investments in associates are accounted for using cost method less impairment (if any).

List of associates has been presented in Note 18.

c) **Joint arrangements**

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

Joint operations

A joint operation is a joint arrangement whereby the Group has rights to the assets, and obligations for the liabilities relating to the arrangement. The Group recognises its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. These have been incorporated in the Group's financial statement line items.

Joint ventures

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method in the consolidated financial statements.

In the separate financial statements, investments in joint ventures are accounted for using cost less impairment (if any).

List of joint ventures and joint operations have been presented in Note 18.

d) **Equity method**

The investment is initially recognised at cost which is consideration paid and directly attributable costs.

The Group's subsequently recognises shares of its associates and joint ventures' profits or losses and other comprehensive income in the profit or loss and other comprehensive income, respectively. The subsequent cumulative movements are adjusted against the carrying amount of the investment.

When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

e) **Changes in ownership interests**

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A difference between the amount of the adjustment to non-controlling interests to reflect their relative interest in the subsidiary and any consideration paid or received is recognised within equity.

If the ownership interest in associates and joint ventures is reduced but significant influence and joint control is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in associates and joint ventures is recognise in profit or loss.

When the Group losses control, joint control or significant influence over investments, any retained interest in the investment is remeasured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value becomes the initial carrying amount of the retained interest which is reclassified to investment in an associate, or a joint venture or a financial asset accordingly.

f) **Intercompany transactions on consolidation**

Intra-group transactions, balances and unrealised gains on transactions are eliminated. Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated in the same manner unless the transaction provides evidence of an impairment of the asset transferred.

7.2 Business combination

The Group applies the acquisition method to account for business combinations with an exception on business combination under common control. The consideration transferred for the acquisition of a subsidiary comprises.

- Fair value of the assets transferred,
- Liabilities incurred to the former owners of the acquiree,
- Equity interests issued by the Group.

Identifiable assets and liabilities acquired and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date.

The excess of the consideration transferred, the amount of any non-controlling interest recognised and the acquisition-date fair value of any previous equity interest in the acquiree (for business combination achieved in stages) over the fair value of the identifiable net assets acquired is recorded as goodwill. In the case of a bargain purchase, the difference is recognised directly in profit or loss.

Acquisition-related cost are recognised as expenses in consolidated financial statements

Subsequent changes to the fair value of the contingent consideration that is an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured.

Business combination under common control

The Group accounts for business combination under common control by measuring acquired assets and liabilities of the acquiree at their carrying values presented in the highest level of the consolidation. The Group retrospectively adjusted the business combination under common control transactions as if the combination had occurred on the later of the beginning of the preceding comparative period and the date the acquiree has become under common control.

Consideration of business combination under common control are the aggregated amount of fair value of assets transferred, liabilities incurred and equity instruments issued by the acquirer at the date of which the exchange in control occurs.

The difference between consideration under business combination under common control and the acquirer's interests in the carrying value of the acquiree is presented as "surplus arising from business combination under common control" in equity and is derecognised when the investment is disposed.

7.3 Foreign currency translation

a) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The financial statements are presented in US Dollar, which is the Company's functional currency and the Company's and Group's presentation currency.

b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit or loss, any exchange component of that gain or loss is recognised in profit or loss.

c) Group companies

The operational results and financial position of the Group's entities (none of which has the currency of a hyper-inflationary economy) that have a different functional currency from the Group's presentation currency are translated into the presentation currency.

To comply with the financial reporting requirements of the Stock Exchange of Thailand and the Department of Business Development, the Group presents the financial statements by translating from US Dollar to Thai Baht. The assets and liabilities are translated into Thai Baht using the average buying and selling rates determined by the Bank of Thailand at period-end, whereas the statement of income and the statement of comprehensive income is translated using average exchange rates during the period. Differences from such translations have been presented in other comprehensive income (loss).

7.4 Cash and cash equivalents

Cash and cash equivalents includes cash on hand, deposits at bank, short-term highly liquid investments with maturities of three months or less from acquisition date.

7.5 Trade accounts receivable

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business.

Trade receivables are recognised initially at the amount of consideration that is unconditional unless they contain significant financing components, they are recognised at fair value. The Group measures them subsequently at amortised cost.

The impairment of trade accounts receivable are disclosed in Note 7.8 (f).

7.6 Inventories

Inventories are stated at the lower of cost and net realisable value.

Cost of inventories is determined by the weighted average method. Net realisable value is the estimated selling price in the ordinary course of business less the costs of completion and selling expenses.

7.7 Materials and supplies

Materials and supplies are stated at cost less allowance for obsolescence.

The costs of materials and supplies are determined using the weighted average cost method.

7.8 Financial asset

For the year ended 31 December 2020

a) Classification

From 1 January 2020, the Group classifies its debt instrument financial assets into the following measurement categories depending on i) business model for managing the asset and ii) the cash flow characteristics of the asset whether they represent solely payments of principal and interest (SPPI).

- Those to be measured subsequently at fair value through other comprehensive income (FVOCI) or fair value through profit or loss (FVPL); and
- Those to be measured at amortised cost.

For investments in equity instruments, the Group has an irrevocable election at the time of initial recognition to account for the equity investment at a) fair value through profit or loss or b) at fair value through other comprehensive income except those that are held for trading, they are measured at FVPL.

b) Recognition and derecognition

Regular way purchases, acquires and sales of financial assets are recognised on the date on trade date, which the Group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

c) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus or minus, in the case of a financial asset not at FVPL, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at FVPL are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether the cash flows are solely payment of principal and interest.

d) Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its debt instruments:

- Amortised cost - Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in interest income using the effective interest rate method. Any gain or loss arising on derecognition and foreign exchange gains and losses are recognised in profit or loss and presented in other gains/(losses) and gain (loss) on foreign exchange rates, respectively. Impairment losses are presented as a separate line item in the statement of income.
- FVOCI - Financial assets that are held for i) collection of contractual cash flows and ii) for selling the financial assets are measured at FVOCI. Movements in the carrying amount are taken through other comprehensive income (OCI), except for the recognition of impairment gains or losses, interest income using the effective interest method, and foreign exchange gains and losses which are recognised in profit or loss. When the financial assets is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss and recognised in other gains/(losses). Interest income is included in interest income. Impairment expenses are presented separately in the statement of income.
- FVPL - Financial assets that do not meet the criteria for amortised cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognised in profit or loss and presented in gains (loss) on remeasuring of financial instruments from in the period in which it arises.

The Group reclassifies debt instruments only when its business model for managing those assets changes.

e) Equity instruments

The Group measures all equity investments at fair value. Where the Group has elected to present fair value gains and losses on equity instruments in OCI, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments continue to be recognised in profit or loss as other income when the right to receive payments is established.

Changes in the fair value of financial assets at FVPL are recognised in gain on remeasuring financial instruments in the incurring period.

Impairment losses and reversal of impairment losses on equity investments are reported together with changes in fair value.

f) **Impairment**

From 1 January 2020, the Group applies the TFRS 9 simplified approach in recognising the impairment of trade and other receivables, which applies lifetime expected credit loss, from initial recognition, for trade and other receivables.

To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The expected loss rates are based on the payment profiles and the corresponding historical credit losses experienced. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle the receivables.

For long-term loans to related parties and other financial assets carried at amortised cost and FVOCI, the Group applies TFRS 9 general approach in measuring the impairment of those financial assets. Under the general approach, the 12-month or the lifetime expected credit loss is applied depending on whether there has been a significant increase in credit risk since the initial recognition.

The credit risk assessment is performed at the end of each reporting period whether there is any significant increase in credit risk profile from the initial recognition by comparing i) expected risk of default as of the reporting date and ii) estimated risk of default on the date of initial recognition.

The Group assesses expected credit loss by taking into consideration forward-looking information and past experiences. The expected credit loss is a probability-weighted estimate of credit losses (probability-weighted present value of estimated cash shortfall). The cash shortfall is the difference between all contractual cash flows that are due to the Group and all cash flows expected to receive, discounted at the original effective interest rate.

When measuring expected credit losses, the Group reflects the following:

- Probability-weighted estimated uncollectible amounts;
- Time value of money; and
- Supportable and reasonable information as of the reporting date about past experience, current conditions and forecasts of future situations.

Impairment and reversal of impairment losses are recognised in profit or loss and included in administrative expenses.

For the year ended 31 December 2019

The Group classifies its financial assets into 4 categories: (1) at fair value through statements of income, (2) held-to-maturity, (3) loans and receivables and (4) available for sale. The classification depends on the purpose for which the financial assets are acquired.

Financial assets are initially recognised at fair value. In case that financial assets are not initially recognised at fair value through statements of income, they are recognised at the amount of fair value, net of the transaction costs directly attributable to the acquisition or the acquisition or the issue of such financial assets. The subsequent measurement of financial assets depends on their classification. Loans and receivables, and held-to-maturity financial assets are initially recognised at fair value, net of the transaction cost and are subsequently measured at amortised cost using the effective interest method with gains or losses recognised in the statements of income.

Short term investments

Investments with fixed maturity of more than 3 months but within 12 months from the date of acquisition and the Group intends to hold them to maturity, are subsequently recognised at amortised cost using the effective yield method less allowance for decrease in value of investments. A test for allowance for decrease in value of investment is carried out when there is a factor indicating that the value of investments might be decreased. If the carrying value of the investments is higher than its recoverable amount, the Group will recognise the loss on decrease in value of investments in the statements of income.

The embedded derivatives in financial assets and liabilities are separately recognised from its main financial instruments when they meet the conditions specified in the accounting standard. However, the entity may designate those financial assets or liabilities with embedded derivative as the financial assets and liabilities measured at fair value through profit or loss if the embedded derivative significantly modify the cash flows that otherwise would be required by the contract.

Investments in trading securities

Investment in trading securities are acquired principally for the purpose of generating a profit from the price fluctuation.

Investment in trading securities are initially recognised at cost, which is equal to the fair value of consideration paid plus transaction cost, and subsequently measured at fair value. The fair value of investments is based on value of net assets of the unit trust. The unrealised gains and losses of investment will be recognised in the statement of income.

Investments in available-for-sale securities

Investments in available-for-sale securities are initially recognised at cost, which is equal to the fair value of consideration paid plus transaction cost and subsequently measured at fair value. The fair value of investment is based on the closing price at the last day of the reporting period from the investment's reference source. Unrealised gains or losses of investments in available-for-sale securities are recognised in other comprehensive income (loss).

A test of impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is recognised in the statements of income.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is recognised in the statements of income.

Other long-term investments

The Group classifies investments in non-marketable equity securities other than investments in subsidiaries, associates, joint ventures and joint operations as general investments and presents them as long as other long-term investments at cost less provision for impairment in the statements of financial position. A test for impairment is carried out when there is an indicator that the investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, the Group will recognise the impairment loss in the statements of income.

Impairment of financial assets

The Group assesses at each statements of financial position date whether a financial asset or group of financial assets is impaired. If there is objective evidence that an impairment loss has been incurred, the amount of impairment loss is measured as the difference between book value of financial assets and present value of future cash flows discounted using the original effective interest rate according to the contract. Impairment loss is recognised as gains or losses in the statements of income.

7.9 Group of non-current assets held-for-sale

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount will be recovered principally through a sale transaction and a sale is considered highly probable. They are measured at the lower of the carrying amount and fair value less costs to sell.

An impairment loss is recognised for initial and subsequent write-down of the asset (or disposal group) to fair value less costs to sell. A gain is recognised for any subsequent increases in fair value less costs to sell of an asset (or disposal group), but not in excess of any cumulative impairment loss previously recognised.

Non-current assets (including those that are part of a disposal group) are not depreciated or amortised.

7.10 Property, plant and equipment

Property, plant and equipment are presented at cost, after deducting accumulated depreciation and the provision for the impairment of assets.

Land is not depreciated. Depreciation on other assets is calculated as follows:

a) Exploration and production assets

The Group follows the Successful Efforts Method in accounting for its assets used for exploration and production activities as follows:

Cost of exploration and production assets

- Costs of exploration and production assets comprise total acquisition costs of petroleum rights or the acquisition costs of the portion of properties, decommissioning costs as well as support equipment and facilities.
- Exploratory drilling costs are capitalised as exploration and evaluation assets and will be classified as oil and gas properties of the projects if their exploratory wells have identified proved reserves that have been found to be commercially producible. However, if the exploratory wells have not identified proved reserves or have identified proved reserves but have not been found to be commercially producible, such drilling costs will be expensed in the statements of income.
- Exploration costs, comprising geological and geophysical costs as well as area reservation fees during the exploration stage, are charged to expenses in the statement of income when incurred.
- Development costs, whether relating to the successful or unsuccessful development of wells, are capitalised as oil and gas properties.

Depreciation and depletion

- The capitalised acquisition costs of petroleum rights are depreciated using the unit of production method based on proved reserves. Depreciation of exploratory wells, development costs as well as decommissioning costs, except unsuccessful projects, are calculated using the unit of production method based on proved reserves or proved developed reserves. The Group recognises changes in reserve estimates prospectively.
- Proved reserves and proved developed reserves are calculated by the engineers of the Company and are based on the information received from the joint operators.
- Depreciation for support equipment and facilities is calculated using the straight-line method with an estimated useful life of assets not exceeding 20 years.
- Depreciation for remuneration for the renewal of petroleum production is calculated using the straight-line method with an estimated useful life not exceeding 10 years in accordance with the agreement.

b) Pipelines and others

Costs of properties comprises of other direct costs necessary to bring the asset to working condition suitable for its intended use.

Depreciation of pipelines and others is determined using the straight-line method with an estimated useful life of assets not exceeding 30 years.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

Subsequent costs are included in the asset's carrying amount, only when it is probable that future economic benefits associated with the item will flow to the Group. The carrying amount of the replaced part is derecognised.

Repair and maintenance costs are recognised as expenses when incurred.

Gains and losses on disposal of property, plant and equipment are determined by comparing proceeds from disposal with the carrying amount and are recognised in the statement of income when incurred.

7.11 Rights to receive reimbursement from decommissioning funds

Rights to receive reimbursement from decommissioning funds is recognised at present value when the Group contribute cash into the fund in accordance to terms and it is certainly probable that it can reimburse the cost of decommissioning from the funds. When funds reimburse cash to the Group after the completion of the decommissioning activities, cash will be adjusted against the right to receive reimbursement from decommissioning funds. The differences between the amount received and the remaining carrying amount of the decommissioning fund is recognized profit or loss.

The Group will not offset the rights to receive reimbursement from decommissioning fund with provisions for decommissioning costs if the Group is still obligated to the decommissioning liabilities. The Group does not have control, joint control or significant influence over the funds.

7.12 Goodwill

Goodwill arises from the business combination which represents the excess of the fair value of the consideration transferred over the fair value of the net identifiable assets, liabilities and contingent liabilities of the acquired subsidiaries, joint operations, associates or joint ventures undertaking at the date of the acquisition.

Goodwill on acquisitions of subsidiaries and joint operations is separately reported in the statements of financial position, while goodwill on acquisitions of associates and joint ventures is included in investment in associates and joint ventures.

Goodwill is not amortised but is annually tested for impairment. Goodwill is allocated to cash-generating unit of group of cash-generating units that are expected to gain benefit from goodwill from the business combination. Goodwill is presented at cost less accumulated impairment losses.

Impairment losses on goodwill are not reversed. The carrying amount of goodwill is included in the gains and losses on the disposal of business when it is divested.

7.13 Intangible assets

Intangible assets are presented at cost, after deducting accumulated amortisation and the allowance for the impairment of assets.

Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down to its recoverable amount.

Intangible assets are amortised using the straight-line method according to asset's useful life but not exceeding 10 years.

Research and development/ internally generated intangible assets

Research expenditure is recognised as an expense as incurred.

Development expenditure is recognised as an asset when the Group can demonstrate all of the following:

- The expenditure attributable to its development can be measured reliably and feasibility in technical, financial, commercial, and resource and;
- The Group intends to and has the ability to complete the development for the purpose of using or selling.

Development costs previously recognised as an expense are not recognised as an asset in a subsequent period.

Other intangible assets

Other intangible assets comprise expenditures incurred to acquire computer software licenses and concession rights in midstream oil and gas business.

7.14 Exploration and evaluation assets

Exploration and evaluation expenditures are capitalised at cost as exploration and evaluation assets. If the projects have identified the proved reserves that have been found to be commercially producible, the capitalised exploration and evaluation expenditures under these projects will be transferred to oil and gas properties of the projects with proved reserves. Subsequent accounting of such costs is described in the accounting policy for property, plant and equipment in Note 7.10 - Property, Plant and Equipment. The capitalised exploration and evaluation expenditure is written off as expenses in the statements of income in the period in which the projects have not identified proved reserves or have identified proved reserves, but have not been found to be commercially producible.

7.15 Impairment of assets

The Group's assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may exceed the recoverable amount. Intangible assets that have an indefinite useful life or are not ready to be used are tested for impairment annually.

An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount which is the higher of an asset's fair value less costs to sell and its value in use, and is recorded in the statement of income. For the purposes of assessing impairment, assets are grouped at the lowest levels in which they are separately identifiable.

Estimates of future cash flows used in the evaluation for impairment of assets which relate to petroleum production are made with consideration of the risk assessment on field and reservoir performance which includes the estimate of proved and unproved reserves.

Allowance for impairment of assets, except when relating to goodwill, is reversed as applicable to the extent that the events or circumstances that triggered the original allowance for impairment change. For this circumstance, the increased carrying amount of the assets from the reversal could not exceed the carrying amount (net of amortisation or depreciation), if the Group did not recognise the impairment loss for assets in the prior period.

7.16 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity.

Current tax

The current income tax is calculated on the basis of the tax laws enacted or substantially enacted at the end of the reporting period. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax

Deferred income tax is recognised on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements. However, deferred income tax is not recognised for temporary differences arise from:

- Initial recognition of an asset or liability in a transaction other than a business combination that affects neither accounting nor taxable profit or loss is not recognised
- Investments in subsidiaries, associates and joint arrangements where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not be reversed in the foreseeable future.

Deferred income tax is measured using tax rates of the period in which temporary difference is expected to be reversed, based on tax rates and tax laws that have been enacted or substantially enacted by the end of the reporting period.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax assets and liabilities balances relate to the same or different taxable entities which intend either to settle current tax liabilities and assets on a net basis.

7.17 Deferred remuneration under agreement

The Company has an obligation to make a payment to the buyer (PTT) under the conditions in the Gas Sales Agreement of Arthit project. The remuneration is classified as non-current asset, presented under the caption "Other non-current assets", and amortised over contract life using the straight-line method.

7.18 Leases

For the year ended 31 December 2020

Leases – where the Group is lessee

Leases are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. In the event that the Group cannot allocate the lease and non-lease components, the Group elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Assets and liabilities arising from a lease are initially measured at a present value basis. Lease liabilities include the net present value of the following lease payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payment that are based on an index or a rate
- Amounts expected to be payable by the lessee under residual value guarantees
- The exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Lease payments under the extension options period are also included in the measurement of the liability, if the Group is reasonably certain about exercising its extension options.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The Group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Right-of-use assets are measured at cost comprising the following:

- The amount of the initial measurement of lease liability
- Any lease payments made at or before the commencement date less any lease incentives received
- Any initial direct costs, and
- Restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise computer and IT equipment.

Leases - where the Group is the lessor

Assets leased under operating leases are included in property, plant and equipment in the statements of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income is recognised on a straight-line basis over the lease term.

For the year ended 31 December 2019

Leases - where the Group is the lessee

Leases of property, plant and equipment in which substantially all the risks and rewards of ownership are transferred to the lessee are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased property or the net present value of the lease payments. Each lease payment is allocated to the principal and to the finance costs so as to achieve a constant interest rate on the liability balance outstanding. The outstanding rental obligations, net of finance costs, are included in liabilities. The interest expenses are recorded in the statements of income over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liabilities for each period.

The property, plant and equipment acquired under finance leases are depreciated over the shorter period of the useful life of the asset or the lease term.

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases are charged to the statements of income on a straight-line basis over the lease period.

When an operating lease is terminated before the lease period has expired, any payment required to be made to the lessor by way of penalty is recognised as an expense in the period in which the termination takes place.

Leases - where the Group is the lessor

Assets leased out under operating leases are included in property, plant and equipment in the statements of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income is recognised on a straight-line basis over the lease term.

7.20 Financial liabilities

For the year ended 31 December 2020

a) Classification

Financial instruments issued by the Group are classified as either financial liabilities or equity securities by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity, it is considered a financial liability unless there is a predetermined or possible settlement for a fixed amount of cash in exchange of a fixed number of the Group's own equity instruments.
- Where the Group has no contractual obligation or has an unconditional right to avoid delivering cash or another financial asset in settlement of the obligation, it is considered an equity instrument.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.

b) Measurement

Financial liabilities are initially recognised at fair value and are subsequently measured at amortised cost.

c) Derecognition and modification

Financial liabilities are derecognised when the obligation specified in the contract is discharged, cancelled, or expired.

Where the terms of a financial liability are renegotiated/modified, the Group assesses whether the renegotiation / modification results in the derecognition of that financial liability. Where the modification results in an extinguishment, the new financial liability is recognised based on fair value of its obligation. The remaining carrying amount of financial liability is derecognised. The difference as well as proceed paid is recognised as other gains/(losses) in profit or loss.

Where the modification does not result in the derecognition of the financial liability, the carrying amount of the financial liability is recalculated as the present value of the renegotiated / modified contractual cash flows discounted at its original effective interest rate. The difference is recognised in other gains/(losses) in profit or loss.

For the year ended 31 December 2019

Financial liabilities are classified as (1) at fair value through statements of income, and (2) at amortised cost.

Financial liabilities are initially recognised at fair value. In case that financial assets or financial liabilities are not initially recognised at fair value through statements of income, they are recognised at the amount of fair value, net of the transaction costs directly attributable to the acquisition or the issue of such financial assets or financial liabilities. The subsequent measurement of financial assets or financial liabilities depends on their classification.

Financial liabilities measured at amortised cost are initially recognised at fair value, net of the transaction cost and are subsequently measured at amortised cost using the effective interest method with gains or losses recognised in the statements of income.

Borrowings and debentures

Borrowings and debentures are recognised initially at the fair value, net of directly attributable transaction costs incurred. Borrowings and debentures are subsequently stated at amortised cost.

Borrowings and debentures are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.

7.20 Borrowing costs

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, are added to the cost of those assets less investment income earned from these specific borrowings. The capitalisation of borrowing costs is ceased when substantially all of the activities necessary to prepare the qualifying assets for its intended use or sale are complete.

Other borrowing costs are recognised as expenses in the period in which they are incurred.

7.21 Employee benefits

The Group has recognised employee benefits based on the types of benefits which are post-employment benefits and other long-term benefits.

a) Post-employment benefits

The Group has recognised both defined contribution and defined benefit plans as follows:

Defined contribution plan

The Group's employees have become members of the following provident funds: "Employee of PTTEP Registered Provident Fund", "Sinsataporn Registered Provident Fund" and "TISCO Master Pooled Fund Registered Provident Fund".

The provident funds are funded by payments from employees and from the Group which are held in a separate trustee-administered fund. The Group contributes to the funds at a rate of 3% - 15% of the employees' salaries which are charged to the statements of income in the period the contributions are made.

Employee retirement benefits

The Group's obligation in respect of the retirement benefit plans is calculated by estimating the amount of future benefits that employees will earn in return for their services to the Group in current and future periods. Such benefits are discounted to the present value. The employee benefits obligation is calculated by an independent actuary using the projected unit credit method. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income (loss) in the period in which they arise.

Past-service costs are recognised immediately in the statements of income.

b) Other long-term benefits

The Group's other long-term benefits are benefits based on employees' length of service. The Group calculates the amount of these benefits according to the employees' service period.

The expected obligation of these benefits is calculated by independent actuarial experts and accrued over the period of employment based on the same accounting practice used for the employee retirement benefits. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions will be recognised in the statements of income in the period in which they arise.

The Group recognises the obligation in respect of employee benefits in the statements of financial position under "Provision for Employee Benefits" as disclosed in Note 31.

7.22 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation. The increase in the provision due to passage of time is recognised as interest expense.

7.23 Capital management

The Group's objectives when managing capital are to safeguard its ability to continue as a going concern, to provide returns for shareholders and benefits for other stakeholders, and maintain an optimal capital structure to reduce the cost of capital.

7.24 Other reserve for expansion

The Group considers to set aside a reserve for expanding its investments in new projects in the exploration phase, which is generally susceptible to high risk, and for exploration of additional petroleum reserves. The reserve for expansion is set aside at no more than 35% of the net taxable income from its exploration and production activities.

7.25 Revenue recognition

Revenue are recorded net of value added tax. They are recognised in accordance with the provision of goods or services, provided that collectibility of the consideration is probable.

Multiple element arrangements involving delivery or provision of multiple products or services are separated into individual distinct performance obligations. Total transaction price of the bundled contract is allocated to each performance obligation based on their relative standalone selling prices or estimated standalone selling prices. Each performance obligation is recognised as revenue on fulfillment of the obligation to the customer.

