

**Management Discussion and Analysis (MD&A)**  
**IRPC Public Company Limited and its Subsidiaries**  
**For Quarter 2/2016**

**Executive Summary**

For 2Q16 performance, the Company had the EBITDA of Baht 6,107 million, decreased by Baht 1,365 million or 18% from the EBITDA of Baht 7,472 million in 2Q15, while it increased by Baht 2,355 million or 63% when compared to the previous quarter. For 1H16, the Company had the EBITDA of Baht 9,859 million, decreased by Baht 1,327 million or 12% when compared with the EBITDA of Baht 11,186 million in 1H15. Regarding the net profit in 2Q16, the Company had the net profit of Baht 3,706 million. Compared with the net profit of Baht 4,235 million in 2Q15, it decreased by Baht 529 million or 12% while it increased by Baht 692 million or 23% from Baht 3,014 million in last quarter. For 1H16, the Company had the net profit of Baht 6,720 million. It was lower by Baht 1,347 million or 17% from the net profit of Baht 8,067 million in 1H15. The aforementioned changes in the financial performance are summarized below here.

1. Consolidated net sales revenue in 2Q16 was Baht 40,471 million, decreasing by Baht 15,055 million or 27% from 2Q15 while increasing by Baht 2,221 million or 6% from 1Q16 mainly because the average selling prices went up by 14% following the increasing of crude oil price. On the other hand, the sales volume was softened by 8% from 18.06 million barrels or 199 KBD in 1Q16 to 16.81 million barrels or 185 KBD.

In 1H16, the consolidated net sales revenue was Baht 78,721 million, decreasing by Baht 26,746 million or 25% from 1H15. This was mainly due to a 19% decrease of the average price, plus a 6% decrease of the sales volume. The sales volume declined to 34.87 million barrels or 192 KBD from 36.99 million barrels or 204 KBD in 1H15.

2. In 2Q16, the Market Gross Integrated Margin (Market GIM) was Baht 7,869 million or USD 13.39 per barrel, declining by USD 0.62 per barrel or Baht 308 million when compared with Baht 8,177 million or USD 14.01 per barrel in 2Q15. The falling in the Market GIM was mainly attributed to 1) the lower petroleum product spreads which led to a decrease of USD 1.30 per barrel in Market GIM. 2) Everest Project which contributed to an increase of USD 0.68 per barrel.

An increase in the crude oil price led to a stock gain of Baht 2,248 million or USD 3.83 per barrel. However, there were an oil hedging loss of Baht 821 million or USD 1.40 per barrel and a LCM of Baht 6 million or USD 0.01 per barrel. This resulted in the 2Q16 Accounting GIM of Baht 9,290 million or USD 15.81 per barrel, while the 2Q15 Accounting GIM was Baht 10,107 million or USD 17.32 per barrel. In 2Q15, the Company had a stock gain of Baht 1,915 million or USD 3.28 per barrel and an oil hedging gain of Baht 15 million or USD 0.03 per barrel. When compared to Market GIM of Baht 8,323 million or USD 13.68 per barrel in the previous quarter, slightly dropped by Baht 454 million or USD 0.29 per barrel. The main reasons were the decline of product spreads which

led to the lower of USD 0.65 per barrel Market GIM compensated by the benefit from Everest Project which contributed to an increase of USD 0.36 per barrel. On the contrary, the Accounting GIM improved by Baht 2,599 million or USD 4.81 per barrel which resulted from the higher of stock gain by USD 5.48 per barrel as well as the lower of Oil Hedging loss by USD 0.11 per barrel partially offset by the rising of USD 0.49 per barrel in LCM.

In 1H16, the Market GIM was Baht 16,192 million or USD 13.54 per barrel, slightly decreased by USD 0.03 per barrel when compared to Baht 15,191 million or USD 13.57 per barrel in 1H15 due to 1) a decrease in the product spreads which led to a lower of USD 0.53 per barrel in Market GIM. 2) Everest Project which led to a rise of USD 0.50 per barrel in Market GIM.

In 1H16, the Company reported a stock gain of Baht 1,246 million or USD 1.04 per barrel, a reversal LCM of Baht 284 million or USD 0.24 per barrel, offset by a loss from oil hedging of Baht 1,741 million or USD 1.46 per barrel which led to the Accounting GIM of Baht 15,981 million or USD 13.36 per barrel. In 1H15, the Accounting GIM amounted to Baht 16,829 million or USD 15.03 per barrel, and the company stated a stock loss of Baht 1,626 million or USD 1.45 per barrel, an offset by the reversal of LCM of Baht 3,259 million or USD 2.91 per barrel, and a gain from oil hedging of Baht 5 million.

3. Other incomes in 2Q16 were Baht 312 million, decreased by Baht 493 million from 2Q15 due to there was the receipts of insurance compensation of Baht 460 million in 2Q15 and it was in line when compared to last quarter.
4. In 2Q16, the net financial costs of Baht 222 million fell by Baht 10 million from 2Q15 while it increased by Baht 26 million from 1Q16.

In 1H16, the net financial costs of Baht 418 million, compared to those in 1H15, decreased by Baht 321 million mainly due to a decrease of the interest payment caused by the interest capitalizing to the asset under construction increasingly by Baht 80 million. In addition, there was gain from financial derivatives contracts amounting to Baht 24 million in 1H16 while there was Baht 219 million loss from financial derivatives contracts in 1H15

5. In 2Q16, there were unrealized foreign exchange gains of Baht 23 million due to the appreciation of Thai Baht. However, In 2Q15, there were unrealized foreign exchange losses amounting to Baht 515 million. The Company had USD-denominated debt of USD 393 million.

There were unrealized foreign exchange gains of Baht 361 million in 1H16, while in 1H15, there were unrealized foreign exchange losses amounting to Baht 341 million due to the appreciation of Thai Baht.

6. In 2Q16, the profit in the investment rose by Baht 68 million from 2Q15 and by Baht 88 million from last quarter mainly caused by the higher of gain from share in associates and the increase of dividend received.

In 1H16, the profit in the investment increased by Baht 120 million from 1H15, mainly owing to the increase