The Group has the revenue recognition in each category as follows:

Revenue from contracts with customers

Revenue from contracts with customers is recognised when the Group complete performance obligations at a point in time by transferring petroleum product to a customer and the control over the product is transferred to a customer whom the product is physically possessed. The revenue is measured at the fair value of the consideration which the Group expects to be entitled in exchange for petroleum product, provided that collectability of the consideration is probable. Inter-company sales revenue is excluded in the consolidated financial statements.

Deferred income under agreements (Take-or-Pay)

Under the Gas Sales Agreements, the Group has obligations to supply minimum quantities of gas to a customer in each contract year. If in any contract year, the customer has not taken the minimum quantities of gas according to the Gas Sales Agreements, the customer shall pay for quantities of gas not taken (Take-or-Pay). If the customer is unable to take the minimum contracted quantities in a given year, the volume of gas that the customer has paid for but has not taken in that year (Make-up) can be taken free of charge in subsequent years. Payments received in advance under these agreements are recognised as deferred income. This deferred income is recognised in the statements of income when the gas is subsequently taken.

Interest income

Interest income is recognised based on time proportion basis considering on an effective interest rate of one point of time until the end of term and considering on an outstanding balance of the principal recognised in deferred income account of the Group.

Dividend income

Dividend income is recognised when the right to receive payment is established.

Other income

Other income is recognised on an accrual basis

7.26 Share capital

Ordinary shares with discretionary dividends are classified as equity.

Incremental costs directly attributable to the issue of new shares or options (net of tax) are shown as a deduction in equity.

7.27 Dividend distribution

Dividend distributed to the Company's shareholders is recognised as a liability when interim dividends are approved by the Board of Directors' meeting, and when the annual dividends are approved by the shareholders' meeting.

7.28 Earnings per share

Basic earnings per share are calculated by dividing the income for the year attributable to ordinary shareholders less interest expense for subordinated capital debentures by the weighted average number of ordinary shares outstanding during the year.

Diluted earnings per share are calculated by dividing the income for the year attributable to shareholders less interest expense for subordinated capital debentures by the weighted average number of ordinary shares outstanding during the year, adjusted with dilutive potential ordinary shares. The Company assumes that all dilutive potential ordinary shares are converted into ordinary shares.

7.29 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker is a person responsible for allocating resources and assessing performance of the operating segments that makes strategic decisions.

In considering the segment reporting, the chief operating decision-maker considers product types as well as geographical areas classified by business segments which are identified by different business activities that are subject to risks and returns that are different from those of other business segments.

7.30 Derivatives and hedging activities

a) Embedded derivative and derivatives that do not qualify for hedge accounting

Embedded derivative that is separately accounted for and derivatives that do not qualify for hedge accounting is initially recognised at fair value. Changes in the fair value are included in other gains (losses).

Fair value of derivatives is classified as a current or non-current following its remaining maturity.

b) Hedge accounting

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The Group designates certain derivatives as either 1) hedges of the fair value of recognised assets or liabilities or 2) hedges of a particular risk associated with the cash flows of highly probable forecast transactions (cash flow hedges).

At inception of the hedge relationship, the Group documents i) the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items and ii) its risk management objective and strategy for undertaking its hedge transactions.

The full fair value of a hedging derivative is classified as a current or non-current asset or liability following the maturity of related hedged item.

The fair values of derivative financial instruments designated in cash flow hedge relationships and movements in the hedging reserve in shareholders' equity are disclosed in Note 9.

Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualified as cash flow hedges is recognised in the cash flow hedge reserve within equity. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss.

The Group applies hedge accounting on cross currency and interest rate swap and interest rate collar (zero cost collar) in hedge relationships that were being used to hedge the underlying assets and liabilities. The Group only designates the spot component of cross currency and interest rate swap and the intrinsic value of interest rate collar (zero cost collar) as hedging instrument. Gains or losses relating to the effective portion of the change in the spot component and intrinsic value are recognised in the cash flow hedge reserve within equity and recognised the changes in foreign currency basis spreads of cross currency and interest rate swap and time value of interest rate collar (zero cost collar) that relate to hedged items as the costs of hedging reserve within other comprehensive income of equity.

Amounts accumulated in equity are reclassified in the periods when the hedged item affects profit or loss.

The gain or loss relating to the effective portion of cross currency and interest rate swap and interest rate collar (zero cost collar) hedging variable rates borrowings and debentures is recognised in profit or loss within finance costs at the same time as the interest expense on the hedged borrowings and debentures.

7.31 Financial guarantee contracts

Financial guarantee contracts are recognised as a financial liability at the time the guarantee is issued. The liability is initially measured at fair value and subsequently at the higher of:

- The amount determined in accordance with the expected credit loss model under TFRS 9; and
- The amount initially recognised less the cumulative amount of income recognised in accordance with the principles of TFRS 15.

The fair value of financial guarantees is determined based on the present value of the difference in cash flows between a) the contractual payments required under the debt instrument; and b) the payments that would be required without the guarantee, or the estimated amount that would be payable to a third party for assuming the obligations.

The Group recognised guarantees associated with loans or other payables without compensation as part of the cost of the investment.

8 Financial risk management

The Group exposes to various risks from its business operations as follows:

8.1 Financial risk

The Group exposes to a variety of financial risks which comprise market risk (including foreign exchange risk, interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential effects on the Group's financial performance. The Group also uses derivative financial instruments to hedge certain exposures.

Financial risk management is centralised and carried out by the financial risk management function. The Group's financial risk management includes areas such as foreign exchange risk, interest rate risk, price risk, credit risk and liquidity risk. The framework parameters are approved by the Board of Directors and used as the key communication and control tools for financial risk management function of the Group's subsidiaries.

8.1.1 Market risk

a) Foreign exchange risk

The vast majority of the Group's domestic and overseas business (revenues and expenses) are in US Dollar and the Group has determined the US Dollar as the functional currency by considering from revenue and operating expenses used in the primary economic environment in which the entity operates. The Group's exposure to the foreign exchange risk arises from transactions which are denominated in currencies that are not the functional currency of each entity under the Group.

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Exposure

The Group and the Company has significant exposure to financial statements from transactions denominated in Baht at the end of the reporting period as follows:

	Consolidated financial statements			
	31 December 2020		31 December 2019	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Cash and cash equivalents	260.54	7,825.82	392.59	11,838.23
Trade and other receivables	355.71	10,684.60	623.65	18,805.48
Other current financial assets	-	-	213.70	6,444.00
Forward foreign exchange contracts - trading *	-	-	100.04	3,016.55
Cross currency and interest rate swaps – hedge derivative *	878.91	26,400.00	875.51	26,400.00
Long-term loans to related parties	15.56	467.50	19.23	580.00
Other non-current financial assets	0.24	7.31	-	-
Other non-current assets	5.23	157.15	4.98	150.18
Trade and other payables	(279.43)	(8,393.36)	(331.09)	(9,983.57)
Forward foreign exchange contracts - trading *	(1,008.37)	(30,288.61)	(1,594.67)	(48,085.60)
Lease liabilities	(16.12)	(484.35)	-	-
Debentures	(878.35)	(26,383.06)	(874.71)	(26,375.99)

	Separate financial statements			
	31 December 2020		31 December 2019	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Cash and cash equivalents	55.29	1,660.80	13.13	396.03
Trade and other receivables	277.30	8,329.20	521.42	15,722.91
Other current financial assets	-	-	0.21	6.34
Forward foreign exchange contracts - trading*	-	-	100.04	3,016.55
Cross currency and interest rate swaps – hedge derivative *	379.53	11,400.00	378.06	11,400.00
Long-term loans to related parties	15.56	467.50	19.24	580.00
Other non-current financial assets	0.24	7.07	-	-
Other non-current assets	5.11	153.34	4.83	145.75
Trade and other payables	(213.29)	(6,406.73)	(259.59)	(7,827.58)
Short-term loans from a related party	(33.73)	(1,013.21)	(145.05)	(4,373.73)
Forward foreign exchange contracts - trading*	(909.22)	(27,310.35)	(1,486.30)	(44,817.87)
Lease liabilities	(10.93)	(328.20)	-	-
Debentures	(379.26)	(11,391.99)	(377.76)	(11,391.04)

* These are disclosed with notional amount.

Financial instruments used by the Group for risk management

The Group manages its foreign exchange risks on financial assets and financial liabilities those are not the Group's functional currency by balancing the structure and transactions, types of assets, liabilities and equity. In addition, the Group uses derivative instruments to manage and hedge the risks exposure of the foreign currency transaction while it also considers costs, effectiveness, and risks that may arise in each interval.

The Group used cross currency and interest rate swaps, forward foreign exchange contracts and foreign currency options in a consistent manner to hedge firm and anticipated foreign exchange commitments and to manage its foreign exchange risk arising from future commercial transactions. The Group does not usually hedge its net investments in foreign operations except in circumstances where there is a material exposure arising from a currency that is anticipated to be volatile and the hedging is cost effective. Foreign currency borrowings are swapped into the entity's functional currency using cross currency and interest rate swaps, except where the foreign currency borrowings are repaid with cash flows generated in the same foreign currency. The purpose of these hedges is to mitigate the impact of movements in foreign exchange rates on assets and liabilities and the profit or loss of the Group.

The Group enters into cross currency and interest rate swaps, forward foreign exchange contracts and foreign currency options to hedge its exposure to foreign exchange risk. Under the Group's policy, the critical terms of these contracts must align with the hedged items. However, the Group do not apply hedge accounting for forward foreign exchange contracts and foreign currency options. As a result, gain or loss is recognised in profit or loss.

The Group only designates the spot component of cross currency and interest rate swap in hedge relationships. The spot component is determined with reference to relevant spot market exchange rates. The difference between the contracted forward rate and the spot market exchange rate is defined as the forward points. It is discounted, where material.

The changes in the forward element of the cross currency and interest rate swaps that relate to hedged items are deferred in the costs of hedging reserve.

The Group and the Company entered into a cross currency and interest rate swaps with 100% of total Thai Baht borrowings which are not matched with the Group's and the Company's functional currency.

Cross currency and interest rate swaps comprise of accrued interest income and expense which will be made twice a year, the due date of interest and principal of the cross currency and interest rate swaps are the same date as loan maturity date.

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The Group's exposure of hedging instrument to financial position and performance are as follows:

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Type of hedge	Hedging instrument		Carrying amount of hedging instrument		Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
	Derivative	Contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht					
Cash flow hedge	Cross currency and interest rate swap	349.05	33.52	1,006.72	1:1	6 June 2029	32.66	4.82%	4.99%
		480.00	15.53	466.62	1:1	19 June 2022	31.25	2.26%	2.63% - 3.05%

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Type of hedge	Hedging instrument		Carrying amount of hedging instrument		Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
	Derivative	Contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht					
Cash flow hedge	Cross currency and interest rate swap	349.05	64.10	1,932.75	1:1	6 June 2029	32.66	4.82%	4.99%
		480.00	19.58	590.46	1:1	19 June 2022	31.25	2.26%	2.63% - 3.05%

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Type of hedge	Hedging instrument		Carrying amount of hedging instrument		Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
	Derivative	Contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht					
Cash flow hedge	Cross currency and interest rate swap	349.05	33.52	1,006.72	1:1	6 June 2029	32.66	4.82%	4.99%

Separate financial statements

31 December 2019

Type of hedge	Hedging instrument		Carrying amount of hedging instrument		Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
	Derivative	Contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht					
Cash flow hedge	Cross currency and interest rate swap	349.05	64.10	1,932.75	1:1	6 June 2029	32.66	4.82%	4.99%

Sensitivity analysis

As shown in the table above, the Group is primarily exposed to changes in Thai Baht and US Dollar exchange rates. The sensitivity of profit or loss to changes in the exchange rates arises mainly from financial assets and financial liabilities denominated in foreign currency other than its functional currency and the impact on profit before income tax arises. If the Group determines the exchange rate as at 31 December 2020 to be changed by 10% and holding all other variables constant, the impact on profit before income tax of the Group will be as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2020		
Baht to 1 US Dollar exchange rate		
- increase 10%	24.99	750.63
- decrease 10%	(24.99)	(750.63)
	Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2020		
Baht to 1 US Dollar exchange rate		
- increase 10%	39.69	1,192.29
- decrease 10%	(39.69)	(1,192.29)

b) Interest rate risk

The Group's main interest rate risk arises from borrowings with variable rates. The Group's policy is to maintain an appropriate proportion of its borrowings at fixed rates and variable rates considering the Group's business operation. In doing so, the Group maintains its fixed interest rate borrowings at 80%. In addition, the Group considers entering into derivative such as interest rate collar (zero cost collar). The Group also considers costs, market conditions, and acceptable risk before entering into the financial instrument to manage interest rate risk.

Interest rate risk is the risk of changes in market value of interest rate which affect to the cash flow from assets and liabilities at variable rates. Therefore, the borrowing at variable rates is the cause of the Group's interest rate risk. The Group manages this risk by maintaining the proportion of borrowings at fixed rates and variable rates in the appropriate level and using interest rate collar (zero cost collar) to hedge the risk from the fluctuation of the change of the reference interest rate.

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The exposure of the Group's borrowings to interest rate changes of the borrowings at the end of the reporting period are as follows:

	Consolidated financial statements					
	2020			2019		
	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings
Variable rate borrowings	594.66	17,861.83	17.36	593.26	17,889.20	17.99
Fixed rate borrowings	2,830.37	85,016.15	82.64	2,704.75	81,558.91	82.01
	3,425.03	102,877.98	100.00	3,298.01	99,448.11	100.00

	Separate financial statements					
	2020			2019		
	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings
Fixed rate borrowings	379.26	11,391.98	100.00	377.76	11,391.04	100.00
	379.26	11,391.98	100.00	377.76	11,391.04	100.00

The percentage of total borrowings shows the proportion of borrowings that are currently at variable rates and fixed rates in relation to the total amount of borrowings. An analysis by maturities is provided in Note 28.

Financial instruments used by the Group for risk management

The Group enters into interest rate collar (zero cost collar), which represents 50% of total variable rate borrowing (2019: None). The interest rate collar (zero cost collar) comprise of put option with interest rate cap at 2.42% per annum and call option with interest rate floor at 0.20% per annum. The variable interest rate is reference to 6M LIBOR. At the end of the reporting period, the 6M LIBOR rate is at 0.26% per annum.

Under interest rate collar (zero cost collar), the reference interest rate will be determined in April and October according to the reference interest rate of the variable rate borrowings and in case either the reference interest rate exceeds the cap or falls below the floor, the net interest receivable and payable is required to be settled every 180 days. The settlement dates coincide with the dates on which is payable on the underlying variable rate borrowings.

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The Group's exposure of interest rate-related hedging instrument to financial position and performance are as follows:

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Type of hedge	Hedging instrument		Carrying amount of hedging instrument		Hedge ratio	Maturity date	Swap rate received	Swap rate paid
	Derivative	Contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht				
Cash flow hedge	Interest rate collar (zero cost collar)	300	(0.67)	(20.24)	1:1	21 October 2024	Reference interest rate, as of borrowing's interest rate reset date, floats over 2.42% per annum	Reference interest rate, as of borrowing's interest rate reset date, floats below 0.20% per annum

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Sensitivity analysis

Profit or loss is mainly sensitive to higher or lower interest expenses from borrowings as a result of changes in interest rates.

The Group is exposed to change in market rate of variable interest rate borrowings from financial institution. If the Group determines the interest rate to be changed and holding all other variables constant, the impact on profit before income tax of the Group will be as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2020		
Interest rate		
- Increase 1%	(3.98)	(124.58)
- Decrease 1%	3.98	124.58

c) Price risk

Exposure

The Group's exposure to price risk arises from oil and petroleum product prices because the Group's selling price of petroleum products is reference to the world's crude oil price, which are fluctuated subject to various factors beyond its control.

Fluctuations in the world's crude oil prices directly affect the prices of the Group's crude oil and condensate, while the prices of natural gas, which is the main product of the Group, change in the same direction with the reference oil prices and other factors in the gas price formula. Contractual natural gas prices are adjusted every 6 to 24 months (lag time). The natural gas price will move corresponding to lower volatility compared to the prices of crude oil and condensate.

The Group has managed the price risk by analysing the impact of the level of oil price changes to revenue and net profit of the Group annually. The risk mitigation plan is reviewed by the Risk Management Committee and the Board of Directors in order to be used as the Group's operation framework.

As at 31 December 2020, the Group entered into oil price hedging derivatives for the year 2021 totalling 24.49 million barrel.

Sensitivity analysis

The changes in oil price, holding all other variables constant, will impact fair value of oil price hedging derivative as at 31 December 2020 as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2020		
Price per barrel		
- Increase 1 US Dollar	(8.12)	(244.05)
- Decrease 1 US Dollar	7.73	232.17

8.1.2 Credit risk

a) Risk management

The Group's policy to manage its credit risk is to enter into transactions with the customers who have good credit profiles. The majority of sales is made with PTT Public Company Limited, the parent company. In addition, the Group carefully assesses and regularly reviews the credit profiles of its customers.

The Group places deposits with the banks which are rated at investment grade level. The Group regularly assesses credit quality and stability of these banks by taking into account of their credit rating, investment portfolio, and other financial ratios which demonstrate their performance and the ability to control their business risks, such as debt to deposit ratio, non-performing loan to total loan ratio. These factors are used to manage risks and to consider the amount of bank deposit limit in order to ensure that deposits are well-diversified and to avoid concentration risks with individual bank together with the consideration yields and acceptable risk in each time interval.

Before entering into financial derivative contracts, the Group has assessed the financial position and credit worthiness, including setting up credit exposure limit, of counterparty bank in the same way as when the Group assesses banks before placing deposit as described above. Currently all banks in which the Group has entered into financial derivative contracts are rated at investment grade level. In addition, the Group has adjusted, based on the timing and type of transactions, the outstanding balance of each derivative financial instrument made with banks to reflect the risk-adjusted exposure and has diversified transactions to avoid concentration risks with individual bank together with the costs, consideration yields and risks arising in each interval.

b) Security

For some trade receivables, the Group may obtain security in the form of guarantees or letters of credit which can be called upon if the counterparty is in default under the terms of the agreement.

c) Impairment of financial assets

The Group has following financial assets that are subject to the expected credit loss model as follows:

- Cash and cash equivalents
- Short-term investments
- Trade and other receivables
- Other current assets
- Short-term loans to a related party
- Long-term loans to related parties
- Other non-current financial assets
- Other non-current assets

Management consider that impairment loss of financial assets mentioned above are immaterial.

8.1.3 Liquidity risk

Liquidity risk is the risk that suitable sources of funding for the Group's business activities may not be available. The Group's contractual maturity of liabilities and interest, including the derivative contracts are as follows:

a) Maturity of financial liabilities

The tables below analyse the maturity of financial liabilities grouping based on their contractual maturities. The amounts disclosed are the contractual undiscounted cash flows as at 31 December 2020.

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Unit: Million US Dollar					
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
Trade and other payables	879.91	-	-	879.91	879.91
Other current liabilities	111.71	-	-	111.71	111.71
Lease liabilities	150.34	302.12	118.89	571.35	507.03
Contingent considerations from business acquisition	2.01	3.81	-	5.82	5.64
Contingent considerations from participating interest acquisition in a joint venture	54.67	-	-	54.67	53.31
Loans from financial institutions – variable interest rate					
Principal	-	600.00	-	600.00	594.66
Interest expense*	7.59	25.03	-	32.62	1.35
Debentures – fixed interest rate					
Principal	-	499.38	2,369.53	2,868.91	2,830.37
Interest expense*	109.47	398.40	1,506.53	2,014.40	12.43
Forward foreign exchange contracts - net	40.24	-	-	40.24	26.23

Consolidated financial statements					
Unit: Million Baht					
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
Trade and other payables	26,429.92	-	-	26,429.92	26,429.92
Other current liabilities	3,355.45	-	-	3,355.45	3,355.45
Lease liabilities	4,515.87	9,074.88	3,570.99	17,161.74	15,229.62
Contingent considerations from business acquisition	60.46	114.42	-	174.88	169.36
Contingent considerations from participating interest acquisition in a joint venture	1,642.13	-	-	1,642.13	1,601.23
Loans from financial institutions - variable interest rate					
Principal	-	18,022.26	-	18,022.26	17,861.83
Interest expense*	227.94	751.69	-	979.63	40.52
Debentures – fixed interest rate					
Principal	-	14,999.93	71,173.81	86,173.74	85,016.15
Interest expense*	3,288.29	11,966.66	45,251.73	60,506.68	373.50
Forward foreign exchange contracts - net	1,208.74	-	-	1,208.74	787.95

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	Separate financial statements				
	Unit: Million US Dollar				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
Trade and other payables	298.49	-	-	298.49	298.49
Other current liabilities	2.63	-	-	2.63	2.63
Lease liabilities	26.83	30.99	1.78	59.60	56.84
Debentures – fixed interest rate					
Principal	-	-	379.53	379.53	379.26
Interest expense*	18.29	73.18	64.02	155.49	2.66
Forward foreign exchange contracts – net	36.75	-	-	36.75	22.66

	Separate financial statements				
	Unit: Million Baht				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
Trade and other payables	8,965.93	-	-	8,965.93	8,965.93
Other current liabilities	78.96	-	-	78.96	78.96
Lease liabilities	805.92	930.92	53.27	1,790.11	1,707.38
Debentures – fixed interest rate					
Principal	-	-	11,400.00	11,400.00	11,391.98
Interest expense*	549.48	2,197.92	1,923.18	4,670.58	79.87
Forward foreign exchange contracts – net	1,103.88	-	-	1,103.88	680.52

The major assumptions for the data presented in the table above are that all the interest expenses are calculated based on the nominal interest rate and there is no change in aggregate principal amounts of loans other than repayment at scheduled maturity.

- Thai Baht liabilities were equivalent to US Dollar at the weighted average exchange rate between weighted average buying and selling rates announced by the Bank of Thailand on 30 December 2020 at Baht 30.0371 per US Dollar.

* Interest paid represents the interest payment due within year.

As at 31 December 2020, the Company has commitments from long-term loan and the guarantees of debentures and loans of its subsidiaries as disclosed in Note 40.3, the maturity date of obligations follows the maturity of loan agreements, debentures and loans of subsidiaries.

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b) Financing arrangements

The Group manages its liquidity risks by preparing cash flow forecasts and adjusting financial forecasts on a regular basis, entering into financing program, issuing short-term debt securities in order to access Thailand's capital market, as well as entering into credit facilities with financial institutions with the interest rate agreed in advance.

As at 31 December 2020, the outstanding principal amount and undrawn facilities are summarised below.

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
Committed credit facility	599.75	599.75	18,014.83	18,014.83
Uncommitted credit facility	423.42	423.42	12,718.18	12,718.18

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
Committed credit facility	199.75	199.75	6,000.00	6,000.00
Uncommitted credit facility	421.62	421.62	12,664.23	12,664.23

Thai Baht credit facility is translated to US Dollar using the weighted average exchange rate between weighted average buying and selling rates announced by the Bank of Thailand on 30 December 2020 at Baht 30.0371 per US Dollar.

The Company's International Credit Rating is comparable with the Sovereign Rating of Thailand and the National Credit Rating is at the AAA. As a result, the Company can access to the source of fund for the long-term loan at the interest rate approximate the market interest rate. For the years 2020 and 2019, the Company's credit ratings as assigned by prominent credit rating agencies are as follows:

	2020		2019	
	Foreign Currency	Domestic Currency	Foreign Currency	Domestic Currency
Rating Agency				
Moody's	Baa1	Baa1	Baa1	Baa1
Standard and Poor's	BBB+	BBB+	BBB+	BBB+
Fitch Ratings	BBB+	-	BBB+	-
TRIS Rating (National Rating)	-	AAA	-	AAA

8.2 Capital management

8.2.1 Risk management

Capital Risk Management

The Group manages capital to keep financial strength comparable with the leading companies in the same industry, alignment with the business strategy, economy, market positioning and finance cost as well as impact to the financial ratio and credit rating of the Company and providing the ultimate returns to shareholders and benefits to other stakeholders.

9 Derivatives and hedge accounting

Derivatives comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current derivative assets				
Derivatives				
- Oil price hedge	4.35	12.09	130.67	364.53
- Forward foreign exchange contracts	0.01	0.25	0.34	7.63
Non-current derivative assets				
Derivatives used for hedging				
- Cross currency and interest rate swap	49.05	83.68	1,473.34	2,523.21
Total derivative assets	53.41	96.02	1,604.35	2,895.37
	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current derivative liabilities				
Derivatives				
- Oil price hedge	3.44	2.09	103.40	63.16
- Forward foreign exchange contracts	26.23	13.12	787.95	395.60
Non-current derivative liabilities				
Derivatives used for hedging				
- Interest rate collar (zero cost collar)	0.67	-	20.24	-
Total derivative liabilities	30.34	15.21	911.59	458.76

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	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current derivative assets				
Derivatives				
- Forward foreign exchange contracts	-	0.25	-	7.63
Non-current derivative assets				
Derivatives used for hedging				
- Cross currency and interest rate swap	33.52	64.10	1,006.72	1,932.75
Total derivative assets	33.52	64.35	1,006.72	1,940.38

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current derivative liabilities				
Derivatives				
- Forward foreign exchange contracts	22.66	12.03	680.52	362.65
Total derivative liabilities	22.66	12.03	680.52	362.65

9.1 Classification of derivative financial instruments

Derivatives are only used for economic hedging purposes, not for speculative investments. The Group adopts hedge accounting for some derivatives which meet the condition of cash flow hedges instruments and determines the hedge ratio at 1:1 considering the relationship of the relevant transactions and risk factors between hedged items and hedging instruments. However, where derivatives do not meet the hedge accounting criteria, they are classified as 'held for trading' for accounting purposes and are accounted for at fair value through profit or loss.

The fair value of a hedging derivative is presented as current or non-current following the maturity of related hedged items.

9.2 Hedge effectiveness

Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic effectiveness assessments, to ensure that an economic relationship exists between the hedged items and hedging instruments.

Foreign exchange risk

For cross currency and interest rate swap, the Group enters into hedging transaction where the critical terms of the hedging instrument match exactly with the terms of the hedged item. The Group therefore performs a qualitative assessment of effectiveness. If changes in circumstances affect the terms of the hedged item such that the critical terms no longer match exactly with the critical terms of the hedging instrument, the Group uses the hypothetical derivative method to assess effectiveness.

In hedging of foreign currency on cross currency and interest rate swap, ineffectiveness may arise if there are changes in the credit risk of the derivative counterparty, a reduction in value of the hedge items, or a significant change in components of cross currency and interest rate swap.

Interest rate risk

The Group enters into interest rate collar (zero cost collar) that have similar critical terms as the hedged item, such as reference rate, payment dates, maturities and notional amount. The Group does not hedge 100% of its loans, therefore the hedged item is identified as a proportion of the outstanding loans up to the notional amount of the interest rate collar (zero cost collar). As all critical terms matched during the year, there is an economic relationship.

Hedge ineffectiveness for interest rate collar (zero cost collar) is assessed using the same principles as for hedges of cross currency and interest rate swap. It may occur due to changes in the credit risk of the derivative counterparty and changes in critical terms between the interest rate collar (zero cost collar) and loans.

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9.3 Cash flow hedge reserve

Hedging reserve includes costs of hedging and cash flow hedge reserve. The cash flow hedge reserve is used to recognise the effective portion of gains or losses on changes in fair value of derivatives that are qualified for hedge accounting.

The Group has hedging reserve presented in other comprehensive income comprising financial instruments as follows:

	Consolidated financial statements							
	Unit: Million US Dollar				Unit: Million Baht			
	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total
As at 1 January 2020	19.45	10.33	-	29.78	706.86	375.26	-	1,082.12
Changes in fair value of hedging instruments recognised in OCI	-	(20.93)	(0.01)	(20.94)	-	(666.99)	(0.22)	(667.21)
Costs of hedging deferred and recognised in OCI	(14.37)	-	-	(14.37)	(458.03)	-	-	(458.03)
Reclassified from OCI to profit or loss								
- Loss on exchange rate	-	(3.40)	-	(3.40)	-	(108.61)	-	(108.61)
Deferred tax	2.87	4.87	-	7.74	91.61	155.12	0.04	246.77
As at 31 December 2020	7.95	(9.13)	(0.01)	(1.19)	340.44	(245.22)	(0.18)	95.04

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	Unit: Million US Dollar			Unit: Million Baht		
	Cost of hedging reserve	Spot component of currency forwards	Total	Cost of hedging reserve	Spot component of currency forwards	Total
As at 1 January 2020	17.42	10.65	28.07	572.37	349.74	922.11
Changes in fair value of hedging instrument recognised in OCI	-	(18.72)	(18.72)	-	(596.07)	(596.07)
Cost of hedging deferred and recognised in OCI	(11.86)	-	(11.86)	(377.83)	-	(377.83)
Reclassified from OCI to profit or loss						
- Loss on exchange rate	-	(1.47)	(1.47)	-	(46.86)	(46.86)
Deferred tax	2.37	4.04	6.41	75.57	128.58	204.15
As at 31 December 2020	7.93	(5.50)	2.43	270.11	(164.61)	105.50

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9.4 Amounts recognised in profit or loss

In addition to the amounts reclassified from hedge reserve as disclosed in Note 9.3, the following amounts recognised in profit or loss relating to derivatives:

	Consolidated financial statements	
	Unit: Million US Dollar	
For the year ended 31 December	2020	2019
Net gain (loss) on derivatives that do not qualify for hedge accounting, presented in gain (loss) on revaluation of financial instruments	116.62	(106.12)

	Consolidated financial statements	
	Unit: Million Baht	
For the year ended 31 December	2020	2019
Net gain (loss) on derivatives that do not qualify for hedge accounting, presented in gain (loss) on revaluation of financial instruments	3,758.71	(3,305.21)

	Separate financial statements	
	Unit: Million US Dollar	
For the year ended 31 December	2020	2019
Loss on derivatives that do not qualify for hedge accounting, presented in gain (loss) on revaluation of financial instruments	(13.55)	(71.90)

	Separate financial statements	
	Unit: Million Baht	
For the year ended 31 December	2020	2019
Loss on derivatives that do not qualify for hedge accounting, presented in gain (loss) on revaluation of financial instruments	(444.13)	(2,254.08)

10 Critical accounting estimates and judgements

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

10.1 Estimation of Petroleum Reserves

Petroleum reserves are key elements in the Group's investment decision-making process. They are also important elements in testing for impairment. Changes in proved reserves will also affect the present value of the net cash flows and depreciation calculated using the unit-of-production method.

Proved reserves are the quantities of petroleum that are demonstrated with reasonable certainty to be commercially producible in future years from known reservoirs under existing economic and operating conditions including government rules and regulations. The proved reserves have to be examined and assessed annually by the Group's geologists and reservoir engineers.

10.2 Impairment of assets and goodwill

In assessing the impairment of assets and goodwill the Group estimates using the discounted future cash flows which are based on management's key assumptions in relation to selling price using the future oil price, estimated future production volume based on a proved and probable reserves and gross margin rate. These assumptions are based on management's judgment and past experience as well as the future prediction that is believed to be reasonable in the present situation. Changes in the information or new noticeable information may lead to the change in the assumptions and the discount rate for the estimation of the discounted future cash flows. The assumption of selling price is determined from the short-term oil price based on forward oil price curve and long-term oil price based on demand and supply of oil in the world market.

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11 Segment and revenue information

	Exploration and production						Others	Intercompany elimination	Total
	Southeast Asia		Australia	America	Africa	Others			
	Thailand	Other Southeast Asia							
For the year ended 31 December 2020									
Revenues - Third parties	251.29	734.74	-	1.38	-	225.32	31.78	-	1,244.51
- Related parties	3,290.36	821.21	-	-	43.28	-	-	(263.84)	3,891.01
Other income	18.29	0.56	0.08	0.06	0.02	0.02	112.88	(104.67)	27.24
Interest income	0.25	3.11	0.01	0.02	6.45	0.21	0.02	(0.02)	10.05
Total revenues	3,560.19	1,559.62	0.09	1.46	49.75	225.55	144.68	(368.53)	5,172.81
Operating expenses	461.36	513.89	-	1.12	9.40	58.74	29.12	(278.52)	795.11
Exploration expenses	5.30	53.89	26.83	5.89	1.83	10.54	0.04	-	104.32
Administrative expenses	31.49	62.34	1.02	5.34	16.95	12.85	88.85	(90.06)	128.78
Petroleum royalties	408.12	1.89	-	0.14	-	-	-	-	410.15
Depreciation, depletion and amortisation	1,391.92	540.68	0.07	0.24	29.97	87.68	8.81	(2.62)	2,056.75
(Gain) loss on foreign exchange rates	(18.20)	(1.71)	(0.26)	1.55	(0.02)	0.06	0.41	-	(18.17)
Finance costs	92.01	33.97	0.01	0.06	0.99	3.00	0.11	(0.35)	129.80
Share of (profit) loss of associates and joint ventures	-	-	-	-	-	2.88	(44.52)	-	(41.64)
Impairment loss on assets	3.85	44.07	-	43.66	-	-	-	-	91.58
Total expenses	2,375.85	1,249.02	27.67	58.00	59.12	175.75	82.82	(371.55)	3,656.68
Segment profit (loss)	1,184.34	310.60	(27.58)	(56.54)	(9.37)	49.80	61.86	3.02	1,516.13
Depreciation - general									(29.33)
Administrative expenses									(185.34)
Operating profit									1,301.46
Other income, net									9.78
Interest income									26.67
Finance costs									(124.68)
Gain on foreign exchange rates									7.89
Gain on remeasuring financial instruments									99.33
Gain on debt modification									22.31
Other expenses									(20.34)
Profit before income taxes									1,322.42
Income tax - Project	(385.07)	(165.62)	-	(0.02)	32.17	(64.78)	(7.10)		(590.42)
- Group									(12.46)
Net profit (loss)	799.27	144.98	(27.58)	(56.56)	22.80	(14.98)	54.76		719.54

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	Consolidated financial statements								
	Unit: Million Baht								
	Exploration and production						Others	Intercompany elimination	Total
	Southeast Asia								
For the year ended 31 December 2020	Thailand	Other Southeast Asia	Australia	America	Africa	Others			
Revenues - Third parties	7,847.42	22,942.15	-	43.23	-	7,033.47	992.03	-	38,858.30
- Related parties	102,731.65	25,734.34	-	-	1,344.34	-	-	(8,267.95)	121,542.38
Other income	570.25	17.40	2.35	1.74	0.58	0.65	3,524.30	(3,266.11)	851.16
Interest income	7.68	97.48	0.26	0.61	201.28	6.61	0.67	(0.67)	313.92
Total revenues	111,157.00	48,791.37	2.61	45.58	1,546.20	7,040.73	4,517.00	(11,534.73)	161,565.76
Operating expenses	14,431.18	16,072.74	-	35.17	293.71	1,837.56	912.16	(8,726.60)	24,855.92
Exploration expenses	165.93	1,685.18	822.05	182.05	56.23	327.41	0.37	-	3,239.22
Administrative expenses	994.88	1,938.40	31.86	166.20	525.33	400.88	2,772.43	(2,809.45)	4,020.53
Petroleum royalties	12,742.16	51.50	-	4.50	-	-	-	-	12,798.16
Depreciation, depletion and amortisation	43,525.55	16,925.98	2.03	8.01	936.20	2,742.98	275.36	(83.62)	64,332.49
(Gain) loss on foreign exchange rates	(545.70)	(46.50)	(8.11)	49.26	(0.82)	1.71	12.91	-	(537.25)
Finance costs	2,869.97	1,066.09	0.33	1.92	31.44	93.93	3.45	(10.94)	4,056.19
Share of (profit) loss of associates and joint ventures	-	-	-	-	-	58.43	(1,365.66)	-	(1,307.23)
Impairment loss on assets	119.94	1,326.39	-	1,360.31	-	-	-	-	2,806.64
Total expenses	74,303.91	39,019.78	848.16	1,807.42	1,842.09	5,462.90	2,611.02	(11,630.61)	114,264.67
Segment profit (loss)	36,853.09	9,771.59	(845.55)	(1,761.84)	(295.89)	1,577.83	1,905.98	95.88	47,301.09
Depreciation - general									(917.28)
Administrative expenses									(5,733.63)
Operating profit									40,650.18
Other income, net									305.05
Interest income									836.21
Finance costs									(3,899.67)
Gain on foreign exchange rates									281.15
Gain on remeasuring financial instruments									3,212.76
Gain on debt modification									679.96
Other expenses									(637.35)
Profit before income taxes									41,428.29
Income tax - Project	(11,949.27)	(5,185.86)	-	(0.65)	966.58	(2,012.58)	(220.26)		(18,402.04)
- Group									(362.24)
Net profit (loss)	24,903.82	4,585.73	(845.55)	(1,762.49)	670.69	(434.75)	1,685.72		22,664.01

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	Exploration and production							Others	Total
	Southeast Asia								
	Thailand	Other Southeast Asia	Australia	America	Africa	Others			
As at 31 December 2020									
Segment assets	6,266.03	6,120.17	307.90	293.20	3,862.90	944.21	102.19	17,896.60	
Investments under equity method	-	-	4.97	-	-	63.42	381.82	450.21	
Unallocated assets								4,146.64	
Total assets								22,493.45	
Segment liabilities	4,050.43	1,814.04	15.05	7.41	590.75	442.99	56.43	6,977.10	
Unallocated liabilities								3,717.23	
Total liabilities								10,694.33	
Capital expenditures	875.33	351.87	0.01	18.42	235.82	108.66	44.99	1,635.10	

	Exploration and production							Others	Total
	Southeast Asia								
	Thailand	Other Southeast Asia	Australia	America	Africa	Others			
As at 31 December 2020									
Segment assets	188,213.21	183,831.84	9,248.35	8,806.97	116,030.25	28,361.22	3,069.62	537,561.46	
Investments under equity method	-	-	149.32	-	-	1,904.95	11,468.70	13,522.97	
Unallocated assets								124,552.67	
Total assets								675,637.10	
Segment liabilities	121,663.07	54,488.48	452.15	222.42	17,744.46	13,306.12	1,694.77	209,571.47	
Unallocated liabilities								111,654.74	
Total liabilities								321,226.21	
Capital expenditures	27,376.74	11,004.90	0.16	576.18	7,375.35	3,398.31	1,407.27	51,138.91	

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	Consolidated financial statements								
	Unit: Million US Dollar								
	Exploration and production						Others	Intercompany elimination	Total
	Southeast Asia								
	Thailand	Other Southeast Asia							
For the year ended 31 December 2019			Australia	America	Africa	Others			
Revenues - Third parties	275.73	837.98	-	0.41	-	52.95	11.55	-	1,178.62
- Related parties	4,280.74	957.27	-	-	66.79	-	-	(320.61)	4,984.19
Other income	19.57	4.64	4.25	-	-	-	122.74	(110.06)	41.14
Interest income	0.82	2.60	0.07	0.01	11.98	0.07	0.11	(0.11)	15.55
Total revenues	4,576.86	1,802.49	4.32	0.42	78.77	53.02	134.40	(430.78)	6,219.50
Operating expense	486.49	557.32	-	0.35	12.99	10.95	17.20	(334.62)	750.68
Exploration expenses	1.61	104.19	2.80	5.17	0.07	14.26	-	-	128.10
Administrative expenses	43.09	45.90	12.75	4.74	23.79	7.29	93.57	(97.58)	133.55
Petroleum royalties	527.57	18.76	-	-	-	-	-	-	546.33
Depreciation, depletion and amortisation	1,511.06	453.87	0.09	0.12	29.94	13.47	3.27	(3.61)	2,008.21
(Gain) loss on foreign exchange rates	(39.64)	(31.26)	1.08	0.28	0.02	0.04	(0.58)	-	(70.06)
Finance costs	104.71	37.90	-	-	0.72	1.21	0.15	(18.20)	126.49
Share of (profit) loss of associates and joint ventures	-	-	2.16	-	-	-	(14.51)	-	(12.35)
Total expenses	2,634.89	1,186.68	18.88	10.66	67.53	47.22	99.10	(454.01)	3,610.95
Segment profit (loss)	1,941.97	615.81	(14.56)	(10.24)	11.24	5.80	35.30	23.23	2,608.55
Depreciation - general									(17.84)
Administrative expenses									(250.23)
Operating profit									2,340.48
Other income, net									14.25
Interest income									70.68
Finance costs									(108.48)
Gain on foreign exchange rates									38.53
Loss on remeasuring financial instrument									(109.40)
Profit before income taxes									2,246.06
Income tax - Project	(706.09)	(192.09)	-	0.09	2.97	(21.29)	(6.37)		(922.78)
- Group									245.78
Net profit (loss)	1,235.88	423.72	(14.56)	(10.15)	14.21	(15.49)	28.93		1,569.06

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	Unit: Million Baht								
	Exploration and production						Others	Intercompany elimination	Total
	Southeast Asia		Australia	America	Africa	Others			
Thailand	Other Southeast Asia								
For the year ended 31 December 2019									
Revenues - Third parties	8,562.87	25,804.49	-	12.27	-	1,600.74	349.29	-	36,329.66
- Related parties	132,856.46	29,754.14	-	-	2,076.11	-	-	(9,963.64)	154,723.07
Other income	605.13	143.71	130.10	-	-	0.09	3,804.18	(3,411.47)	1,271.74
Interest income	25.56	79.85	2.40	0.37	371.37	2.11	3.48	(3.47)	481.67
Total revenues	142,050.02	55,782.19	132.50	12.64	2,447.48	1,602.94	4,156.95	(13,378.58)	192,806.14
Operating expenses	15,065.24	17,233.86	-	10.65	405.04	331.13	527.07	(10,398.29)	23,174.70
Exploration expenses	49.58	3,214.06	85.74	160.28	2.27	438.81	-	-	3,950.74
Administrative expenses	1,336.57	1,419.85	396.85	147.89	728.52	222.04	2,900.04	(3,024.51)	4,127.25
Petroleum royalties	16,374.66	570.07	-	-	-	-	-	-	16,944.73
Depreciation, depletion and amortisation	46,901.78	14,021.50	2.99	3.62	930.91	407.13	100.63	(111.56)	62,257.00
(Gain) loss on foreign exchange rates	(1,216.95)	(955.16)	33.51	8.62	0.62	1.15	(17.89)	-	(2,146.10)
Finance costs	3,254.80	1,173.14	-	(0.01)	22.51	36.56	4.43	(566.54)	3,924.89
Share of (profit) loss of associates and joint ventures	-	-	66.05	-	-	(0.01)	(446.46)	-	(380.42)
Total expenses	81,765.68	36,677.32	585.14	331.05	2,089.87	1,436.81	3,067.82	(14,100.90)	111,852.79
Segment profit (loss)	60,284.34	19,104.87	(452.64)	(318.41)	357.61	166.13	1,089.13	722.32	80,953.35
Depreciation - general									(553.84)
Administrative expenses									(7,743.16)
Operating profit									72,656.35
Other income, net									441.27
Interest income									2,210.10
Finance costs									(3,365.75)
Gain on foreign exchange rates									1,218.06
Loss on remeasuring financial instrument									(3,405.79)
Profit before income taxes									69,754.24
Income tax - Project	(21,909.79)	(5,952.36)	-	2.67	92.46	(643.63)	(197.13)		(28,607.78)
- Group									7,656.08
Net profit (loss)	38,374.55	13,152.51	(452.64)	(315.74)	450.07	(477.50)	892.00		48,802.54

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	Exploration and production							Consolidated financial statements	
								Unit: Million US Dollar	
	Southeast Asia						Others	Total	
As at ended 31 December 2019	Thailand	Other Southeast Asia	Australia	America	Africa	Others			
Segment assets	6,637.98	6,441.79	324.44	331.12	3,538.59	964.36	110.55	18,348.83	
Investments under equity method	-	-	4.97	-	-	79.89	368.14	453.00	
Unallocated assets								3,483.45	
Total assets								22,285.28	
Segment liabilities	4,407.02	1,536.07	3.71	5.23	570.07	425.91	45.52	6,993.53	
Unallocated liabilities								3,450.58	
Total liabilities								10,444.11	
Capital expenditures	930.29	3,039.48	19.56	10.49	132.29	804.87	78.33	5,015.31	

	Exploration and production							Consolidated financial statements	
								Unit: Million Baht	
	Southeast Asia						Others	Total	
As at ended 31 December 2019	Thailand	Other Southeast Asia	Australia	America	Africa	Others			
Segment assets	200,161.48	194,245.72	9,783.19	9,984.71	106,702.49	29,079.32	3,333.70	553,290.61	
Investments under equity method	-	-	149.90	-	-	2,408.86	11,100.89	13,659.65	
Unallocated assets								105,040.03	
Total assets								671,990.29	
Segment liabilities	132,889.12	46,318.64	112.01	157.60	17,190.02	12,842.77	1,372.80	210,882.96	
Unallocated liabilities								104,048.62	
Total liabilities								314,931.58	
Capital expenditures	28,871.66	93,823.70	606.98	321.12	4,105.72	24,324.07	2,388.23	154,441.48	

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During the year 2020, the Group has changed the basis of presentation of reportable operating segments in accordance with segment information reported to the chief operating decision-maker. The Group is organised into the following business segments:

- Exploration and production: The Group operates in oil and gas exploration and production both domestically and overseas, either as an operator or as a joint venture partner with international oil and gas companies. Most domestic projects are located in the Gulf of Thailand. Overseas projects are located in Southeast Asia, Australia, America, Africa and Others.
- The Group's other operations consist mainly of investments in related business associated with the Group's strategy, and other operations. These do not constitute a separately reportable segment.

The segment information for the year 2019 included in the financial statements has been adjusted retrospectively for comparative purposes.

For the year ended 31 December 2020, the Group has one major customer from revenues under the exploration and production segment, representing 76% of total revenues from sales. The mentioned revenue is presented in Note 17 (a) under the topic transactions with parent company (For the year ended 31 December 2019, the Group has one major customer from revenues under the exploration and production segment, representing 81% of total revenues from sales. The mentioned revenues is presented in Note 17 (a) under the topic transactions with parent company).

12 Fair value

12.1 Fair value estimation

The following tables present financial assets and liabilities recognised by their fair value hierarchy.

	Consolidated financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	49.05	83.68	-	-	49.05	83.68
Derivatives assets measured at fair value through profit or loss								
- Oil price hedge	-	-	4.35	12.09	-	-	4.35	12.09
- Forward foreign exchange contracts	-	-	0.01	0.25	-	-	0.01	0.25
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	0.19	213.70	-	-	-	-	0.19	213.70
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	0.52	0.52	-	-	0.05	-	0.57	0.52
Other non-current assets								
Assets measured at fair value through profit or loss								
- Pension scheme investments from joint operation	54.88	44.88	-	-	-	-	54.88	44.88
Total assets	55.59	259.10	53.41	96.02	0.05	-	109.05	355.12

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	Consolidated financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Interest rate collar (zero cost collar)	-	-	0.67	-	-	-	0.67	-
Derivatives liabilities measured at fair value through profit or loss								
- Oil price hedge	-	-	3.44	2.09	-	-	3.44	2.09
- Forward foreign exchange contracts	-	-	26.23	13.12	-	-	26.23	13.12
Other current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	2.01	-	2.01	-
- Contingent considerations from participating interest acquisition in joint venture	-	-	-	-	53.31	-	53.31	-
Other non-current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	3.63	7.10	3.63	7.10
- Contingent considerations from participating interest acquisition in joint venture	-	-	-	-	-	51.86	-	51.86
Total liabilities	-	-	30.34	15.21	58.95	58.96	89.29	74.17

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	Consolidated financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	1,473.34	2,523.21	-	-	1,473.34	2,523.21
Derivatives assets measured at fair value through profit or loss								
- Oil price hedge	-	-	130.67	364.53	-	-	130.67	364.53
- Forward foreign exchange contracts	-	-	0.34	7.63	-	-	0.34	7.63
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	5.81	6,444.00	-	-	-	-	5.81	6,444.00
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	15.44	15.81	-	-	1.50	-	16.94	15.81
Other non-current assets								
Assets measured at fair value through profit or loss								
- Pension scheme investments from joint operation	1,648.43	1,353.50	-	-	-	-	1,648.43	1,353.50
Total assets	1,669.68	7,813.31	1,604.35	2,895.37	1.50	-	3,275.53	10,708.68

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	Consolidated financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December	31 December	31 December	31 December	31 December	31 December	31 December	31 December
	2020	2019	2020	2019	2020	2019	2020	2019
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Interest rate collar (zero cost collar)	-	-	20.24	-	-	-	20.24	-
Derivatives liabilities measured at fair value through profit or loss								
- Oil price hedge	-	-	103.40	63.16	-	-	103.40	63.16
- Forward foreign exchange contracts	-	-	787.95	395.60	-	-	787.95	395.60
Other current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	60.46	-	60.46	-
- Contingent considerations from participating interest acquisition in joint venture	-	-	-	-	1,601.23	-	1,601.23	-
Other non-current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	108.90	213.94	108.90	213.94
- Contingent considerations from participating interest acquisition in joint venture	-	-	-	-	-	1,563.84	-	1,563.84
Total liabilities	-	-	911.59	458.76	1,770.59	1,777.78	2,682.18	2,236.54

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	Separate financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	33.52	64.10	-	-	33.52	64.10
Derivatives assets measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	-	0.25	-	-	-	0.25
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	0.19	0.21	-	-	-	-	0.19	0.21
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	-	-	-	-	0.05	-	0.05	-
Total assets	0.19	0.21	33.52	64.35	0.05	-	33.76	64.56
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	22.66	12.03	-	-	22.66	12.03
Total liabilities	-	-	22.66	12.03	-	-	22.66	12.03

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	Separate financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	1,006.72	1,932.75	-	-	1,006.72	1,932.75
Derivatives assets measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	-	7.63	-	-	-	7.63
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	5.57	6.34	-	-	-	-	5.57	6.34
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	-	-	-	-	1.50	-	1.50	-
Total assets	5.57	6.34	1,006.72	1,940.38	1.50	-	1,013.79	1,946.72
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	680.52	362.65	-	-	680.52	362.65
Total liabilities	-	-	680.52	362.65	-	-	680.52	362.65

The valuation of financial assets and financial liabilities fair value is based on accounting policy disclosed in Note 7.8 Financial assets and Note 7.20 Financial liabilities

Transfer between fair value hierarchy

The Group has no transaction transfer between Level 1, Level 2, and Level 3 of the fair value hierarchy during the year.

12.2 Fair value valuation techniques

Fair values are categorised into hierarchy based on inputs used as follows:

12.2.1 Valuation techniques used to derive level 1 fair values

The fair value of financial instruments is based on quoted prices of each asset or liability by reference of active markets.

12.2.2 Valuation techniques used to derive level 2 fair values

The fair value of financial instruments is determined using valuation techniques which significantly use observable data and, as little as possible, the Group specific estimates.

Valuation techniques used to derive level 2 fair values of financial derivative instruments are as follows:

- Oil price hedge comprises oil price swaps and options. The fair value of oil price swaps is assessed based on the price level which is calculated using the market price of future contracts. The fair value of oil price options is calculated using premium which requires various variable factors, such as the price level of swap, timing of exercise, and price volatility.
- The fair value of forward contracts, including forward foreign exchange contracts with resettable option, are calculated using forward foreign exchange rates that are quoted in an active market for the forward contract portion. The fair value of resettable option is assessed based on various variable factors, such as future forward foreign exchange rate, the market value of swap price, timing of exercise, and foreign exchange rate volatility.
- The fair value of cross currency and interest rate swaps is calculated using forward interest rates derived from the yield curves in an observable interest market and forward foreign exchange rates that are quoted in an active market.
- The fair value of interest rate collar which is zero cost collar (option) is assessed based on various variable factors, such as the market price level of swap, reference rate, timing of exercise, and price volatility.

The discount factors do not significantly impact the level 2 fair value of derivative instruments.

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12.2.3 Valuation techniques used to derive level 3 fair values

The fair value of financial instruments is measured using unobservable inputs in which the Group uses discounted cash flows method to derive level 3 fair value.

Changes in level 3 fair value of financial instruments for the year ended as at 31 December 2020 and 2019 are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar			
	Contingent considerations from business acquisition	Contingent considerations from participating interest acquisition in joint venture	Financial assets measured at fair value through comprehensive income	Total
Opening balance as at 1 January 2019	-	-	-	-
Additions	7.10	51.22	-	58.32
Changes recognised in profit or loss	-	0.64	-	0.64
Closing balance as at 31 December 2019	7.10	51.86	-	58.96
Impact of adoption of TFRS 9	-	-	0.35	0.35
Disposals	(1.71)	-	-	(1.71)
Reclassification	-	-	(0.30)	(0.30)
Changes recognised in profit or loss	0.25	1.45	-	1.70
Changes recognised in other comprehensive income	-	-	-	-
Closing balance as at 31 December 2020	5.64	53.31	0.05	59.00

	Consolidated financial statements			
	Unit: Million Baht			
	Contingent considerations from business acquisition	Contingent considerations from participating interest acquisition in joint venture	Financial assets measured at fair value through comprehensive income	Total
Opening balance as at 1 January 2019	-	-	-	-
Additions	213.94	1,589.50	-	1,803.44
Changes recognised in profit or loss	-	19.86	-	19.86
Currency translation differences	-	(45.52)	-	(45.52)
Closing balance as at 31 December 2019	213.94	1,563.84	-	1,777.78
Impact of adoption of TFRS 9	-	-	10.41	10.41
Disposals	(53.35)	-	-	(53.35)
Reclassification	-	-	(9.30)	(9.30)
Changes recognised in profit or loss	7.79	45.24	-	53.03
Changes recognised in other comprehensive income	-	-	0.07	0.07
Currency translation differences	0.98	(7.85)	0.32	(6.55)
Closing balance as at 31 December 2020	169.36	1,601.23	1.50	1,772.09

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	Separate financial statements
	Unit: Million US Dollar
	Financial assets measured at fair value through other comprehensive income
Opening balance as at 31 December 2019	-
Impact of adoption of TFRS 9	0.05
Changes recognised in other comprehensive income	-
Closing balance as at 31 December 2020	0.05

	Separate financial statements
	Unit: Million Baht
	Financial assets measured at fair value through other comprehensive income
Opening balance as at 31 December 2019	-
Impact of adoption of TFRS 9	1.44
Changes recognised in other comprehensive income	0.07
Currency translation differences	(0.01)
Closing balance as at 31 December 2020	1.50

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The following table summarises the quantitative information about the significant unobservable inputs used in level 3 fair value measurements.

	Fair value				Unobservable inputs	Inputs	
	Unit: Million US Dollar		Unit: Million Baht			2020	2019
	2020	2019	2020	2019			
Contingent consideration in a business combination	5.64	7.10	169.36	213.94	Risk-adjusted discount rate	2.71% - 2.84%	2.71% - 2.84%
Contingent consideration from participating interest acquisition in joint venture	53.31	51.86	1,601.23	1,563.84	Risk-adjusted discount rate	2.62% - 2.91%	2.62% - 2.91%

The following table presents the relationship of unobservable inputs to fair value:

	Unobservable input	Movement	Change in fair value	
			Increase in assumption 2020	Decrease in assumption 2020
Contingent consideration in a business combination	Risk-adjusted discount rate	1.00%	Decrease by 1.12%	Increase by 1.16%
Contingent consideration from participating interest acquisition in joint venture	Risk-adjusted discount rate	1.00%	Decrease by 0.91%	Increase by 0.92%

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The Group's valuation processes

Significant unobservable input of fair value hierarchy level 3 is risk adjusted discount rate. It is estimated based on the Group's cost of debt.

The fair value of investments in unquoted equity, classified as financial assets and measured at fair value through comprehensive income, were assessed based on business plan and market conditions. Management considers that the fair values of the financial assets approximates their book value.

The following figures presented fair value and book value of financial liabilities for each category, but not include transaction which has a book value similar to fair value.

The details of fair values of long-term liabilities as at 31 December 2020 calculated by using the discounted cash flow based on a discount rate of borrowing with similar terms are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Book value	Fair value	Book value	Fair value
Unsecured and unsubordinated debentures	2,830.37	3,293.95	85,016.15	98,940.72
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Book value	Fair value	Book value	Fair value
Unsecured and unsubordinated debentures	379.26	450.26	11,391.98	13,524.62

Book value of unsecured and unsubordinated debentures is measured at amortised cost.

The fair value of debentures in Thai Baht is calculated using the reference price in the secondary market of Thai Bond Market Association that are quoted in an active market and classified as level 2 fair value.

The fair value of debentures in US Dollar is calculated using the reference observable price in the secondary market of foreign bond that are quoted in an active market and classified as level 2 fair value.

The fair value of the following financial assets and liabilities approximates their book value.

The book value of long-term loans to related parties and long-term loans approximate their fair values, since their interest rates are close to market rate.

Consolidated financial statements	Separate financial statements
<p>Financial assets</p> <ul style="list-style-type: none"> • Cash and cash equivalents • Short-term investments • Trade and other receivables • Other current assets • Long-term loans to related parties • Other non-current assets <p>Financial liabilities</p> <ul style="list-style-type: none"> • Trade and other payable • Lease liabilities • Other current liabilities • Long-term loans 	<p>Financial assets</p> <ul style="list-style-type: none"> • Cash and cash equivalents • Short-term investments • Trade and other receivables • Short-term loans to related parties • Other current assets • Long-term loans to related parties • Other non-current assets <p>Financial liabilities</p> <ul style="list-style-type: none"> • Trade and other payable • Lease liabilities • Other current liabilities

Book value of the above financial assets and liabilities is measured at amortised cost.

13 Cash and cash equivalents

Cash and cash equivalents comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31	31	31	31
	December	December	December	December
	2020	2019	2020	2019
Cash and bank deposits	1,222.66	1,867.51	36,725.19	56,312.82
Cash equivalents				
Fixed deposits with banks	2,443.51	900.56	73,395.82	27,155.62
Treasury bill with maturity not over than 3 months	37.67	19.68	1,131.50	593.32
Money market funds	0.16	35.15	4.86	1,059.88
Total cash and cash equivalents	3,704.00	2,822.90	111,257.37	85,121.64
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31	31	31	31
	December	December	December	December
	2020	2019	2020	2019
Cash and bank deposits	289.10	45.24	8,683.61	1,364.07
Cash equivalents				
Fixed deposits with banks	830.00	635.38	24,930.76	19,159.32
Money market funds	0.16	35.15	4.86	1,059.88
Total cash and cash equivalents	1,119.26	715.77	33,619.23	21,583.27

14 Trade and other receivables

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Trade receivables, net	572.15	793.77	17,185.75	23,935.12
Other receivables, net	218.61	189.43	6,566.43	5,712.32
Total trade and other receivables, net	790.76	983.20	23,752.18	29,647.44

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Trade receivables, net	280.03	354.51	8,411.33	10,689.67
Other receivables, net	186.32	361.58	5,596.44	10,903.30
Total trade and other receivables, net	466.35	716.09	14,007.77	21,592.97

Aging of trade receivables can be analysed as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Not yet due	538.26	763.88	16,167.94	23,033.91
Over due				
- Up to 3 months	3.59	0.75	107.73	22.84
- Over 3 months but not over 6 months	0.30	-	9.01	-
- Over 6 months but not over 12 months	-	27.91	-	841.54
- Over 12 months	31.10	2.33	934.20	69.96
	573.25	794.87	17,218.88	23,968.25
<u>Less</u> Loss allowance from impairment (2019: Allowance for doubtful accounts under TAS101)	(1.10)	(1.10)	(33.13)	(33.13)
Total	572.15	793.77	17,185.75	23,935.12

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	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Not yet due	250.50	325.18	7,524.12	9,805.32
Over due				
- Up to 3 months	0.07	0.45	2.21	13.55
- Over 3 months but not over 6 months	0.02	-	0.65	-
- Over 6 months but not over 12 months	-	27.90	-	841.21
- Over 12 months	30.54	2.08	917.48	62.72
	281.13	355.61	8,444.46	10,722.80
<u>Less</u> Loss allowance from impairment (2019: Allowance for doubtful accounts under TAS101)	(1.10)	(1.10)	(33.13)	(33.13)
Total	280.03	354.51	8,411.33	10,689.67

Due to the short-term nature of the current receivables, their carrying amount is considered to be the same as their fair values.

15 Other current financial assets

The movements of other current financial assets for the year ended 31 December 2020 are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Opening book value	213.70	6,444.00	0.21	6.34
Increase	423.03	13,230.48	50.00	1,563.79
Decrease	(621.90)	(19,450.35)	(50.20)	(1,570.09)
Loss from change in fair value	(0.82)	(26.06)	-	-
Foreign exchange differences	(14.01)	(438.28)	(0.01)	(0.28)
Currency translation differences	-	240.21	-	0.24
Closing book value	-	-	-	-

Other current financial assets above is financial assets at fair value through profit or loss (FVPL). The Group's exposure on credit risk is related to investment in debt measured at FVPL. The ultimate risk at the end of reporting period is equivalent to the book value of the investment.

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16 Inventories

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Inventory	24.24	32.50	728.24	980.08
Materials and supplies	351.76	321.25	10,565.84	9,686.88
	376.00	353.75	11,294.08	10,666.96
<u>Less</u> Allowance for net realisable value	(0.88)	(0.41)	(26.48)	(12.29)
Allowance for slow-moving and obsolete	(37.02)	(23.01)	(1,111.91)	(693.71)
	(37.90)	(23.42)	(1,138.39)	(706.00)
Total	338.10	330.33	10,155.69	9,960.96
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Inventory	3.11	5.33	93.47	160.72
Materials and supplies	115.64	111.63	3,473.62	3,366.12
	118.75	116.96	3,567.09	3,526.84
<u>Less</u> Allowance for net realisable value	-	-	-	-
Allowance for slow-moving and obsolete	(19.20)	(12.90)	(576.80)	(389.08)
	(19.20)	(12.90)	(576.80)	(389.08)
Total	99.55	104.06	2,990.29	3,137.76

17 Significant transactions with related parties

Enterprises or individuals that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the Company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the Company that gives them significant influence over the enterprise, key management personnel, directors and close members of the family of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, the Company's attention is directed to the substance of the relationship, and not merely the legal form.

PTT Public Company Limited, a company registered in Thailand, is the major shareholder of the Company held in proportion of 63.79% of the shareholding interest. General public held the remaining shares.

Other related parties include major shareholders, associates and joint ventures of the Company, which have control in other related parties.

The pricing policies for transactions between parent company, subsidiaries, associates, joint ventures, joint operations and related parties are as follows:

- Sales are set based on market price.
- Interest income is calculated using weighted average cost of debt plus profit markup.
- The prices of purchases and services charged are in accordance with the conditions in the agreement.
- Rental expenses are set based on price in the agreement.
- Other expenses comprise management and service fees charged to the parent company, subsidiaries and related parties for rendering the management services in the normal course of business. The fees are based on the service costs plus profit markup.

Significant transactions with related parties are summarised as follows:

a) Transactions with related parties

Transactions with related parties for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Parent company				
Revenue from sales	3,811.34	4,917.40	119,056.63	152,646.96
Other income	4.43	7.24	138.58	224.64
Purchase and other expenses	20.68	4.71	646.92	146.33
Subsidiaries, associates, joint ventures and joint operations				
Interest income	0.48	0.63	15.19	19.46
Other income	2.20	6.28	68.66	194.88
Rental and service expenses	45.61	42.23	1,426.50	1,310.59
Other related parties				
Revenue from sales	79.77	66.79	2,485.76	2,076.12
Other income	0.41	1.14	12.70	35.47
Purchase and other expenses	38.51	49.84	1,204.42	1,546.70
Interest income	2.30	3.14	71.99	97.61

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	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Parent company				
Revenue from sales	2,587.80	3,225.83	80,825.05	100,090.63
Other income	2.01	3.04	62.81	94.44
Purchase and other expenses	19.78	4.47	618.77	138.86
Subsidiaries, associates, joint ventures and joint operations				
Interest income	239.49	275.78	7,495.77	8,549.21
Other income	2.48	6.39	77.54	198.21
Rental and service expenses	43.70	41.10	1,366.80	1,275.42
Other related parties				
Other income	0.34	1.00	10.63	31.05
Purchase and other expenses	21.64	20.09	676.72	623.48

b) Account receivable - related parties

Account receivable - related parties comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Parent company	424.39	534.84	12,747.46	16,127.47

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Parent company	279.16	353.32	8,385.18	10,653.92

c) Short-term loans to related parties

Short-term loans to related parties comprised:

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Subsidiary	78.32	362.00	2,352.40	10,915.76

The Company has provided loans to a subsidiary for the year ended 31 December 2020 with an interest rate of 0.05% per annum (2019: interest rate is 0.50% - 1.05% per annum).

d) Long-term loans to related parties

Long-term loans to related parties comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31	31	31	31
	December 2020	December 2019	December 2020	December 2019
Associate	15.56	19.24	467.50	580.00
Other related party	59.39	66.82	1,783.63	2,014.92
	74.95	86.06	2,251.13	2,594.92

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31	31	31	31
	December 2020	December 2019	December 2020	December 2019
Subsidiary	6,780.41	6,391.07	203,663.63	192,716.37
Associate	15.56	19.24	467.50	580.00
	6,795.97	6,410.31	204,131.13	193,296.37

The Company has provided loans to a subsidiary for the year ended 31 December 2020 with an interest rate of 3.54% per annum (2019: interest rate is 4.62% per annum). The borrower shall make the repayment notice within this loan term which is over than 1 year.

The Company has provided loans to an associate for the year ended 31 December 2020 with an interest rate of 2.50% - 3.35% per annum (2019: interest rate is 3.35% per annum).

The Group has provided loans to another related party for the year ended 31 December 2020 with an interest rate of 2.17% - 3.71% per annum (2019: interest rate is between 4.01% - 4.67% per annum).

The movements of the long-term loans to related parties for the year are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Balance as at 1 January 2020	86.06	2,594.92	6,410.31	193,296.37
Increase	-	-	489.41	15,306.76
Decrease	(11.09)	(346.71)	(105.12)	(3,287.73)
Foreign exchange differences	(0.02)	(0.77)	1.37	42.99
Currency translation differences	-	3.69	-	(1,227.26)
Balance as at 31 December 2020	74.95	2,251.13	6,795.97	204,131.13

Loans to related parties

Loans to related parties measured at amortised cost are considered to have low credit risk, and the expected credit loss in the following 12 months and lifetime expected credit losses of the loans from increasing in credit risk is insignificant.

e) Director and executive management fees

Director and executive management fees for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Short-term benefits	6.85	7.65	214.71	239.26
Post-employment and other long-term benefits	0.47	0.55	14.61	16.94
	7.32	8.20	229.32	256.20

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Short-term benefits	6.83	7.64	214.10	238.95
Post-employment and other long-term benefits	0.47	0.55	14.61	16.94
	7.30	8.19	228.71	255.89

18 Investments in subsidiaries, associates, joint ventures and joint operations

The amounts of investments recognised in the statement of financial position are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Investments in associates	216.87	227.63	6,514.00	6,863.84
Investments in joint ventures	233.34	225.37	7,008.97	6,795.81
Total	450.21	453.00	13,522.97	13,659.65

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Investments in subsidiaries	1,082.37	924.40	32,511.19	27,874.46
Investments in associates	25.58	25.58	768.27	771.26
Total	1,107.95	949.98	33,279.46	28,645.72

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18.1 Investments in subsidiaries

Changes of investments in subsidiaries are as follows:

For the year ended 31 December	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening book value	924.40	795.71	27,874.46	25,820.71
Increase in investments	157.97	128.69	4,940.49	3,993.94
Currency translation differences	-	-	(303.76)	(1,940.19)
Closing book value	1,082.37	924.40	32,511.19	27,874.46

On 12 February 2020, PTTEP Energy Holding (Thailand) Company Limited (PTTEP EH), a subsidiary of the Company, increased its authorised share capital amounting to Baht 726.80 million by issuing 7.27 million new ordinary shares at a par value of Baht 100 each.

On 24 April 2020, PTTEP EH increased its authorised share capital amounting to Baht 3,294 million by issuing 32.94 million new ordinary shares at a par value of Baht 100 each.

On 2 July 2020, PTTEP HK Holding Limited (PTTEP HK), a subsidiary of the Company, increased its authorised share capital of Hong Kong Dollar (HK Dollar) 511.31 million by increasing its par value to be HK Dollar 0.16 million per share.

On 29 October 2020, PTTEP EH increased its authorised share capital amounting to Baht 284 million by issuing 2.84 million new ordinary shares at a par value of Baht 100 each.

On 4 December 2020, PTTEP EH increased its authorised share capital amounting to Baht 208.71 million by issuing 2.09 million new ordinary shares at a par value of Baht 100 each.

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Details of investments in subsidiaries of the Company are as follows:

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Separate financial statements (Cost method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
PTTEP International Limited (PTTEPI)	Thailand	Petroleum	100	100	516.38	516.38	15,510.65	15,571.04
PTTEP Services Limited (PTTEP Services)	Thailand	Human resource support	100	100	0.08	0.08	2.32	2.33
PTTEP Siam Limited (PTTEPS)	Thailand	Petroleum	100	100	99.79	99.79	2,997.43	3,009.10
PTTEP Offshore Investment Company Limited (PTTEPO)	Cayman Islands	Petroleum	100	100	0.01	0.01	0.15	0.15
PTTEP HK Holding Limited (PTTEP HK)	Hong Kong	Petroleum	100	100	52.39	35.89	1,573.70	1,082.28
PTTEP Treasury Center Company Limited (PTTEP TC)	Thailand	Treasury center for the Group's business	100	100	0.07	0.07	2.22	2.23
PTTEP Energy Holding (Thailand) Company Limited (PTTEP EH)	Thailand	Petroleum	100	100	413.65	272.18	12,424.72	8,207.33

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Investments in subsidiaries for the consolidated financial statements are as follows:

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2020	31 December 2019
PTTEP Business Center Company Limited (PTTEP BC)	Thailand	Petroleum	100	100
PTTEP Energy Development Company Limited (PTTEP ED)	Thailand	Petroleum	100	100
EP-Tech Ventures Holding Company Limited (EP-Tech)	Thailand	Petroleum related Technology	100	100
AI and Robotics Ventures Company Limited (ARV)	Thailand	Technology	100	100
PTTEP Southwest Vietnam Company Limited (PTTEP SV)	Cayman Islands	Petroleum	100	100
PTTEP Kim Long Vietnam Company Limited (PTTEP KV)	Cayman Islands	Petroleum	100	100
PTTEP Hoang-Long Company Limited (PTTEP HL)	Cayman Islands	Petroleum	100	100
PTTEP Hoan-Vu Company Limited (PTTEP HV)	Cayman Islands	Petroleum	100	100
PTTEP Algeria Company Limited (PTTEP AG)	Cayman Islands	Petroleum	100	100
PTTEP Holding Company Limited (PTTEPH)	Cayman Islands	Petroleum	100	100
PTTEP Indonesia Company Limited (PTTEP ID)	Cayman Islands	Petroleum	100	100
PTTEP Africa Investment Limited (PTTEP AI)	Cayman Islands	Petroleum	100	100
PTTEP Australia Pty Ltd (PTTEP AU)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Offshore Pty Ltd (PTTEP AO)	Commonwealth of Australia	Petroleum	100	100
PTTEP South Asia Limited (PTTEP SA)	Cayman Islands	Petroleum	100	100
PTTEP Semai II Limited (PTTEP SM) ¹	Cayman Islands	Petroleum	100	100
PTTEP Australia Perth Pty Ltd (PTTEP AP)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Browse Basin Pty Ltd (PTTEP AB)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Timor Sea Pty Ltd (PTTEP AT)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Operations) Pty Ltd (PTTEP AAO)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Staff) Pty Ltd (PTTEP AAS)	Commonwealth of Australia	Petroleum	100	100
PTTEP International Holding Company Limited (PTTEP IH)	Cayman Islands	Petroleum	100	100
PTTEP Southwest Vietnam Pipeline Company Limited (PTTEP SVPC)	Cayman Islands	Gas pipeline transportation	100	100
PTTEP FLNG Holding Company Limited (PTTEP FH) ²	Hong Kong	Petroleum	100	100
PTTEP Netherland Holding Limited (PTTEP NL)	Cayman Islands	Petroleum	100	100
JV Marine Limited (JV Marine)	Cayman Islands	Petroleum	100	100

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List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2020	31 December 2019
PTTEP South Mandar Limited (PTTEP SMD)	Cayman Islands	Petroleum	100	100
PTTEP South Sageri Limited (PTTEP SS)	Cayman Islands	Petroleum	100	100
PTTEP Sadang Limited (PTTEP SD)	Cayman Islands	Petroleum	100	100
PTTEP Malunda Limited (PTTEP ML)	Cayman Islands	Petroleum	100	100
PTTEP Netherlands Coöperatie U.A. (PTTEP NC)	Netherlands	Petroleum	100	100
PTTEP Canada Limited (PTTEP CA)	Canada	Petroleum	100	100
PTTEP Canada International Finance Limited (PTTEP CIF)	Canada	Investment funding for the Group's business	100	100
Cove Energy Limited (Cove)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
Cove Energy Mozambique Rovuma Onshore Limited (CEMROL) ³	Republic of Cyprus	Petroleum	100	100
Cove Energy East Africa Limited (CEEAL)	Republic of Cyprus	Petroleum	100	100
PTTEP Mozambique Area 1 Limited (PTTEP MZA1)	Republic of Cyprus	Petroleum	100	100
Cove Energy Kenya Limited (CEKL) ⁴	Republic of Kenya	Petroleum	-	100
PTTEP Netherlands Holding Coöperatie U.A. (PTTEP NH)	Netherlands	Petroleum	100	100
PTTEP Brazil Investment B.V. (PTTEP BI)	Netherlands	Petroleum	100	100
PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL)	Federative Republic of Brazil	Petroleum	100	100
Sinphuhorm Holdings Limited (SHL)	Cayman Islands	Petroleum	100	100
PTTEP SP Limited (PTTEP SP)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
PTTEP G7 Limited (PTTEP G7)	Thailand	Petroleum	100	100
PTTEP HK Offshore Limited (PTTEP HKO)	Hong Kong	Petroleum	100	100
PTTEP MENA Limited (PTTEP MENA)	Hong Kong	Petroleum	100	100
PTTEP Mexico E&P Limited, S. de R.L. de C.V. (PTTEP MEP)	Mexico	Petroleum	100	100
PTTEP Sabah Oil Limited (PTTEP SBO)	Bahamas	Petroleum	100	100
PTTEP Sarawak Oil Limited (PTTEP SKO)	Bahamas	Petroleum	100	100
PTTEP Group Holding B.V. (PGH) ⁵	Netherlands	Petroleum	100	100
Partex Oil and Gas (Holdings) Corporation (POGHC) ⁶	Cayman Islands	Petroleum	100	100
PTTEP (Kazakhstan) Corporation (PKC) ⁷	Cayman Islands	Petroleum	100	100
PTTEP (Angola) Corporation (PANG) ⁸	Cayman Islands	Petroleum	100	100
Partex (Brazil) Corporation (PBC)	Cayman Islands	Petroleum	100	100

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List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2020	31 December 2019
PTTEP Gas Corporation (PGC) ⁹	Republic of Panama	Petroleum	100	100
Partex Services Corporation (PSC)	Republic of Panama	Human resource support	100	100
Participations and Explorations Corporation (PEC)	Republic of Panama	Petroleum	100	100
PTTEP Oman E&P Corporation (POC) ¹⁰	Republic of Panama	Petroleum	100	100
Partex Services Portugal – Serviços para a Indústria Petrolífera, S.A. (PSP)	Portugal	Human resource support	100	100
Partex Brasil Ltda. (PBL)	Federative Republic of Brazil	Petroleum	100	100
Partex Brasil Operações Petrolíferas Ltda (PBO)	Federative Republic of Brazil	Human resource support	100	100

¹ On 10 July 2020, the Company approved for the registration for dissolution of PTTEP Semai II Limited (PTTEP SM), a subsidiary of the Group, and is in the process of dissolution.

² On 24 August 2017, the Company approved for the registration for the dissolution of PTTEP FLNG Holding Company Limited (PTTEP FH) and is in the process of dissolution.

³ On 22 May 2017, the Company approved for the registration for the dissolution of Cove Energy Mozambique Rovuma Onshore Limited (CEMROL) and is in the process of dissolution.

⁴ Following the Company's approval to register for the dissolution of Cove Energy Kenya Limited (CEKL), a subsidiary of the Group, on 22 May 2017, CEKL received the approval for company dissolution from the registrar on 27 May 2020.

⁵ On 23 July 2020, Partex Holding B.V. (PHBV), a subsidiary of the Group, changed its name to PTTEP Group Holding B.V. (PGH).

⁶ Partex Oil and Gas (Holdings) Corporation (POGHC), a subsidiary of the Group, was approved for the registration for dissolution from its shareholders since 26 October 2018 and is in process of dissolution.

⁷ On 24 August 2020, Partex (Kazakhstan) Corporation (PKC), a subsidiary of the Group, changed its name to PTTEP (Kazakhstan) Corporation (PKC).

⁸ On 26 August 2020, Partex (Angola) Corporation (PANG), a subsidiary of the Group, changed its name to PTTEP (Angola) Corporation (PANG).

⁹ On 3 September 2020, Partex Gas Corporation (PGC), a subsidiary of the Group, changed its name to PTTEP Gas Corporation (PGC).

¹⁰ On 3 September 2020, Partex (Oman) Corporation (POC), a subsidiary of the Group, changed its name to PTTEP Oman E&P Corporation (POC).

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18.2 Investment in associates

Changes of investments in associates during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
For the year ended 31 December				
Opening book value	227.63	219.80	6,863.84	7,132.36
Impact of adoption of TFRS 9	22.71	-	684.78	-
Share of net profit after income taxes	12.48	6.07	390.96	187.36
Dividends received	(2.87)	(2.81)	(89.68)	(87.13)
Share of other comprehensive income (expenses)				
- Remeasurement of employee benefits	(0.14)	(0.03)	(4.66)	(0.94)
- Measurement of financial assets	(44.00)	-	(1,390.33)	-
- Currency difference arising from translation of financial statements of associates	0.70	4.41	20.60	137.37
Reclassification	0.30	-	9.30	-
Currency translation differences	0.06	0.19	29.19	(505.18)
Closing book value	216.87	227.63	6,514.00	6,863.84
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
For the year ended 31 December				
Opening book value	25.58	25.58	771.26	829.99
Currency translation differences	-	-	(2.99)	(58.73)
Closing book value	25.58	25.58	768.27	771.26

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Details of investment in associates of the Group and the Company are as follows:

List of associates ^{1,2}	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Consolidated financial statements (Equity method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Energy Complex Company Limited (Energy Complex)	Thailand	Property rental services	50	50	62.52	53.62	1,877.62	1,616.78
PTT Digital Solutions Company Limited (PTT Digital)	Thailand	Information technology and communication services	20	20	16.40	13.70	492.76	413.06
PTTEP AP Group's Associates ³	Commonwealth of Australia	Air base services	50	50	4.97	4.97	149.32	149.90
PTT Global LNG Company Limited (PTT GL)	Thailand	Petroleum	50	50	129.28	151.50	3,883.17	4,568.44
Leismer Aerodrome Limited (LAL)	Canada	Air transportation	32	32	3.70	3.84	111.13	115.66
MoZ LNG1 Holding Company Ltd. ⁴	United Arab Emirates	Petroleum	8.5	-	-	-	-	-

List of associates ^{1,2}	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Consolidated financial statements (Cost method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Energy Complex Company Limited (Energy Complex)	Thailand	Property rental services	50	50	24.79	24.79	744.60	747.50
PTT Digital Solutions Company Limited (PTT Digital)	Thailand	Information technology and communication services	20	20	0.79	0.79	23.67	23.76

¹ All investments in associates have been assessed as immaterial to the Group.

² The Group has no contingent liabilities with participating interest in investment in associates.

³ PTTEP AP's Group Associates are Mungalalu Truscott Airbase Pty Ltd and Troughton Island Pty Ltd.

⁴ During the year 2020, the Group reviewed classification of investment to conform to the current situation. It affected to the investment reclassified as an investment in associate accounted for using the equity method.

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Individually immaterial associates

The Group's immaterial associates accounted for using equity method are as follows:

	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Aggregate carrying amount of share of individually immaterial associates	216.87	227.63	6,514.00	6,863.84
	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2020	2019	2020	2019
Aggregate amounts of the Group's share of associates:				
Profit from continuing operations	12.48	6.07	390.96	187.36
Other comprehensive income	(43.44)	4.38	(1,374.39)	136.43
Total comprehensive income for the year	(30.96)	10.45	(983.43)	323.79

As at 31 December 2020, the Group has unrecognised share of loss in an associate amounting to US Dollar 0.16 million (Baht 4.68 million).

18.3 Investments in Joint Ventures

Changes of investments in Joint Ventures during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
For the year ended 31 December				
Opening book value	225.37	17.41	6,795.81	565.02
Share of net profit after income taxes	29.16	6.28	916.27	193.05
Dividends received	(23.94)	(11.91)	(748.72)	(369.58)
Share of other comprehensive income				
- Currency differences arising from translation of financial statements of joint ventures	0.01	-	0.32	-
Business acquisition	-	82.96	-	2,502.52
Increase in investments	3.13	130.63	98.15	4,054.04
Decrease in investment	(0.39)	-	(12.30)	-
Currency translation differences	-	-	(40.56)	(149.24)
Closing book value	233.34	225.37	7,008.97	6,795.81

On 21 July 2020, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the Group, co-established ATI Technologies Co., Ltd. (ATI) with a registered capital of Baht 20 million. The registered capital comprises 4 million ordinary shares at a par value of Baht 5 each. ARV holds 50% interest in ATI. Its registered shares were paid at 60%. The Group classifies the investment in ATI as an investment in joint venture.

On 27 October 2020, ARV co-established Zeaquest Co.,Ltd (Zeaquest) with a registered capital of Baht 5 million. The registered capital comprises 50,000 ordinary shares at a par value of Baht 100 each. ARV holds 50% interest in Zeaquest. Its registered shares were paid at 43.88%. The Group classifies the investment in Zeaquest as an investment in joint venture.

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Details of investments in joint ventures of the Group are as follows:

List of joint ventures ^{1,2}	Country of incorporation	Type of business	Participating interest (%)		Consolidated financial statements (Equity method)			
			(including indirect holding)		Unit: Million US Dollar		Unit: Million Baht	
			31 December 2020	31 December 2019	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Erawan 2 FSO Bahamas Ltd. (Erawan 2 FSO)	Bahamas	FSO rental services	13.11	13.11	41.14	18.10	1,235.76	545.78
APICO LLC (APICO)	United States of America	Petroleum	72.8215	72.8215	128.59	127.38	3,862.66	3,841.17
Oman LNG LLC (OLNG)	Sultanate of Oman	Petroleum	2	2	63.42	79.89	1,904.95	2,408.86
ATI Technologies Company Limited (ATI)	Thailand	Technology	50	-	0.19	-	5.60	-
Zeaquest Co., Ltd. (Zeaquest)	Thailand	Technology	50	-	-	-	-	-

¹ All investments in joint ventures have been assessed as immaterial to the Group.

² The Group has no contingent liabilities with participating interest in investment in joint ventures.

³ Erawan 2 FSO Bahamas hold 100% of shareholding interest in Asia Pacific Marine Services (EF) B.V.

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Individually immaterial joint ventures

The Group's immaterial joint ventures accounted for using equity method are as follows:

As at 31 December	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Aggregate carrying amount of share of individually immaterial joint ventures	223.34	225.37	7,008.97	6,795.81
For the year ended 31 December	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Aggregate amounts of the Group's share of joint ventures:				
Profit from continuing operations	29.16	6.28	916.27	193.05
Other comprehensive income	0.01	-	0.32	-
Total comprehensive income for the year	29.17	6.28	916.59	193.05

18.4 Investments in Joint Operations

Details of investments in joint operations of the Group are as follows:

List of joint operations	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2020	31 December 2019
Carigali – PTTEPI Operating Company Sdn Bhd. (CPOC)	Malaysia	Petroleum	50	50
Moattama Gas Transportation Company (MGTC)	Bermuda	Gas pipeline transportation	25.5	25.5
Taninthayi Pipeline Company LLC (TPC)	Cayman Islands	Gas pipeline transportation	19.3178	19.3178
Orange Energy Limited (Orange)	Thailand	Petroleum	53.9496	53.9496
B8/32 Partners Limited (B8/32 Partners)	Thailand	Petroleum	25.0009	25.0009
Hoang-Long Joint Operating Company	Socialist Republic of Vietnam	Petroleum	28.5	28.5
Hoan-Vu Joint Operating Company	Socialist Republic of Vietnam	Petroleum	25	25
Groupement Bir Seba (GBRS)	People's Democratic Republic of Algeria	Petroleum	35	35
Andaman Transportation Limited (ATL)	Cayman Islands	Gas pipeline transportation	80	80
Natuna 2 B.V. (Natuna)	Netherlands	Petroleum	50	50
Petroleum Development Oman LLC (PDO)	Sultanate of Oman	Petroleum	2	2
Abu Dhabi Gas Industries Limited (AGP)	United Arab Emirates	Petroleum	2	2
Private Oil Holdings Oman Limited (POHOL)	United Kingdom of Great Britain and Northern Ireland	Petroleum	5	5

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Details of exploration and production projects operated by the Group are as follows:

Project	Country	Operator	Participating interest (%)	
			31 December 2020	31 December 2019
PTT Exploration and Production Public Company Limited				
Bongkot	Thailand	PTT Exploration and Production Public Company Limited	66.6667	66.6667
Arthit	Thailand	PTT Exploration and Production Public Company Limited	80	80
Contract 4 (B12/27)	Thailand	Chevron Thailand Exploration and Production, Ltd.	45	45
Sinphuhorm (E5 North)	Thailand	PTTEP SP Limited	20	20
S1	Thailand	PTTEP Siam Limited.	25	25
Contract 3 (B10, B11, B12 and B13)	Thailand	Chevron Thailand Exploration and Production, Ltd.	5	5
E5	Thailand	ExxonMobil Exploration and Production Khorat Inc.	20	20
Algeria Hassi Bir Rekaiz	People's Democratic Republic of Algeria	PTT Exploration and Production Public Company Limited	24.5	24.5
PTTEP International Limited (PTTEPI)				
Yadana	Republic of the Union of Myanmar	Total E&P Myanmar	25.5	25.5
Yetagun	Republic of the Union of Myanmar	Petronas Carigali Myanmar (Hong Kong) Ltd.	19.31784	19.31784
PTTEP 1	Thailand	PTTEP International Limited	100	100
G4/43	Thailand	Chevron Offshore (Thailand) Ltd.	21.375	21.375
G9/43	Thailand – Kingdom of Cambodia	PTTEP International Limited	100	100
L22/43	Thailand	PTTEP International Limited	100	100
L53/43 & L54/43	Thailand	PTTEP International Limited	100	100
G4/48	Thailand	Chevron Pattani, Ltd.	5	5
Bongkot (G12/48)	Thailand	PTTEP International Limited	66.6667	66.6667
Contract 4 (G7/50)	Thailand	Chevron Pattani, Ltd.	60	60
Arthit (G8/50)	Thailand	PTTEP International Limited	80	80
Zawtika	Republic of the Union of Myanmar	PTTEP International Limited	80	80
Myanmar M3	Republic of the Union of Myanmar	PTTEP International Limited	80	80
Myanmar M11	Republic of the Union of Myanmar	PTTEP International Limited	100	100
MTJDA	Thailand - Malaysia	Carigali-PTTEPI Operating Company Sdn Bhd.	50	50
PTTEP Offshore Investment Company Limited (PTTEPO)				
B8/32 & 9A ¹	Thailand	Chevron Offshore (Thailand) Ltd.	25.001	25.001
PTTEP Southwest Vietnam Company Limited (PTTEP SV)				
Vietnam 52/97	Socialist Republic of Vietnam	Vietnam Oil and Gas Group	7	7
PTTEP Kim Long Vietnam Company Limited (PTTEP KV)				
Vietnam B & 48/95	Socialist Republic of Vietnam	Vietnam Oil and Gas Group	8.5	8.5

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Project	Country	Operator	Participating interest (%)	
			31 December 2020	31 December 2019
PTTEP Hoang-Long Company Limited (PTTEP HL)				
Vietnam 16-1	Socialist Republic of Vietnam	Hoang-Long Joint Operating Company	28.5	28.5
PTTEP Hoan-Vu Company Limited (PTTEP HV)				
Vietnam 9-2	Socialist Republic of Vietnam	Hoan-Vu Joint Operating Company	25	25
PTTEP Algeria Company Limited (PTTEP AG)				
Algeria 433A & 416B	People's Democratic Republic of Algeria	Groupement Bir Seba	35	35
PTTEP Siam Limited (PTTEPS)				
Sinphuhorm (EU-1)	Thailand	PTTEP SP Limited	20	20
B6/27	Thailand	PTTEP Siam Limited	100	100
S1	Thailand	PTTEP Siam Limited	75	75
PTTEP South Asia Limited (PTTEP SA)				
Myanmar MD-7 ²	Republic of the Union of Myanmar	PTTEP South Asia Limited	50	50
Myanmar MOGE ³	Republic of the Union of Myanmar	PTTEP South Asia Limited	77.5	77.5
PTTEP Canada Limited (PTTEP CA)				
Mariana Oil Sands	Canada	PTTEP Canada Limited	100	100
PTTEP Australia Perth Pty Ltd (PTTEP AP)				
PTTEP Australasia*	Commonwealth of Australia			

* Details of operators and participating interests in PTTEP Australasia Project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2020	31 December 2019
AC/RL7, AC/RL12 and AC/P54	PTTEP Australasia (Ashmore Cartier) Pty Ltd	100	100
AC/L3	PTTEP Australasia (Ashmore Cartier) Pty Ltd	100	100
AC/RL10	PTTEP Australia Timor Sea Pty Ltd	90	90
AC/RL4 (Tenacious)	PTTEP Australia Timor Sea Pty Ltd	100	100
AC/RL6 (Audacious), AC/RL6 (exclusive of Audacious)	PTTEP Australia Timor Sea Pty Ltd	100	100
AC/RL4 (exclusive of Tenacious)	PTTEP Australia Timor Sea Pty Ltd	100	100
AC/RL5 ⁴	PTTEP Australia Timor Sea Pty Ltd	-	100

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Project	Country	Operator	Participating interest (%)	
			31 December 2020	31 December 2019
PTTEP Mozambique Area 1 Limited (PTTEP MZA1)				
Mozambique Area 1	Republic of Mozambique	Total E&P Mozambique Area 1 Limitada	8.5	8.5
Natuna 2 B.V. (Natuna)				
Natuna Sea A	Republic of Indonesia	Premier Oil Natuna Sea BV	11.5	11.5
PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL)				
Barreirinhas AP1	Federative Republic of Brazil	Shell Brasil Petroleo Ltda.	25	25
Brazil BM-ES-23	Federative Republic of Brazil	Petróleo Brasileiro S.A. (Petrobras)	20	20
PTTEP SP Limited (PTTEP SP)				
Contract 4 (B12/27)	Thailand	Chevron Thailand Exploration and Production, Ltd.	15	15
Sinphuhorm (E5 North and EU-1)	Thailand	PTTEP SP Limited	35	35
PTTEP HK Offshore Limited (PTTEP HKO)				
Sarawak SK 410B	Malaysia	PTTEP HK Offshore Limited	42.5	42.5
Sarawak SK 417	Malaysia	PTTEP HK Offshore Limited	80	80
Sarawak SK 438	Malaysia	PTTEP HK Offshore Limited	80	80
Peninsular PM 407	Malaysia	PTTEP HK Offshore Limited	55	55
Peninsular PM 415	Malaysia	PTTEP HK Offshore Limited	70	70
PTTEP Mexico E&P Limited, S. de R.L. de C.V. (PTTEP MEP)				
Mexico block 12 (2.4)	Mexico	PC Carigali Mexico Operations, S.A. de C.V.	20	20
Mexico block 29 (2.4)	Mexico	Repsol Exploración México, S.A. de C.V.	16.67	16.67
PTTEP Energy Development Company Limited (PTTEP ED)				
G1/61	Thailand	PTTEP Energy Development Company Limited	60	60
G2/61	Thailand	PTTEP Energy Development Company Limited	100	100
PTTEP MENA Limited (PTTEP MENA)				
Abu Dhabi Offshore 1	United Arab Emirates	Eni Abu Dhabi B.V.	30	30
Abu Dhabi Offshore 2	United Arab Emirates	Eni Abu Dhabi B.V.	30	30
Oman Onshore Block 12 ⁵	Sultanate of Oman	Total E&P Oman Block 12 B.V.	20	-
Abu Dhabi Offshore 3 ⁶	United Arab Emirates	Eni Abu Dhabi B.V.	30	-
PTTEP Sabah Oil Limited (PTTEP SBO)				
Malaysia Block K **	Malaysia			
Malaysia Block H ***	Malaysia			

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** Details of operators and participating interests in Malaysia Block K project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2020	31 December 2019
Kikeh	PTTEP Sabah Oil Limited	56	56
SNP	PTTEP Sabah Oil Limited	22.4	22.4
GK	Sabah Shell Petroleum Co., Ltd.	6.366	6.366

*** Details of operators and participating interests in Malaysia Block H project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2020	31 December 2019
Rotan	PTTEP Sabah Oil Limited	56	56
Others	PTTEP Sabah Oil Limited	42	42

Project	Country	Operator	Participating interest (%)	
			31 December 2020	31 December 2019
PTTEP Sarawak Oil Limited (PTTEP SKO)				
Sarawak SK 314A	Malaysia	PTTEP Sarawak Oil Limited	59.5	59.5
Sarawak SK 405B	Malaysia	PTTEP Sarawak Oil Limited	59.5	59.5
Sarawak SK 309 and SK 311 ****	Malaysia			

**** Details of operators and participating interests in Sarawak SK 309 and Sarawak SK 311 projects are as follows:

Block	Operator	Participating interest (%)	
		31 December 2020	31 December 2019
East Patricia	PTTEP Sarawak Oil Limited	42	42
Others	PTTEP Sarawak Oil Limited	59.5	59.5

Project	Country	Operator	Participating interest (%)	
			31 December 2020	31 December 2019
PTTEP Holding Group B.V. (PGH)				
Block 17/06	Angola	TOTAL E&P Angola Block17.06 (TEPA)	2.5	2.5
Potiguar	Federative Republic of Brazil	Partex Brasil Ltda	50	50
Dunga	Kazakhstan	Total E&P Dunga GmbH	20	20
PDO (Block 6)	Sultanate of Oman	Petroleum Development Oman LLC	2	2
Mukhaizna (Block 53)	Sultanate of Oman	Occidental Mukhaizna, LLC	1	1

¹ PTTEP Offshore Investment Company Limited (PTTEPO) has shareholding interest in Orange Energy Limited and B8/32 Partners Limited, which hold the project's concession.

² On 14 October 2020, PTTEP South Asia Limited (PTTEPSA), a subsidiary of the Group, submitted a request to terminate and return 50% of the exploration block of Myanmar MD-7 Project after fulfilling the obligations under the Product Sharing Contract earlier than termination exploration period identified per the contract (14 November 2021). The termination will be effective upon receiving official approval from the Government of the Republic of the Union of Myanmar.

³ On 9 July 2020, PTTEP SA submitted a request to terminate and return 77.5% of the exploration block of Myanmar MOGE 3 Project after fulfilling the obligations under the Product Sharing Contract. The termination will be effective upon receiving official approval from the Government of the Republic of the Union of Myanmar.

⁴ On 13 March 2020, PTTEP Australia Timor Sea Pty Ltd (PTTEP AT), a subsidiary of the Group, requested to terminate and return 100% of the exploration blocks of AC/RL5 Project to the Government of the Commonwealth of the Australia after fulfillment of the requirements of the concession. The termination is effective from 15 June 2020.

⁵ On 19 February 2020, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the Group, and co-venturer signed Exploration and Production Sharing Agreement (EPSA) with Oman's Ministry of Oil and Gas (MOG) for exploration and production rights of Block12, located onshore central part of the Sultanate of Oman. PTTEP MENA holds 20% participation interests in this Block. The Sultan of Oman approved the EPSA on 25 March 2020.

⁶ On 21 December 2020, PTTEP MENA and co-venturer signed Exploration Concession Agreement for exploration and production rights of Block Offshore 3, located offshore north-west of Abu Dhabi, United Arab Emirates. PTTEP MENA holds 30% participation interests in this Block during exploration phase. The exploration rights will be effective from 1 January 2021.

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19 Property, plant and equipment

	Consolidated financial statements				
	Unit: Million US Dollar				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2019					
Cost	24,153.51	891.11	130.48	1,686.96	26,862.06
<u>Less</u> Accumulated depreciation	(17,990.69)	(248.43)	(84.66)	-	(18,323.78)
<u>Less</u> Accumulated impairment	(329.88)	(5.25)	-	-	(335.13)
Net book value	5,832.94	637.43	45.82	1,686.96	8,203.15
For the year ended 31 December 2019					
Opening net book value	5,832.94	637.43	45.82	1,686.96	8,203.15
Business acquisition	2,081.24	-	15.22	-	2,096.46
Additions	822.44	2.44	4.73	579.85	1,409.46
Disposals and write-off, net	(23.34)	-	(0.06)	(11.52)	(34.92)
Reclassification	1,772.73	-	1.01	(777.62)	996.12
Depreciation charged	(1,970.42)	(29.81)	(8.17)	-	(2,008.40)
Currency translation differences	0.01	-	0.10	-	0.11
Closing net book value	8,515.60	610.06	58.65	1,477.67	10,661.98
As at 31 December 2019					
Cost	28,782.50	893.55	145.25	1,477.67	31,298.97
<u>Less</u> Accumulated depreciation	(19,937.02)	(278.24)	(86.60)	-	(20,301.86)
<u>Less</u> Accumulated impairment	(329.88)	(5.25)	-	-	(335.13)
Net book value	8,515.60	610.06	58.65	1,477.67	10,661.98
Adjustment from adoption of TFRS 16 (Note 6)					
Cost	(128.11)	-	(1.38)	-	(129.49)
<u>Less</u> Accumulated depreciation	6.65	-	0.41	-	7.06
Net book value	(121.46)	-	(0.97)	-	(122.43)

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	Consolidated financial statements				
	Unit: Million US Dollar				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2020					
Cost	28,654.39	893.55	143.87	1,477.67	31,169.48
<u>Less</u> Accumulated depreciation	(19,930.37)	(278.24)	(86.19)	-	(20,294.80)
<u>Less</u> Accumulated impairment	(329.88)	(5.25)	-	-	(335.13)
Net book value	8,394.14	610.06	57.68	1,477.67	10,539.55
For the year ended 31 December 2020					
Opening net book value	8,394.14	610.06	57.68	1,477.67	10,539.55
Additions	541.07	2.12	12.07	850.98	1,406.24
Disposals and write-off, net	(64.34)	-	(2.88)	(31.28)	(98.50)
Reclassification	293.69	-	0.30	(277.12)	16.87
Depreciation charged	(1,934.55)	(29.85)	(14.29)	-	(1,978.69)
Allowance for impairment of assets	(47.52)	(0.41)	-	-	(47.93)
Closing net book value	7,182.49	581.92	52.88	2,020.25	9,837.54
As at 31 December 2020					
Cost	28,967.86	895.67	152.63	2,020.25	32,036.41
<u>Less</u> Accumulated depreciation	(21,423.30)	(308.09)	(99.75)	-	(21,831.14)
<u>Less</u> Accumulated impairment	(362.07)	(5.66)	-	-	(367.73)
Net book value	7,182.49	581.92	52.88	2,020.25	9,837.54

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	Consolidated financial statements				
	Unit: Million Baht				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2019					
Cost	783,777.47	28,916.58	4,233.87	54,741.44	871,669.36
<u>Less</u> Accumulated depreciation	(583,795.16)	(8,061.57)	(2,746.81)	-	(594,603.54)
<u>Less</u> Accumulated impairment	(10,704.52)	(170.51)	-	-	(10,875.03)
Net book value	189,277.79	20,684.50	1,487.06	54,741.44	266,190.79
For the year ended 31 December 2019					
Opening net book value	189,277.79	20,684.50	1,487.06	54,741.44	266,190.79
Business acquisition	63,886.42	-	459.09	-	64,345.51
Additions	25,524.46	75.62	146.62	17,995.71	43,742.41
Disposals and write-off, net	(723.78)	-	(1.66)	(357.63)	(1,083.07)
Reclassification	55,016.62	-	31.14	(24,133.29)	30,914.47
Depreciation charged	(61,088.56)	(925.29)	(253.36)	-	(62,267.21)
Currency translation differences	(15,113.55)	(1,439.12)	(100.19)	(3,688.60)	(20,341.46)
Closing net book value	256,779.40	18,395.71	1,768.70	44,557.63	321,501.44
As at 31 December 2019					
Cost	867,907.44	26,944.20	4,379.89	44,557.63	943,789.16
<u>Less</u> Accumulated depreciation	(601,180.87)	(8,390.04)	(2,611.19)	-	(612,182.10)
<u>Less</u> Accumulated impairment	(9,947.17)	(158.45)	-	-	(10,105.62)
Net book value	256,779.40	18,395.71	1,768.70	44,557.63	321,501.44
Adjustment from adoption of TFRS 16 (Note 6)					
Cost	(3,863.07)	-	(41.76)	-	(3,904.83)
<u>Less</u> Accumulated depreciation	200.59	-	12.48	-	213.07
Net book value	(3,662.48)	-	(29.28)	-	(3,691.76)

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	Consolidated financial statements				
	Unit: Million Baht				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2020					
Cost	864,044.37	26,944.20	4,338.13	44,557.63	939,884.33
<u>Less</u> Accumulated depreciation	(600,980.28)	(8,390.04)	(2,598.71)	-	(611,969.03)
<u>Less</u> Accumulated impairment	(9,947.17)	(158.45)	-	-	(10,105.62)
Net book value	253,116.92	18,395.71	1,739.42	44,557.63	317,809.68
For the year ended 31 December 2020					
Opening net book value	253,116.92	18,395.71	1,739.42	44,557.63	317,809.68
Additions	16,922.24	66.12	377.61	26,615.03	43,981.00
Disposals and write-off, net	(2,012.23)	-	(90.22)	(978.27)	(3,080.72)
Reclassification	9,185.31	-	9.24	(8,667.24)	527.31
Depreciation charged	(60,513.13)	(933.89)	(447.25)	-	(61,894.27)
Allowance for impairment of assets	(1,434.19)	(12.15)	-	-	(1,446.34)
Currency translation differences	476.06	(36.56)	(0.56)	(844.85)	(405.91)
Closing net book value	215,740.98	17,479.23	1,588.24	60,682.30	295,490.75
As at 31 December 2020					
Cost	870,109.75	26,903.22	4,584.27	60,682.30	962,279.54
<u>Less</u> Accumulated depreciation	(643,493.20)	(9,254.03)	(2,996.03)	-	(655,743.26)
<u>Less</u> Accumulated impairment	(10,875.57)	(169.96)	-	-	(11,045.53)
Net book value	215,740.98	17,479.23	1,588.24	60,682.30	295,490.75

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	Separate financial statements			
	Unit: Million US Dollar			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2019				
Cost	12,514.92	89.26	675.61	13,279.79
<u>Less</u> Accumulated depreciation	(9,436.07)	(61.66)	-	(9,497.73)
Net book value	3,078.85	27.60	675.61	3,782.06
For the year ended 31 December 2019				
Opening net book value	3,078.85	27.60	675.61	3,782.06
Additions	294.72	1.95	115.43	412.10
Disposals and write-off, net	-	(0.05)	-	(0.05)
Reclassification	550.69	0.29	(401.09)	149.89
Depreciation charged	(1,032.71)	(5.42)	-	(1,038.13)
Closing net book value	2,891.55	24.37	389.95	3,305.87
As at 31 December 2019				
Cost	13,360.27	85.37	389.95	13,835.59
<u>Less</u> Accumulated depreciation	(10,468.72)	(61.00)	-	(10,529.72)
Net book value	2,891.55	24.37	389.95	3,305.87
Adjustment from adoption of TFRS 16 (Note 6)				
Cost	-	(1.38)	-	(1.38)
<u>Less</u> Accumulated depreciation	-	0.41	-	0.41
Net book value	-	(0.97)	-	(0.97)

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	Separate financial statements			
	Unit: Million US Dollar			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2020				
Cost	13,360.27	83.99	389.95	13,834.21
<u>Less</u> Accumulated depreciation	(10,468.72)	(60.59)	-	(10,529.31)
Net book value	2,891.55	23.40	389.95	3,304.90
For the year ended 31 December 2020				
Opening net book value	2,891.55	23.40	389.95	3,304.90
Additions	174.05	6.18	245.62	425.85
Disposals and write-off, net	(0.90)	(0.14)	(1.20)	(2.24)
Reclassification	134.12	0.30	(134.42)	-
Depreciation charged	(970.23)	(4.03)	-	(974.26)
Closing net book value	2,228.59	25.71	499.95	2,754.25
As at 31 December 2020				
Cost	13,513.75	89.32	499.95	14,103.02
<u>Less</u> Accumulated depreciation	(11,285.16)	(63.61)	-	(11,348.77)
Net book value	2,228.59	25.71	499.95	2,754.25

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	Separate financial statements			
	Unit: Million Baht			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2019				
Cost	406,107.04	2,896.71	21,923.49	430,927.24
<u>Less</u> Accumulated depreciation	(306,198.97)	(2,000.96)	-	(308,199.93)
Net book value	99,908.07	895.75	21,923.49	122,727.31
For the year ended 31 December 2019				
Opening net book value	99,908.07	895.75	21,923.49	122,727.31
Additions	9,146.54	60.64	3,582.27	12,789.45
Disposals and write-off, net	(0.02)	(1.62)	-	(1.64)
Reclassification	17,090.72	8.86	(12,447.85)	4,651.73
Depreciation charged	(32,041.22)	(168.36)	-	(32,209.58)
Currency translation differences	(6,912.40)	(60.33)	(1,299.43)	(8,272.16)
Closing net book value	87,191.69	734.94	11,758.48	99,685.11
As at 31 December 2019				
Cost	402,865.39	2,574.33	11,758.48	417,198.20
<u>Less</u> Accumulated depreciation	(315,673.70)	(1,839.39)	-	(317,513.09)
Net book value	87,191.69	734.94	11,758.48	99,685.11
Adjustment from adoption of TFRS 16 (Note 6)				
Cost	-	(41.76)	-	(41.76)
<u>Less</u> Accumulated depreciation	-	12.48	-	12.48
Net book value	-	(29.28)	-	(29.28)

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	Separate financial statements			
	Unit: Million Baht			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2020				
Cost	402,865.39	2,532.57	11,758.48	417,156.44
<u>Less</u> Accumulated depreciation	(315,673.70)	(1,826.91)	-	(317,500.61)
Net book value	87,191.69	705.66	11,758.48	99,655.83
For the year ended 31 December 2020				
Opening net book value	87,191.69	705.66	11,758.48	99,655.83
Additions	5,443.47	193.33	7,682.01	13,318.81
Disposals and write-off, net	(28.15)	(4.20)	(37.47)	(69.82)
Reclassification	4,194.78	9.23	(4,204.01)	-
Depreciation charged	(30,348.21)	(126.10)	-	(30,474.31)
Currency translation differences	486.75	(5.68)	(181.86)	299.21
Closing net book value	66,940.33	772.24	15,017.15	82,729.72
As at 31 December 2020				
Cost	405,913.35	2,682.81	15,017.15	423,613.31
<u>Less</u> Accumulated depreciation	(338,973.02)	(1,910.57)	-	(340,883.59)
Net book value	66,940.33	772.24	15,017.15	82,729.72

Impairment loss on property, plant and equipment is disclosed in Note 24.

As at 31 December 2020 and 2019, the Group has capital expenditure commitments as disclosed in Note 40.1.

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20 Right-of-use assets

	Consolidated financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
As at 1 January 2020			
Cost	-	-	-
<u>Less</u> Accumulated amortisation	-	-	-
Net book value	-	-	-
For the year ended 31 December 2020			
Opening net book value	-	-	-
Impact of the adoption of TFRS 16	466.86	28.72	495.58
Additions	90.82	6.15	96.97
Decreases	(0.67)	(0.05)	(0.72)
Agreement modification	1.37	0.02	1.39
Amortisation charged	(90.41)	(20.03)	(110.44)
Closing net book value	467.97	14.81	482.78
As at 31 December 2020			
Cost	557.84	34.80	592.64
<u>Less</u> Accumulated amortisation	(89.87)	(19.99)	(109.86)
Net book value	467.97	14.81	482.78

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	Consolidated financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
As at 1 January 2020			
Cost	-	-	-
<u>Less</u> Accumulated amortisation	-	-	-
Net book value	-	-	-
For the year ended 31 December 2020			
Opening net book value	-	-	-
Impact of the adoption of TFRS 16	14,077.53	866.15	14,943.68
Additions	2,840.68	192.13	3,032.81
Decreases	(20.85)	(1.61)	(22.46)
Agreement modification	42.81	0.88	43.69
Amortisation charged	(2,825.64)	(626.84)	(3,452.48)
Currency translation differences	(58.02)	14.01	(44.01)
Closing net book value	14,056.51	444.72	14,501.23
As at 31 December 2020			
Cost	16,755.97	1,045.40	17,801.37
<u>Less</u> Accumulated amortisation	(2,699.46)	(600.68)	(3,300.14)
Net book value	14,056.51	444.72	14,501.23

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	Separate financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
As at 1 January 2020			
Cost	-	-	-
<u>Less</u> Accumulated amortisation	-	-	-
Net book value	-	-	-
For the year ended 31 December 2020			
Opening net book value	-	-	-
Impact of the adoption of TFRS 16	5.94	25.48	31.42
Additions	42.25	5.38	47.63
Agreement modification	(0.26)	-	(0.26)
Amortisation charged	(7.94)	(18.44)	(26.38)
Closing net book value	39.99	12.42	52.41
As at 31 December 2020			
Cost	47.93	30.86	78.79
<u>Less</u> Accumulated amortisation	(7.94)	(18.44)	(26.38)
Net book value	39.99	12.42	52.41

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	Separate financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
As at 1 January 2020			
Cost	-	-	-
<u>Less</u> Accumulated amortisation	-	-	-
Net book value	-	-	-
For the year ended 31 December 2020			
Opening net book value	-	-	-
Impact of the adoption of TFRS 16	179.13	768.24	947.37
Additions	1,321.52	168.43	1,489.95
Agreement modification	(8.31)	0.04	(8.27)
Amortisation charged	(246.32)	(577.03)	(823.35)
Currency translation differences	(44.70)	13.31	(31.39)
Closing net book value	1,201.32	372.99	1,574.31
As at 31 December 2020			
Cost	1,439.64	927.06	2,366.70
<u>Less</u> Accumulated amortisation	(238.32)	(554.07)	(792.39)
Net book value	1,201.32	372.99	1,574.31

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21 Goodwill

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
As at 1 January 2019				
Cost	1,356.63	44,022.56	75.16	2,438.85
<u>Less</u> Provision for impairment	(112.39)	(3,647.11)	-	-
Net book value	1,244.24	40,375.45	75.16	2,438.85
For the year ended 31 December 2019				
Opening net book value	1,244.24	40,375.45	75.16	2,438.85
Business acquisition	659.56	20,204.39	-	-
Currency translation differences	-	(3,172.59)	-	(172.55)
Closing net book value	1,903.80	57,407.25	75.16	2,266.30
As at 31 December 2019				
Cost	2,016.19	60,796.32	75.16	2,266.30
<u>Less</u> Provision for impairment	(112.39)	(3,389.07)	-	-
Net book value	1,903.80	57,407.25	75.16	2,266.30
For the year ended 31 December 2020				
Opening net book value	1,903.80	57,407.25	75.16	2,266.30
Currency translation differences	-	(222.61)	-	(8.79)
Closing net book value	1,903.80	57,184.64	75.16	2,257.51
As at 31 December 2020				
Cost	2,016.19	60,560.57	75.16	2,257.51
<u>Less</u> Provision for impairment	(112.39)	(3,375.93)	-	-
Net book value	1,903.80	57,184.64	75.16	2,257.51

Goodwill is allocated to the Group's cash-generating units (CGUs) identified according to business segment.

Goodwill allocation presented by the CGUs as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
As at 31 December				
Exploration and production				
Southeast Asia	974.56	974.56	29,272.94	29,386.88
Africa	725.96	725.96	21,805.91	21,890.80
Others	185.87	185.87	5,582.92	5,604.66
Others	17.41	17.41	522.87	524.91
Total	1,903.80	1,903.80	57,184.64	57,407.25
Separate financial statements				
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
As at 31 December				
Exploration and production				
Southeast Asia	75.16	75.16	2,257.51	2,266.30
Total	75.16	75.16	2,257.51	2,266.30

Goodwill impairment testing

The Group tested impairment of goodwill from business acquisition annually. The Group compares the carrying amount of the goodwill with the recoverable amount of each cash-generating units which is the higher of the fair value less cost to sell or value-in-use.

An asset or group of assets described as cash-generating unit (CGU) is the smallest identifiable group of assets that generates inflows that are largely independent from the cash flows from other CGUs. The Group considers the CGU at the individual project level assessing the expected future cash flows over the average life of the project with a growth rate along with the industry's information.

The measurements of fair value less cost to sell and value-in-use are based on a proved and probable reserve production profile including other key estimates and assumptions such as the short-term forward oil price curve, long-term oil price based on supply and demand of oil in the global market, exchange rates, discount rates, and project management team estimate of the capital expenditure and operating expenditure as well as past industry performance which were consistent with the external sources of information. The weighted average cost of capital of each project in each region is used for discount rate for financial estimation. For consolidated financial statements, the discount rate for exploration and production segment consists of Southeast Asia at rate of 4% - 6% per annum (2019: 6% - 7% per annum), Africa at rate of 7% - 10% per annum (2019: 8% - 12% per annum) and others at rate of 5% - 8% per annum (2019: 5% - 9% per annum), and for others segment is at rate of 4% per annum. For separate financial statements, the discount rate for exploration and production segment consists of Southeast Asia at rate of 4% - 5% per annum (2019: 6% - 7% per annum).

If the discounted cash flow in goodwill impairment testing increases approximately 0.50% - 5.50% per annum, there still would be no allowance for goodwill impairment recognised in the consolidated and separate financial statements for the year ended 31 December 2020.

22 Intangible assets

	Consolidated financial statements		
	Unit: Million US Dollar		
	Other intangible assets	Development cost	Total
As at 1 January 2019			
Cost	166.80	11.26	178.06
<u>Less</u> Accumulated amortisation	(95.86)	(0.11)	(95.97)
Net book value	70.94	11.15	82.09
For the year ended 31 December 2019			
Opening net book value	70.94	11.15	82.09
Business acquisition	39.20	-	39.20
Additions	19.61	6.57	26.18
Amortisation charged	(15.12)	(0.37)	(15.49)
Closing net book value	114.63	17.35	131.98
As at 31 December 2019			
Cost	225.61	17.83	243.44
<u>Less</u> Accumulated amortisation	(110.98)	(0.48)	(111.46)
Net book value	114.63	17.35	131.98
Adjustment from adoption of TFRS 16 (Note 6)			
Cost	(9.21)	-	(9.21)
<u>Less</u> Accumulated amortisation	4.36	-	4.36
Net book value	(4.85)	-	(4.85)
As at 1 January 2020			
Cost	216.40	17.83	234.23
<u>Less</u> Accumulated amortisation	(106.62)	(0.48)	(107.10)
Net book value	109.78	17.35	127.13
For the year ended 31 December 2020			
Opening net book value	109.78	17.35	127.13
Additions	24.05	4.41	28.46
Disposals and write-off, net	(0.12)	(3.81)	(3.93)
Amortisation charged	(20.80)	(0.41)	(21.21)
Closing net book value	112.91	17.54	130.45
As at 31 December 2020			
Cost	244.70	18.43	263.13
<u>Less</u> Accumulated amortisation	(131.79)	(0.89)	(132.68)
Net book value	112.91	17.54	130.45

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	Consolidated financial statements		
	Unit: Million Baht		
	Other intangible assets	Development cost	Total
As at 1 January 2019			
Cost	5,412.51	365.46	5,777.97
<u>Less</u> Accumulated amortisation	(3,110.57)	(3.52)	(3,114.09)
Net book value	2,301.94	361.94	2,663.88
For the year ended 31 December 2019			
Opening net book value	2,301.94	361.94	2,663.88
Business acquisition	1,184.21	-	1,184.21
Additions	608.75	203.89	812.64
Amortisation charged	(468.26)	(11.66)	(479.92)
Currency translation differences	(170.13)	(31.07)	(201.20)
Closing net book value	3,456.51	523.10	3,979.61
As at 31 December 2019			
Cost	6,803.08	537.70	7,340.78
<u>Less</u> Accumulated amortisation	(3,346.57)	(14.60)	(3,361.17)
Net book value	3,456.51	523.10	3,979.61
Adjustment from adoption of TFRS 16 (Note 6)			
Cost	(277.84)	-	(277.84)
<u>Less</u> Accumulated amortisation	131.43	-	131.43
Net book value	(146.41)	-	(146.41)
As at 1 January 2020			
Cost	6,525.24	537.70	7,062.94
<u>Less</u> Accumulated amortisation	(3,215.14)	(14.60)	(3,229.74)
Net book value	3,310.10	523.10	3,833.20
For the year ended 31 December 2020			
Opening net book value	3,310.10	523.10	3,833.20
Additions	752.41	137.90	890.31
Disposals and write-off, net	(3.79)	(119.08)	(122.87)
Amortisation charged	(650.65)	(12.61)	(663.26)
Currency translation differences	(16.66)	(2.28)	(18.94)
Closing net book value	3,391.41	527.03	3,918.44
As at 31 December 2020			
Cost	7,349.94	553.69	7,903.63
<u>Less</u> Accumulated amortisation	(3,958.53)	(26.66)	(3,985.19)
Net book value	3,391.41	527.03	3,918.44

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	Separate financial statements		
	Unit: Million US Dollar		
	Other intangible assets	Development cost	Total
As at 1 January 2019			
Cost	147.09	11.26	158.35
<u>Less</u> Accumulated amortisation	(86.64)	(0.11)	(86.75)
Net book value	60.45	11.15	71.60
For the year ended 31 December 2019			
Opening net book value	60.45	11.15	71.60
Additions	15.54	3.93	19.47
Amortisation charged	(12.52)	(0.37)	(12.89)
Closing net book value	63.47	14.71	78.18
As at 31 December 2019			
Cost	162.62	15.19	177.81
<u>Less</u> Accumulated amortisation	(99.15)	(0.48)	(99.63)
Net book value	63.47	14.71	78.18
For the year ended 31 December 2020			
Opening net book value	63.47	14.71	78.18
Additions	19.46	2.63	22.09
Disposals and write-off, net	-	(3.81)	(3.81)
Amortisation charged	(14.10)	(0.40)	(14.50)
Closing net book value	68.83	13.13	81.96
As at 31 December 2020			
Cost	182.08	14.01	196.09
<u>Less</u> Accumulated amortisation	(113.25)	(0.88)	(114.13)
Net book value	68.83	13.13	81.96

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	Separate financial statements		
	Unit: Million Baht		
	Other intangible assets	Development cost	Total
As at 1 January 2019			
Cost	4,773.02	365.46	5,138.48
<u>Less</u> Accumulated amortisation	(2,811.55)	(3.52)	(2,815.07)
Net book value	1,961.47	361.94	2,323.41
For the year ended 31 December 2019			
Opening net book value	1,961.47	361.94	2,323.41
Additions	482.15	122.09	604.24
Amortisation charged	(388.34)	(11.66)	(400.00)
Currency translation differences	(141.51)	(28.74)	(170.25)
Closing net book value	1,913.77	443.63	2,357.40
As at 31 December 2019			
Cost	4,903.52	458.23	5,361.75
<u>Less</u> Accumulated amortisation	(2,989.75)	(14.60)	(3,004.35)
Net book value	1,913.77	443.63	2,357.40
For the year ended 31 December 2020			
Opening net book value	1,913.77	443.63	2,357.40
Additions	608.67	82.03	690.70
Disposals and write-off, net	-	(119.07)	(119.07)
Amortisation charged	(440.80)	(12.53)	(453.33)
Currency translation differences	(14.11)	0.24	(13.87)
Closing net book value	2,067.53	394.30	2,461.83
As at 31 December 2020			
Cost	5,469.07	420.88	5,889.95
<u>Less</u> Accumulated amortisation	(3,401.54)	(26.58)	(3,428.12)
Net book value	2,067.53	394.30	2,461.83

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23 Exploration and evaluation assets

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
As at 1 January 2019				
Cost	4,715.36	153,012.76	149.89	4,863.79
<u>Less</u> Accumulated impairment	(1,643.45)	(53,329.81)	-	-
Net book value	3,071.91	99,682.95	149.89	4,863.79
For the year ended 31 December 2019				
Opening net book value	3,071.91	99,682.95	149.89	4,863.79
Business acquisition	749.00	23,036.18	-	-
Additions	119.22	3,700.24	-	-
Decreases	(65.83)	(2,043.21)	-	-
Reclassification	(996.12)	(30,914.47)	(149.89)	(4,651.73)
Currency translation differences	2.14	(6,608.56)	-	(212.06)
Closing net book value	2,880.32	86,853.13	-	-
As at 31 December 2019				
Cost	4,606.52	138,905.21	-	-
<u>Less</u> Accumulated impairment	(1,726.20)	(52,052.08)	-	-
Net book value	2,880.32	86,853.13	-	-
For the year ended 31 December 2020				
Opening net book value	2,880.32	86,853.13	-	-
Additions	103.43	3,234.79	-	-
Decreases	(35.15)	(1,099.37)	-	-
Reclassification	(16.87)	(527.31)	-	-
Allowance for impairment loss on assets	(43.65)	(1,360.30)	-	-
Currency translation differences	(1.86)	(407.35)	-	-
Closing net book value	2,886.22	86,693.59	-	-
As at 31 December 2020				
Cost	4,693.59	140,981.77	-	-
<u>Less</u> Accumulated impairment	(1,807.37)	(54,288.18)	-	-
Net book value	2,886.22	86,693.59	-	-

Impairment loss on exploration and evaluation assets is disclosed in Note 24.

24 Impairment loss on assets

Assets that are subject to amortisation are reviewed for impairment whenever events or change in circumstances indicate that the carrying amount of the assets exceeds its recoverable amount. An impairment loss is recognised when the carrying amount of the asset is higher than its recoverable amount which is the higher of the asset's fair value less cost to sell or value-in-use.

An asset or group of assets described as cash-generating unit (CGU) is the smallest identifiable group of assets that generates inflows that are largely independent from the cash flows from other CGUs. The Group considers the CGU at the individual project level assessing the expected future cash flows over the average life of the project with a growth rate along with the industry's information.

During the first half-year of 2020, the oil price decreased, along with the significant reduction of the production plan of the producing projects due to a decline of petroleum reserves estimates in the second half-year of 2020. These events are the key indicators that require the Group to perform impairment assessment for its projects.

The Group measures recoverable amount of assets with measurement of fair value less cost to sell and value-in-use which are based on a proved and probable reserve production profile including other key estimates and assumptions such as the short-term forward oil price curve, long-term oil price based on supply and demand of oil in the world market, exchange rates, discount rates, and project management team estimate of the capital expenditure and operating expenditure as well as past industry performance which were consistent with the external sources of information. The discounted cash flow was used in the calculation by applying discount rates about 4% - 5%.

During the year ended 31 December 2020, the Group recognised impairment loss on assets in the consolidated profit or loss, categorised by classification of asset as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
Impairment loss on exploration and production assets recognised in property, plant and equipment	47.93	1,446.34
Impairment loss on exploration and evaluation assets	43.65	1,360.30
Total	91.58	2,806.64

Consolidated financial statements				
Unit: Million US Dollar				
Group of assets	Basis using to identify the recoverable amount	The carrying amount of group of assets before impairment	The carrying amount of group of assets after impairment	Impairment loss
Thailand	Value-in-use	6.95	3.10	3.85
Overseas	Value-in-use	72.58	28.50	44.08
Overseas	Fair value less cost to sell	43.65	-	43.65
			Total	91.58

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Consolidated financial statements				
Unit: Million Baht				
Group of assets	Basis using to indentify the recoverable amount	The carrying amount of group of assets before impairment	The carrying amount of group of assets after impairment	Impairment loss
Thailand	Value-in-use	214.69	94.75	119.94
Overseas	Value-in-use	2,180.09	853.70	1,326.39
Overseas	Fair value less cost to sell	1,360.31	-	1,360.31
			Total	<u>2,806.64</u>

The amount of impairment loss on assets is disclosed in Note 11 Segment and revenue information.

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25 Deferred income taxes

The analysis of deferred tax assets and liabilities is as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Deferred tax assets:				
Deferred tax asset to be recovered within 12 months	617.58	418.82	18,550.21	12,629.22
Deferred tax asset to be recovered more than 12 months	481.10	542.91	14,450.97	16,370.77
	1,098.68	961.73	33,001.18	28,999.99
Deferred tax liabilities:				
Deferred tax liabilities to be settled within 12 months	-	-	-	-
Deferred tax liabilities to be settled more than 12 months	(1,445.79)	(1,442.49)	(43,427.36)	(43,496.81)
	(1,445.79)	(1,442.49)	(43,427.36)	(43,496.81)
Deferred taxes, net	(347.11)	(480.76)	(10,426.18)	(14,496.82)
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Deferred tax assets:				
Deferred tax asset to be recovered within 12 months	545.85	385.34	16,395.69	11,619.53
Deferred tax asset to be recovered more than 12 months	223.93	254.48	6,726.21	7,673.52
	769.78	639.82	23,121.90	19,293.05
Deferred tax liabilities:				
Deferred tax liabilities to be settled within 12 months	-	-	-	-
Deferred tax liabilities to be settled more than 12 months	-	-	-	-
	-	-	-	-
Deferred taxes, net	769.78	639.82	23,121.90	19,293.05

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The movements in deferred tax assets and liabilities during the year are as follows:

	Consolidated financial statements					
	Unit: Million US Dollar					
	As at 1 January 2019	Statement of income	Statement of comprehensive income	Business acquisition	Currency translation differences	As at 31 December 2019
Deferred tax assets						
Decommissioning costs	828.34	75.25	-	112.56	-	1,016.15
Provision for employee benefits	74.43	16.78	12.02	-	0.15	103.38
Property, plant and equipment and intangible assets	7.80	(0.02)	-	-	-	7.78
Loss carried forward	264.77	29.55	2.94	0.51	-	297.77
Financial derivative	0.02	0.52	-	-	-	0.54
Allowance for impairment loss on assets	114.74	10.69	-	-	-	125.43
Others	142.99	(16.54)	0.33	74.30	-	201.08
	1,433.09	116.23	15.29	187.37	0.15	1,752.13
Tax effect of currency translation on tax base	77.40	26.19	-	-	-	103.59
	1,510.49	142.42	15.29	187.37	0.15	1,855.72
Deferred tax liabilities						
Property, plant and equipment and intangible assets	1,820.30	(274.20)	-	761.58	-	2,307.68
Financial derivative	3.63	7.70	3.04	-	-	14.37
Others	5.02	(4.02)	(0.20)	12.44	-	13.24
	1,828.95	(270.52)	2.84	774.02	-	2,335.29
Tax effect of currency translation on tax base	0.88	0.31	-	-	-	1.19
	1,829.83	(270.21)	2.84	774.02	-	2,336.48
Deferred taxes, net	(319.34)	412.63	12.45	(586.65)	0.15	(480.76)

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	Consolidated financial statements			
	Unit: Million US Dollar			
	As at 1 January 2020	Statement of income	Statement of comprehensive income	As at 31 December 2020
Deferred tax assets				
Decommissioning costs	1,016.15	95.70	-	1,111.85
Provision for employee benefits	103.38	7.73	-	111.11
Property, plant and equipment and intangible assets	7.78	(2.03)	-	5.75
Loss carried forward	297.77	15.32	2.43	315.52
Financial derivatives	0.54	1.24	-	1.78
Allowance for impairment loss on assets	125.43	9.74	-	135.17
Lease liabilities	-	4.88	-	4.88
Others	201.08	1.25	-	202.33
	1,752.13	133.83	2.43	1,888.39
Tax effect of currency translation on tax base	103.59	(95.41)	-	8.18
	1,855.72	38.42	2.43	1,896.57
Deferred tax liabilities				
Property, plant and equipment and intangible assets	2,307.68	(85.50)	-	2,222.18
Financial derivatives	14.37	(1.49)	(7.74)	5.14
Others	13.24	3.15	(0.03)	16.36
	2,335.29	(83.84)	(7.77)	2,243.68
Tax effect of currency translation on tax base	1.19	(1.19)	-	-
	2,336.48	(85.03)	(7.77)	2,243.68
Deferred taxes, net	(480.76)	123.45	10.20	(347.11)

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	Consolidated financial statements					
	Unit: Million Baht					
	As at 1 January 2019	Statement of income	Statement of comprehensive income	Business acquisition	Currency translation differences	As at 31 December 2019
Deferred tax assets						
Decommissioning costs	26,879.51	2,307.40	-	3,448.69	(1,992.84)	30,642.76
Provision for employee benefits	2,410.99	524.03	363.22	-	(182.50)	3,115.74
Property, plant and equipment and intangible assets	253.03	(0.79)	-	-	(17.83)	234.41
Loss carried forward	8,591.82	861.66	91.19	15.34	(581.05)	8,978.96
Financial derivative	0.76	16.21	-	-	(0.50)	16.47
Allowance for impairment loss on assets	3,723.36	294.51	-	-	(235.57)	3,782.30
Others	4,639.98	(562.56)	10.06	2,290.63	(314.81)	6,063.30
	46,499.45	3,440.46	464.47	5,754.66	(3,325.10)	52,833.94
Tax effect of currency translation on tax base	2,511.42	839.33	-	-	(227.24)	3,123.51
	49,010.87	4,279.79	464.47	5,754.66	(3,552.34)	55,957.45
Deferred tax liabilities						
Property, plant and equipment and intangible assets	59,068.01	(8,651.19)	-	23,254.35	(4,085.47)	69,585.70
Financial derivative	117.89	233.40	94.24	-	(12.14)	433.39
Others	158.89	(126.89)	(6.14)	375.38	(1.95)	399.29
	59,344.79	(8,544.68)	88.10	23,629.73	(4,099.56)	70,418.38
Tax effect of currency translation on tax base	28.46	9.77	-	-	(2.34)	35.89
	59,373.25	(8,534.91)	88.10	23,629.73	(4,101.90)	70,454.27
Deferred taxes, net	(10,362.38)	12,814.70	376.37	(17,875.07)	549.56	(14,496.82)

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	Consolidated financial statements				
	Unit: Million Baht				
	As at 1 January 2020	Statement of income	Statement of comprehensive income	Currency translation differences	As at 31 December 2020
Deferred tax assets					
Decommissioning costs	30,642.76	2,985.92	-	(228.91)	33,399.77
Provision for employee benefits	3,115.74	243.39	-	(24.13)	3,335.00
Property, plant and equipment and intangible assets	234.41	(57.80)	-	(4.10)	172.51
Loss carried forward	8,978.96	373.62	67.08	57.43	9,477.09
Financial derivatives	16.47	38.21	-	(1.13)	53.55
Allowance for impairment loss on assets	3,782.30	270.76	-	7.24	4,060.30
Lease liabilities	-	158.67	-	(12.18)	146.49
Others	6,063.30	(12.02)	-	25.98	6,077.26
	52,833.94	4,000.75	67.08	(179.80)	56,721.97
Tax effect of currency translation on tax base	3,123.51	(2,949.85)	-	71.78	245.44
	55,957.45	1,050.90	67.08	(108.02)	56,967.41
Deferred tax liabilities					
Property, plant and equipment and intangible assets	69,585.70	(2,876.39)	-	38.42	66,747.73
Financial derivatives	433.39	(47.71)	(246.77)	15.40	154.31
Others	399.29	97.46	(0.81)	(4.39)	491.55
	70,418.38	(2,826.64)	(247.58)	49.43	67,393.59
Tax effect of currency translation on tax base	35.89	(37.08)	-	1.19	-
	70,454.27	(2,863.72)	(247.58)	50.62	67,393.59
Deferred taxes, net	(14,496.82)	3,914.62	314.66	(158.64)	(10,426.18)

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	Separate financial statements			
	Unit: Million US Dollar			
	As at 1 January 2019	Statement of income	Statement of comprehensive income	As at 31 December 2019
Deferred tax assets				
Decommissioning costs	642.63	39.30	-	681.93
Provision for employee benefits	69.04	17.75	12.06	98.85
Loss carried forward	182.47	83.25	2.94	268.66
Others	93.77	(10.55)	-	83.22
	987.91	129.75	15.00	1,132.66
Tax effect of currency translation on tax base	63.32	(20.94)	-	42.38
	1,051.23	108.81	15.00	1,175.04
Deferred tax liabilities				
Property, plant and equipment and intangible assets	732.00	(207.36)	-	524.64
Others	3.77	4.20	2.61	10.58
	735.77	(203.16)	2.61	535.22
Tax effect of currency translation on tax base	-	-	-	-
	735.77	(203.16)	2.61	535.22
Deferred taxes, net	315.46	311.97	12.39	639.82

	Separate financial statements			
	Unit: Million US Dollar			
	As at 1 January 2020	Statement of income	Statement of comprehensive income	As at 31 December 2020
Deferred tax assets				
Decommissioning costs	681.93	50.23	-	732.16
Provision for employee benefits	98.85	5.66	-	104.51
Loss carried forward	268.66	(59.93)	2.02	210.75
Others	83.22	(20.90)	-	62.32
	1,132.66	(24.94)	2.02	1,109.74
Tax effect of currency translation on tax base	42.38	(42.38)	-	-
	1,175.04	(67.32)	2.02	1,109.74
Deferred tax liabilities				
Property, plant and equipment and intangible assets	524.64	(187.06)	-	337.58
Lease liabilities	-	0.14	-	0.14
Others	10.58	(1.93)	(6.41)	2.24
	535.22	(188.85)	(6.41)	339.96
Tax effect of currency translation on tax base	-	-	-	-
	535.22	(188.85)	(6.41)	339.96
Deferred taxes, net	639.82	121.53	8.43	769.78

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26 Other non-current assets

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Land usage fee	21.36	22.86	641.66	689.39
Advance payment and accrued interest	68.44	36.10	2,055.69	1,088.49
Pension scheme investments from joint operation	54.88	44.88	1,648.43	1,353.50
Prepaid expenses	10.71	17.87	321.84	538.89
Deferred remuneration under agreement	9.54	11.31	286.55	340.81
Others	64.04	38.30	1,923.51	1,154.78
	228.97	171.32	6,877.68	5,165.86
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Deposits	4.81	4.86	144.58	146.63
Land usage fee	5.34	5.71	160.41	172.35
Prepaid expenses	0.16	-	4.78	-
Deferred remuneration under agreement	9.54	11.31	286.55	340.81
Others	0.88	1.10	26.23	33.05
	20.73	22.98	622.55	692.84

27 Trade and other payable

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Trade payable	121.04	101.53	3,635.60	3,061.53
Working capital to co-ventures	21.78	12.44	654.09	375.12
Account payable - related parties	10.39	7.77	312.24	234.36
Accrued expenses	726.70	747.41	21,827.99	22,537.35
Accrued interest expense	13.78	19.78	414.02	596.29
	893.69	888.93	26,843.94	26,804.65

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	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Trade payable	25.97	18.68	780.19	563.42
Working capital to co-ventures	-	1.15	-	34.54
Account payable - related parties	6.50	4.79	195.13	144.43
Accrued expenses	266.02	285.82	7,990.61	8,618.75
Accrued interest expense	2.66	3.07	79.87	92.40
	301.15	313.51	9,045.80	9,453.54

28 Loans, debentures and lease liabilities

Loans, debentures and lease liabilities comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current portion				
Current portion of lease liabilities due within one year	135.48	18.28	4,069.28	551.26
	135.48	18.28	4,069.28	551.26
Non-current portion				
Debentures	2,830.37	2,704.75	85,016.15	81,558.91
Long-term loans	594.66	593.26	17,861.83	17,889.20
Lease liabilities	371.55	125.41	11,160.34	3,781.71
	3,796.58	3,423.42	114,038.32	103,229.82
Total loans, debentures and lease liabilities	3,932.06	3,441.70	118,107.60	103,781.08
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Current portion				
Current portion of lease liabilities due within one year	25.62	0.30	769.46	9.00
	25.62	0.30	769.46	9.00
Non-current portion				
Debentures	379.26	377.76	11,391.98	11,391.04
Lease liabilities	31.23	0.76	937.92	22.98
	410.49	378.52	12,329.90	11,414.02
Total loans, debentures and lease liabilities	436.11	378.82	13,099.36	11,423.02

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a) Debentures

The carrying value of unsecured and unsubordinated debentures comprised:

	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	Consolidated financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
				31 December 2020	31 December 2019	31 December 2020	31 December 2019
Maturity date within 1 year							
- Debentures US Dollar 700 million	5.692	5.815	5 April 2021	-	699.73	-	21,099.71
Maturity date over 1 year but not exceeding 3 years							
- Debentures Baht 15,000 million	2.26	2.314	19 June 2022	499.09	496.95	14,991.05	14,984.94
Maturity date over 5 years							
- Debentures Baht 11,400 million	4.82	4.89	6 June 2029	379.26	377.76	11,391.98	11,391.04
- Debentures US Dollar 500 million	2.587	2.637	10 June 2027	498.32	-	14,968.11	-
- Debentures US Dollar 350 million	2.993	3.063	15 January 2030	318.77	-	9,574.85	-
- Debentures US Dollar 490 million	6.35	6.507	12 June 2042	487.47	487.36	14,642.22	14,695.76
- Debentures US Dollar 650 million	3.903	3.958	6 December 2059	647.46	642.95	19,447.94	19,387.46
Total carrying value				2,830.37	2,704.75	85,016.15	81,558.91

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				Separate financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
	Interest rate (% per annum)	Effective interest rate (% per annum)	Maturity date	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Maturity date over 5 years							
- Debentures Baht 11,400 million	4.82	4.89	6 June 2029	379.26	377.76	11,391.98	11,391.04
Total carrying value				379.26	377.76	11,391.98	11,391.04

The fair values of debentures as at 31 December 2020 and 2019 are disclosed in Note 12.2.3.

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The movements of debentures for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening net book value	2,704.75	1,944.52	81,558.91	63,099.15
Cash flows:				
Increase	850.00	1,130.05	26,584.35	35,070.94
Repayment of debentures	(700.00)	(418.20)	(21,892.99)	(12,978.80)
Deferred finance cost	(31.08)	(7.32)	(972.15)	(212.68)
Non-cash movement:				
Amortisation of deferred finance cost	3.30	0.09	103.47	2.76
Foreign exchange differences	3.40	55.61	106.44	1,725.96
Currency translation differences	-	-	(471.88)	(5,148.42)
Closing net book value	2,830.37	2,704.75	85,016.15	81,558.91
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening net book value	377.76	757.76	11,391.04	24,588.98
Cash flows:				
Repayment of debentures	-	(418.20)	-	(12,978.80)
Non-cash movement:				
Amortisation of deferred finance cost	0.03	0.002	1.01	0.76
Foreign exchange differences	1.47	38.20	45.96	1,185.68
Currency translation differences	-	-	(46.03)	(1,405.58)
Closing net book value	379.26	377.76	11,391.98	11,391.04

Repurchase and issuance of debentures

The details of movements of debentures during the year ended 31 December 2020 are as follows:

- On 15 January 2020, the Group refinanced its debentures by which the existing debentures with the nominal value of US Dollar 220 million were exchanged for the new debentures with the nominal value of US Dollar 153.18 million (The present value discounted using effective interest rate of existing debentures is in the amount of US Dollar 120.69 million.) and the cash amount of US Dollar 66.90 million paid to the existing debenture holders. The Group recognised modification gain net of refinancing costs in the amount of US Dollar 22.31 million (Baht 679.96 million). On accounting basis, this refinancing of debentures is considered as an exchange between an existing debenture holders and the Group, since the newly issue debentures are issued to existing debenture holders, for which the term were not substantially different as the discounted cash flow value of new debentures varies from discounted cash flow value of previously issued debentures is less than 10%.

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- PTTEP Canada International Finance Limited (PTTEP CIF) has repurchased the unsecured and unsubordinated capital debentures before its original redemption date in the amount of US Dollar 700 million in accordance with the terms and conditions of the debentures. These debentures will be redeemable in April 2021. The details are as follows:
 - On 15 January 2020, PTTEP CIF has repurchased the debentures in the amount of US Dollar 220 million, which were considered as refinancing of the Group's debentures as disclosed above.
 - On 25 February 2020, PTTEP CIF has repurchased the remaining debentures in the amount of US Dollar 480 million. The Group recognised the loss from this repurchase in the amount of US Dollar 20.34 million (Baht 637.35 million).
- On 15 January 2020, PTTEP Treasury Center Company Limited (PTTEP TC) has issued and offered the 10-year unsecured and unsubordinated debentures in the amount of US Dollar 350 million with a fixed interest rate of 2.99% per annum, guaranteed by the Company. Some of the debentures was from refinancing of the Group's debentures as disclosed above.
- On 10 June 2020, PTTEP TC has issued and offered the 7-year unsecured and unsubordinated debentures in the amount of US Dollar 500 million with a fixed interest rate of 2.59% per annum, guaranteed by the Company.

b) Long-term loans

The movements of long-term loans for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening net book value	593.26	-	17,889.20	-
Cash flows:				
Increase	-	600.00	-	18,620.99
Non-cash movement:				
Amortisation of deferred finance cost	1.40	(6.74)	43.73	(203.20)
Currency translation differences	-	-	(71.10)	(528.59)
Closing net book value	594.66	593.26	17,861.83	17,889.20

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Long-term loans from financial institutions comprised:

	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	Consolidated financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
				31 December 2020	31 December 2019	31 December 2020	31 December 2019
Maturity date over 3 years but not exceeding 5 years							
- Loans US Dollar 480 million	6M LIBOR + 0.85	1.641	20 October 2024	475.36	474.15	14,278.47	14,297.44
- Loans US Dollar 120 million	6M LIBOR + 0.95	1.638	20 October 2024	119.30	119.11	3,583.36	3,591.76
Total carrying value				594.66	593.26	17,861.83	17,889.20

On 23 March 2020, the Group entered into an agreement for a reference rate hedging (6M LIBOR) for long-term loans from financial institutions by entering into interest rate collar (zero cost collar) in the amount of US Dollar 300 million, which represents 50% of total loans. The interest rate collar comprise of put option with interest rate cap at 2.42% per annum and call option with interest rate floor at 0.20% per annum.

The fair values of long-term loans are close to their carrying amounts, as disclosed in Note 12.2.3.

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c) Lease liabilities

The movements of lease liabilities for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening net book value	143.69	1.25	4,332.97	40.65
Cash flows:				
Repayment of lease liabilities	(115.49)	(12.93)	(3,611.90)	(401.48)
Non-cash movements:				
Impact of adoption of TFRS 16	361.77	-	10,908.76	-
Deferred finance cost	18.98	5.15	593.46	160.03
Business acquisition	-	150.14	-	4,631.07
Additions of lease liabilities	97.46	-	3,048.25	-
Decrease of lease liabilities	(0.76)	-	(23.75)	-
Agreement modification	1.40	-	43.69	-
Foreign exchange differences	(0.02)	0.08	(0.83)	2.59
Currency translation differences	-	-	(61.03)	(99.89)
Closing net book value	507.03	143.69	15,229.62	4,332.97
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Opening net book value	1.06	1.25	31.98	40.65
Cash flows:				
Repayment of lease liabilities	(23.61)	(0.31)	(738.50)	(9.63)
Non-cash movements:				
Impact of adoption of TFRS 16	30.02	-	905.08	-
Deferred finance cost	1.28	0.04	40.02	1.49
Additions of lease liabilities	48.26	-	1,509.29	-
Agreement modification	(0.26)	-	(8.26)	-
Foreign exchange differences	0.10	0.08	3.32	2.37
Currency translation differences	-	-	(35.55)	(2.90)
Closing net book value	56.85	1.06	1,707.38	31.98

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Related leases transaction recognised in the statement of income for the year ended 31 December 2020 are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Expenses related to short-term lease	11.40	357.04	2.90	87.00
Expenses related to low-value assets lease	3.88	121.37	3.39	78.89
Expenses related to variable lease payment, which does not include in lease liabilities	0.12	3.63	0.09	1.95

29 Provision for Decommissioning Costs

Provision for decommissioning costs are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Provision for decommissioning costs	3,203.01	3,010.27	96,208.90	90,771.73
<u>Less</u> Current portion	(62.63)	(42.76)	(1,880.96)	(1,289.38)
Non-current portion of provision for decommissioning costs	3,140.38	2,967.51	94,327.94	89,482.35

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Provision for decommissioning costs	1,713.48	1,584.35	51,467.85	47,774.55
<u>Less</u> Current portion	(49.67)	(12.73)	(1,491.88)	(383.87)
Non-current portion of provision for decommissioning costs	1,663.81	1,571.62	49,975.97	47,390.68

The movement of provision for decommissioning costs during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Balance as at 1 January	3,010.27	2,277.25	90,771.73	73,896.52
Business acquisition	-	331.25	-	10,174.83
Additional provision	191.53	327.44	5,990.15	10,162.12
Provision used during the year	(24.10)	(14.63)	(753.62)	(454.27)
Finance costs	95.01	102.82	2,972.51	3,192.27
Reversal of provision	(69.36)	(13.86)	(2,169.22)	(430.25)
Currency translation differences	(0.34)	-	(602.65)	(5,769.49)
Balance as at 31 December	3,203.01	3,010.27	96,208.90	90,771.73

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	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Balance as at 1 January	1,584.35	1,375.34	47,774.55	44,629.50
Additional provision	92.14	152.43	2,881.80	4,730.74
Provision used during the year	(10.97)	(1.24)	(343.01)	(38.54)
Finance costs	48.86	57.82	1,529.03	1,795.23
Reversal of provision	(0.90)	-	(28.36)	-
Currency translation differences	-	-	(346.16)	(3,342.38)
Balance as at 31 December	1,713.48	1,584.35	51,467.85	47,774.55

The Group records a provision for decommissioning costs whenever it is probable that there would be an obligation as a result of a past event and the amount of that obligation is reliably estimated by the Group's engineers and management's judgment. The Group recognises provision for decommissioning costs as part of oil and gas properties, using the discounted present value before tax based on the estimated eventual costs that relate to the removal of the production facilities and amortised based on the unit of production of the proved reserve or the proved developed reserve. The Group recognises an increase that reflects the passage of time from the unwinding discount in each period, as a finance cost in the statements of income.

The provisions are based on the current situation such as regulations, technologies and prices. The actual results could differ from these estimates as future confirming events occur.

30 Provision for Remuneration for the Renewal of Petroleum Production

Provision for remuneration for the renewal of petroleum production are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Provision for remuneration for the renewal of petroleum production	190.84	268.63	5,732.26	8,100.25
<u>Less</u> Current portion	(87.60)	(77.87)	(2,631.13)	(2,348.14)
Non-current portion of provision for remuneration for the renewal of petroleum production	103.24	190.76	3,101.13	5,752.11

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Provision for remuneration for the renewal of petroleum production	173.33	250.32	5,206.43	7,548.12
<u>Less</u> Current portion	(85.76)	(75.40)	(2,576.14)	(2,273.51)
Non-current portion of provision for remuneration for the renewal of petroleum production	87.57	174.92	2,630.29	5,274.61

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Movements of provision for remuneration for the renewal of petroleum production during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Balance as at 1 January	268.63	327.73	8,100.25	10,634.84
Additional provision	1.14	19.35	35.59	600.65
Remuneration paid during the year	(90.10)	(90.75)	(2,817.87)	(2,816.69)
Finance costs	16.93	12.33	521.35	382.74
Reversal of provision	(5.76)	(0.03)	(180.24)	(0.98)
Currency translation differences	-	-	73.18	(700.31)
Balance as at 31 December	190.84	268.63	5,732.26	8,100.25

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
As at 1 January 2020	250.32	327.39	7,548.12	10,623.78
Additional provision	0.52	-	16.29	-
Remuneration paid during the year	(87.96)	(88.99)	(2,750.96)	(2,761.78)
Finance costs	14.57	11.92	449.34	370.00
Reversal of provision	(4.12)	-	(128.86)	-
Currency translation differences	-	-	72.50	(683.88)
Balance as at 31 December	173.33	250.32	5,206.43	7,548.12

The Group has entered into the Supplemental Petroleum Concession Agreement with the Ministry of Energy to extend the petroleum production period for another 10 years. As a result of this extension, the Group has to pay remuneration fee to the Ministry of Energy. The management has estimated the provision for remuneration using the discounted cash flows based on the duration of the new agreement and significant assumptions, such as sales volume data and oil price, etc.

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31 Provision for employee benefits

Provision for employee benefits are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Statements of financial position				
Retirement benefits	252.07	232.91	7,571.36	7,022.96
Other long-term benefits	13.44	12.34	403.78	372.24
Liabilities in the statements of financial position	265.51	245.25	7,975.14	7,395.20
Statement of income				
Retirement benefits	22.02	32.31	688.73	1,016.30
Other long-term benefits	1.32	2.94	41.24	90.03
	23.34	35.25	729.97	1,106.33
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Statements of financial position				
Retirement benefits	174.90	167.05	5,253.44	5,037.13
Other long-term benefits	13.42	12.33	403.27	371.76
Liabilities in the statements of financial position	188.32	179.38	5,656.71	5,408.89
Statement of income				
Retirement benefits	13.79	28.31	431.33	890.38
Other long-term benefits	1.32	2.94	41.22	89.98
	15.11	31.25	472.55	980.36

The movements of provision for retirement benefits during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
As at 1 January	232.91	126.34	7,022.96	4,099.80
Business acquisition	-	44.89	-	1,354.08
Current service cost	15.31	9.36	478.81	290.71
Past service cost	-	18.71	-	593.83
Interest expense	6.71	4.24	209.92	131.76
	254.93	203.54	7,711.69	6,470.18
(Gain) Loss from actuarial assumptions	(1.43)	26.65	(44.61)	805.49
Benefits paid	(7.67)	(8.23)	(239.85)	(255.73)
Foreign exchange differences	6.24	10.95	195.29	340.13
Currency translation differences	-	-	(51.16)	(337.11)
	(2.86)	29.37	(140.33)	552.78
As at 31 December	252.07	232.91	7,571.36	7,022.96
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
As at 1 January	167.05	112.59	5,037.13	3,653.72
Current service cost	10.75	8.19	336.11	254.34
Past service cost	-	16.24	-	515.57
Interest expense	3.04	3.88	95.22	120.47
	180.84	140.90	5,468.46	4,544.10
Loss from actuarial assumptions	-	24.12	-	728.86
Benefits paid	(6.94)	(7.71)	(216.99)	(239.47)
Foreign exchange differences	1.00	9.74	31.23	302.49
Currency translation differences	-	-	(29.26)	(298.85)
	(5.94)	26.15	(215.02)	493.03
As at 31 December	174.90	167.05	5,253.44	5,037.13

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Expenses recognised in the statements of income for the years are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Current service cost	15.31	9.36	478.81	290.71
Past service cost	-	18.71	-	593.83
Interest expense	6.71	4.24	209.92	131.76
Total	22.02	32.31	688.73	1,016.30
Other long-term benefits	1.32	2.94	41.24	90.03
Expenses recognised in statement of income	23.34	35.25	729.97	1,106.33

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Current service cost	10.75	8.19	336.11	254.34
Past service cost	-	16.24	-	515.57
Interest expense	3.04	3.88	95.22	120.47
Total	13.79	28.31	431.33	890.38
Other long-term benefits	1.32	2.94	41.22	89.98
Expenses recognised in statement of income	15.11	31.25	472.55	980.36

(Gain) loss from actuarial assumptions recognised in the statements of comprehensive income are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Change in financial assumptions	-	26.65	-	805.49
Experience adjustment	(1.43)	-	(44.61)	-
Total	(1.43)	26.65	(44.61)	805.49

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Change in financial assumptions	-	24.12	-	728.86
Total	-	24.12	-	728.86

The significant actuarial assumptions used were as follows:

	% per annum	
	2020	2019
Discount rate	1.9 - 7.15	1.9 - 7.15
Inflation rate	2.0 - 2.5	2.0 - 2.5
Turnover rate	0.0 - 14.0	0.0 - 14.0

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Sensitivity analysis for each significant assumption used is as follows:

	Increase (Decrease) in impact on defined retirement benefit obligation			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Discount rate				
Increase 1%	(22.55)	(21.12)	(677.31)	(636.87)
Decrease 1%	27.25	25.51	818.64	769.08

The above sensitivity analysis is based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method has been applied as when calculating the retirement benefits recognised in the statement of financial position.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

As at 31 December 2020, the weighted average duration of the defined retirement benefit obligation is 20 years (2019: 20 years).

Maturity analysis of undiscounted retirement benefits are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US		Unit: Million US	
	Dollar	Unit: Million Baht	Dollar	Unit: Million Baht
As at 31 December 2020				
Not later than 1 year	6.61	198.41	6.22	186.80
Over 1 to 5 years	49.16	1,476.53	46.09	1,384.28
Over 5 to 10 years	79.71	2,394.14	73.47	2,206.70
Over than 10 years	304.49	9,146.08	273.95	8,228.52
	439.97	13,215.16	399.73	12,006.30

32 Share capital

The total number of authorised ordinary shares is 3,969.98 million shares (2019: 3,969.98 million shares) with a par value of Baht 1 each (2019: a par value of Baht 1 each). All authorised ordinary shares are fully paid.

33 Legal reserve

Under the Public Companies Act., B.E. 2535, the Company is required to set aside as a legal reserve at least 5% of its net profit for the year until the reserve is not less than 10% of the authorised ordinary shares capital. The legal reserve is not available for dividend distribution. The Company has already set aside full legal reserve at 10% of the authorised ordinary shares capital.

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34 Subordinated capital debentures

On 10 January 2020, PTTEP Treasury Center Company Limited (PTTEP TC) which is a subsidiary of the Group, repurchased the remaining US Dollar denominated subordinated capital debentures as follows:

	Consolidated financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Before repurchase	(Repurchased)	After repurchase	Before repurchase	(Repurchased)	After repurchase
Issuance and offering value	30.85	(30.85)	-			
Net value from finance cost	30.86	(30.86)	-	1,036.04	(1,036.04)	-

35 Dividends

On 17 June 2020, the Annual General Meeting of the Shareholders approved payment of a dividend for the year 2019 at the rate of Baht 6 per share. The Company made an interim dividend payment for the first half-year operations of 2019 at the rate of Baht 2.25 per share on 23 August 2019, and for the second half-year operations of 2019 at the rate of Baht 3.75 per share on 10 April 2020.

On 28 January 2021, the Company's Board of Directors endorsed the proposal of dividend payment for the year 2020 at the rate of Baht 4.25 per share. The Company had made an interim dividend payment for the first half-year operations of 2020 at the rate of Baht 1.50 per share on 28 August 2020. The remaining is for the second half-year operations of 2020 at the rate of Baht 2.75 per share which will be paid after receiving approval from the Annual General Meeting of the Shareholders.

36 Expense by nature

Significant expenses by nature of the Group which comprise the expenses based on its participating interest in each project for the years are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Salary, wages and employees' benefits	270.31	281.55	8,459.36	8,756.21
Repair and maintenance	159.34	152.24	4,983.33	4,724.80
Exploration well and projects write-off	62.14	76.76	1,943.21	2,368.68
Geological and geophysical expenses	46.03	50.57	1,439.47	1,569.38
Logistics	120.29	120.51	3,762.03	3,740.07
	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Salary, wages and employees' benefits	245.77	271.30	7,683.46	8,425.81
Repair and maintenance	66.56	69.97	2,081.86	2,171.57
Exploration well and projects write-off	1.19	-	37.36	-
Geological and geophysical expenses	0.07	0.25	2.15	7.70
Logistics	51.46	50.92	1,609.52	1,580.17

37 Income tax expense

Income tax rates for the year ended 31 December 2020 are as follows:

	Tax Rate (%)
Income tax in Thailand	
- Corporate income tax under Revenue Code	3, 20
- Petroleum income tax on petroleum businesses in Thailand pursuant to Petroleum Income Tax Act, B.E. 2514 and 2532	50
- Petroleum income tax on petroleum business in Thailand pursuant to Petroleum Income Tax Act, B.E. 2560	20
Income tax from the Petroleum business in the Malaysia – Thailand Joint Development Area under the Petroleum Income Tax Act (No.5), B.E. 2541 and Petroleum Income tax in Malaysia	
- From the first to the eighth accounting period	Exempt
- From the ninth to the fifteenth accounting period	10
- From the sixteenth accounting period onwards	20
Income tax in Malaysia	
- Corporate income tax	24
- The petroleum income tax	25, 38
Corporate income tax in the Republic of the Union of Myanmar	25
Corporate income tax in the Socialist Republic of Vietnam	20, 50
Corporate income tax in Indonesia	
- Corporate income tax	30
- Income tax from the profit distribution	20
Corporate income tax in Hong Kong Special Administrative Region of the People's Republic of China	16.5
Corporate income tax in Portugal	21
Corporate income tax in United Kingdom	19
Corporate income tax in the Netherlands	16.5, 25
Corporate income tax the Republic of cyprus	12.5
Corporate income tax in Commonwealth of Australia	
- Corporate income tax	30
- Petroleum resource rent tax in Commonwealth of Australia	40
Corporate income tax in the Federative Republic of Brazil	24, 34
Corporate income tax in Canada	24
Corporate income tax in Mexico	30
Corporate income tax the Republic of Panama	25
Corporate income tax in People's Democratic Republic of Algeria	
- Corporate income tax	38
- The petroleum income tax	20-70
Income tax in Sultanate of Oman	
- Corporate income tax	15
- The petroleum income tax	55, 80
Corporate income tax in United Arab Emirates	55
Corporate income tax in Kazakhstan	
- Corporate income tax	30
- Income tax from the profit distribution	15
Income tax in the Republic of Mozambique	32
Corporate income tax in Angola	25
Corporate income tax in the Republic of Kenya	25

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Income tax expenses for the year ended 31 December comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Current income tax	726.33	1,089.63	22,678.90	33,766.40
Deferred income tax	(123.45)	(412.63)	(3,914.62)	(12,814.70)
Total income tax expenses	602.88	677.00	18,764.28	20,951.70

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Current income tax	456.86	676.26	14,276.31	20,962.99
Deferred income tax	(121.53)	(311.97)	(3,866.52)	(9,697.12)
Total income tax expenses	335.33	364.29	10,409.79	11,265.87

The income tax on the Group's profit before income tax differs from the theoretical amount that would arise using the basic tax rate of the home country of the Company are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Profit before income tax	1,322.42	2,246.06	41,428.29	69,754.24
Tax calculated at a tax rate of 50%	661.21	1,123.03	20,714.15	34,877.12
Tax effect of:				
(Gain) loss of the entities not subject to tax	(21.85)	29.06	(684.39)	902.54
Expenses not deductible for tax purpose	311.47	26.61	9,757.48	826.35
Adjustment in respect of prior year	5.46	(8.73)	164.70	(272.04)
Results of operations of associates and joint ventures, net of tax	(20.82)	(6.17)	(653.61)	(190.21)
Tax credit on petroleum royalty	(391.74)	(505.32)	(12,272.41)	(15,693.36)
Deferred tax on functional currency	94.22	(25.88)	2,912.77	(829.56)
Difference in tax rate of the Group's operating countries	(32.44)	29.37	(1,016.36)	911.98
Others	(2.63)	15.03	(158.05)	418.88
Tax charge	602.88	677.00	18,764.28	20,951.70

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2020	2019	2020	2019
Profit before income tax	1,069.31	1,500.01	33,409.66	46,540.96
Tax calculated at a tax rate of 50%	534.66	750.01	16,704.83	23,270.48
Tax effect of:				
Gain from the entities not subject to tax	(5.79)	(23.09)	(180.78)	(716.34)
Expenses not deductible for tax purpose	153.06	(53.60)	4,782.11	(1,662.95)
Adjustment in respect of prior year	12.75	(3.41)	393.82	(106.26)
Tax credit on petroleum royalty	(324.65)	(404.91)	(10,139.61)	(12,563.48)
Deferred tax on functional currency	42.38	20.94	1,315.46	630.24
Difference in tax rate of the Group's operating countries	(77.76)	94.92	(2,429.42)	2,945.23
Others	0.68	(16.57)	(36.62)	(531.05)
Tax charge	335.33	364.29	10,409.79	11,265.87

38 Business acquisitions

38.1 Business acquisition of Murphy Oil Corporation in Malaysia

On 21 March 2019, PTTEP HK Offshore Limited (PTTEP HKO), a subsidiary of the Group, signed the Share Sale and Purchase Agreement (SSPA) to acquire the 100% shareholding interests of Murphy Oil Corporation (Murphy) in Malaysia through acquisition of shares in Murphy's subsidiaries, which are Murphy Sabah Oil Co., Ltd. (Murphy Sabah) and Murphy Sarawak Oil Co., Ltd. (Murphy Sarawak), with total acquisition value of approximately US Dollar 2,130.86 million (Baht 65,724.27 million). Moreover, according to the SSPA, there may be contingent consideration of not exceeding US Dollar 100 million if there is significant petroleum found from exploration of the SK405B project. The acquisition was completed on 10 July 2019.

During the second quarter of 2020, the Group measured the fair value of the net identifiable assets acquired, which reflected additional information obtained about facts and circumstances that existed as of the acquisition date. The measurement period did not exceed one year from the acquisition date. Such information affected the fair value of the net identifiable assets at the acquisition date and goodwill as follows:

	Consolidated financial statements		
	Unit: Million US Dollar		
	Fair value as previously stated	Increase (Decrease)	Fair value
Cash and cash equivalents	58.90	-	58.90
Trade and other receivables	197.13	-	197.13
Inventories	27.38	-	27.38
Current tax assets	16.50	-	16.50
Other current assets	11.26	-	11.26
Property, plant and equipment	1,627.38	-	1,627.38
Intangible assets	2.49	-	2.49
Exploration and evaluation assets	410.46	240.83	651.29
Deferred tax assets	98.13	-	98.13
Rights to receive reimbursement from decommissioning funds	48.64	-	48.64
Other non-current assets	4.39	-	4.39
Trade and other payables	(165.74)	-	(165.74)
Other current liabilities	(35.80)	-	(35.80)
Long-term loans	(150.14)	-	(150.14)
Deferred tax liabilities	(17.92)	-	(17.92)
Provision for decommissioning costs	(268.65)	-	(268.65)
Total	1,864.41	240.83	2,105.24
Less Deferred tax liabilities from the effect of accounting	(344.71)	(83.78)	(428.49)
Net identifiable assets	1,519.70	157.05	1,676.75
Goodwill	611.16	(157.05)	454.11
Total consideration	2,130.86	-	2,130.86

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	Consolidated financial statements		
	Unit: Million Baht		
	Fair value as previously stated	Increase (Decrease)	Fair value
Cash and cash equivalents	1,816.86	-	1,816.86
Trade and other receivables	6,080.33	-	6,080.33
Inventories	844.51	-	844.51
Current tax assets	508.89	-	508.89
Other current assets	347.26	-	347.26
Property, plant and equipment	50,194.82	-	50,194.82
Intangible assets	76.71	-	76.71
Exploration and evaluation assets	12,660.24	7,428.26	20,088.50
Deferred tax assets	3,026.87	-	3,026.87
Rights to receive reimbursement from decommissioning funds	1,500.26	-	1,500.26
Other non-current assets	135.49	-	135.49
Trade and other payables	(5,111.91)	-	(5,111.91)
Other current liabilities	(1,104.31)	-	(1,104.31)
Long-term loans	(4,631.07)	-	(4,631.07)
Deferred tax liabilities	(552.65)	-	(552.65)
Provision for decommissioning costs	(8,286.43)	-	(8,286.43)
Total	57,505.87	7,428.26	64,934.13
<u>Less</u> Deferred tax liabilities from the effect of accounting	(10,632.18)	(2,584.10)	(13,216.28)
Net identifiable assets	46,873.69	4,844.16	51,717.85
Goodwill	18,850.58	(4,844.16)	14,006.42
Total consideration	65,724.27	-	65,724.27

Goodwill of US Dollar 454.11 million (Baht 14,006.42 million) arises primarily from the recognition of deferred tax liabilities arising from the difference between the fair value of net identifiable assets acquired from the acquisition and the book value which is the tax base of these net assets.

The fair value of total considerations transferred on the acquisition date of US Dollar 2,130.86 million (Baht 65,724.27 million) consists of cash payment on acquisition date of US Dollar 2,123.76 million (Baht 65,505.43 million) and deferred consideration of US Dollar 7.10 million (Baht 218.84 million), which is the fair value discounted from deferred consideration of US Dollar 7.48 million (Baht 230.70 million). The fair value is measured by using income approach based on discount rate at 2.8% and other probability assumptions which is classified as fair value level 3.

38.2 Business acquisition of Partex Holding B.V.

On 17 June 2019, PTTEP HK Holding Limited (PTTEP HK), a subsidiary of the Group, signed the Share Sale and Purchase Agreement (SSPA) to acquire the 100% shareholding interests of Partex Holding B.V. (Partex) from the Calouste Gulbenkian Foundation with total acquisition value of approximately US Dollar 716.16 million (Baht 21,604.53 million). The acquisition was completed on 4 November 2019.

During 2020, the Group did not obtain additional facts and circumstances that existed as of the acquisition date. As a result, the fair value of the net identifiable assets and goodwill did not change from the financial statements for the year ended 31 December 2019. Details of net identifiable assets acquired on acquisition date and goodwill are as follows:

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	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
	Fair value	Fair value
Cash and cash equivalents	139.12	4,196.90
Trade receivables	45.52	1,373.26
Other receivables	0.80	24.16
Inventories	13.88	418.87
Other current assets	0.57	17.24
Investment in joint venture	82.96	2,502.52
Property, plant and equipment	469.08	14,150.69
Intangible assets	36.71	1,107.50
Exploration and evaluation assets	97.71	2,947.68
Other non-current assets	58.89	1,776.48
Trade payables	(59.70)	(1,800.82)
Accrued expenses	(11.88)	(358.44)
Current income tax payable	(12.95)	(390.66)
Other current liabilities	(0.14)	(4.52)
Deferred tax liabilities	(152.54)	(4,601.64)
Employee benefit obligations	(44.89)	(1,354.08)
Provision for decommissioning costs	(62.60)	(1,888.40)
Other non-current liabilities	(4.01)	(120.99)
Total	596.53	17,995.75
<u>Less</u> Deferred tax liabilities from the effect of accounting	(85.83)	(2,589.19)
Net identifiable assets	510.70	15,406.56
Goodwill	205.46	6,197.97
Total consideration	716.16	21,604.53

Goodwill of US Dollar 205.46 million (Baht 6,197.97 million) arises primarily from the recognition of deferred tax liabilities arising from the difference between the fair value of net identifiable assets acquired from the acquisition and the book value which is the tax base of these net assets.

The fair value of total considerations transferred on the acquisition date of US Dollar 716.16 million (Baht 21,604.53 million) was fully paid in cash by PTTEP HK on the acquisition date.

39 Earnings per share

Basic earnings per share for the year ended 31 December are calculated as follows:

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Profit attributable to equity holders of parent (unit: million)	719.54	1,569.06	22,664.01	48,802.54
<u>Less</u> Interest expenses for subordinated capital debentures (unit: million)	(10.12)	(53.61)	(314.98)	(1,662.97)
Redemption of subordinated capital debentures (unit: million)	0.01	(23.59)	0.46	(716.29)
Income tax for subordinated capital Debentures (unit: million)	2.51	3.07	77.76	94.44
Profit used to determine basic earnings per share (unit: million)	711.94	1,494.93	22,427.25	46,517.72
Weighted average number of ordinary shares outstanding during the year (million shares)	3,969.98	3,969.98	3,969.98	3,969.98
Basic earnings per share	0.18	0.38	5.65	11.72

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	Separate financial statements			
	Unit: US Dollar		Unit: Baht	
	2020	2019	2020	2019
Profit attributable to equity holders of parent (unit: million)	733.98	1,135.72	22,999.87	35,275.10
<u>Less</u> Interest expenses for subordinated capital debentures (unit: million)	(9.44)	(13.63)	(294.23)	(422.13)
Redemption of subordinated capital debentures (unit: million)	-	(0.65)	-	(20.99)
Income tax for subordinated capital debentures (unit: million)	2.02	2.94	62.60	90.91
Profit used to determine basic earnings per share (unit: million)	726.56	1,124.38	22,768.24	34,922.89
Weighted average number of ordinary shares outstanding during the year (million shares)	3,969.98	3,969.98	3,969.98	3,969.98
Basic earnings per share	0.18	0.28	5.74	8.80

40 Commitments and contingent liabilities

40.1 Contractual commitments

As at 31 December 2020 and 31 December 2019, contractual commitments contracted but not recognised as liabilities are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Capital commitments	1,035.36	1,028.64	31,099.18	31,017.65
Other commitments	53.99	47.31	1,621.70	1,426.49
Total	1,089.35	1,075.95	32,720.88	32,444.14

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2020	31 December 2019	31 December 2020	31 December 2019
Capital commitments	232.79	345.61	6,992.33	10,421.72
Other commitments	29.09	28.92	873.78	871.99
Total	261.88	374.53	7,866.11	11,293.71

40.2 Contingent liabilities

- On 11 March 2016, the group of PTTEP Australasia (PTTEP AA) received a letter from a lawyer firm in Australia representing a group of West Timorese seaweed farmers, notifying the group of PTTEP AA of their intention to commence a legal action for compensation relating to the Montara oil spill incident in the Timor Sea in 2009. Subsequently, on 9 August 2016, the group of PTTEP AA was notified of a claim made in the Sydney Registry of the Federal Court of Australia seeking damages on behalf of a group of seaweed farmers (Class Action). The Statement of Claim as filed does not quantify the claim, and no supporting evidence has yet been presented to the court. The group of PTTEP AA has appointed lawyers to defend against the claim. Currently, the case is under the court determination. The Company considers that the claim from the representative of West Timorese seaweed farmers relating to Montara oil spill incident remains unproven due to insufficient evidence to support the claim.
- The Indonesia Tax Office (ITO) issued a letter to Natuna 2 B.V., a joint operation of the Group, to assess for Transfer Tax (TT) and Branch Profit Tax (BPT) on Share Purchase Agreement of Natuna 2 B.V. in 2013 between PTTEP Netherlands Holding Cooperatie U.A. and Pertamina Hulu Energi Oil and Gas, as buyers, and HESS (Luxembourg) Exploration and Production Holding S.A.R.L., as a seller. The total amount of assessed TT, BPT and applicable penalty was approximately US Dollar 119.80 million of which US Dollar 59.90 million was the Group's proportionate share.

In February 2016, Natuna 2 B.V. made an advance payment for all to assessed tax and penalty to prevent additional penalty that may arise during the appeal, together with a submission of the objection of ITO's tax assessment. In 2017, ITO rejected the objection and Natuna 2 B.V. brought the case to the tax court of Indonesia to object ITO's order and tax assessment.

Subsequently, the tax court judged that Natuna 2 B.V. won the case which resulted in recovering the full amount of advance payment in the first quarter of 2019. However, the ITO has appealed against the tax court's judgment to the Supreme Court of Indonesia while Natuna 2 B.V. has submitted the argument letter. Currently, the case is under the court determination and will be finalised when it is judged by the Supreme Court.

Later in July 2020, the Supreme Court judged that Natuna 2 B.V. won the case in accordance with the tax court's judgement which caused the finalisation of the case.

- As at 31 December 2020, the Company had contingent liabilities in the form of letters of guarantee amounting to US Dollar 343.70 million (Baht 10,323.72 million) for the separate financial statements and US Dollar 665.77 million (Baht 19,997.91 million) for the consolidated financial statements.

40.3 Commitments

Commitment from loan agreements

The Company has a subordinated loan agreement with Energy Complex Company Limited (Energy Complex), an associate of the Company, with the loan limit of Baht 1,250 million. The agreement is effective from 2 April 2009 to 30 June 2022. The Company had provided the loan to Energy Complex, totaling to US Dollar 18.32 million (Baht 580 million).

As at 31 December 2020, the total remaining value of loan is US Dollar 15.56 million (Baht 467.50 million).

Commitment from the guarantee of debentures and loans of subsidiaries

The Company has commitment for the guarantee of unsecured and unsubordinated capital debenture of US Dollar 490 million for PTTEP Canada International Finance Limited (PTTEP CIF), a subsidiary of the Group.

The Company has commitment for the guarantee of unsecured and unsubordinated capital debentures of Baht 15,000 million and US Dollar 1,500 million for PTTEP Treasury Center Company Limited (PTTEP TC), a subsidiary of the Group.

The Company has commitment for the guarantee of unsecured and unsubordinated loans of US Dollar 600 million for PTTEP TC.

The Company has commitment for the guarantee of a cross currency swap transaction for PTTEP TC to swap Baht debenture for US Dollar with guaranteed amount of US Dollar 360 million.

The Company has commitment for the guarantee of the interest rate collar (zero cost collar) for PTTEP TC.

The Company has commitment for the guarantee of senior debt financing agreements of a subsidiary of Moz LNG1 Holding Company Ltd with the facility in the amount of US Dollar 14,900 million. The Company is a guarantor under this agreement with the value based on the Group's participating interest in Moz LNG1 Holding Company Ltd of 8.5%. As at 31 December 2020, the Group had not yet drawdown the loan from financial institution.

The Company has commitment for the guarantee of PTTEP TC's US Dollar loan agreement which is a committed revolving credit facilities with a financial institution. The total loan facility is in amount of US Dollar 400 million. As at 31 December 2020, the Group had not yet drawdown the loan from financial institution.

41 Events occurring after the reporting date

On 11 January 2021, Zeaquest Co., Ltd. (Zeaquest), a joint venture of the Group, increased its authorised share capital amounting to Baht 150 million by issuing of 1.5 million new ordinary shares at a par value of Baht 100 each.

On 22 January 2021, PTTEP Energy Holding (Thailand) Company Limited (PTTEP EH), a subsidiary of the Company, increased its authorised share capital amounting to Baht 2,017 million by issuing 20.17 million new ordinary shares at a par value of Baht 100 each.

On 1 February 2021, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the Group, signed Sale and Purchase Agreement (SPA) to acquire 20% interest in Block 61 Sultanate of Oman (Oman Block 61) from BP Exploration (Epsilon) Limited (BP). The transaction value of this acquisition is around US Dollar 2,450 million, subject to final net working capital and other closing adjustment per SPA, and the contingent payment at maximum amount of US Dollar 140 million, if the pre-agreed conditions under SPA are accomplished. The completion date is expected to be within 2021, including necessary regulatory approvals.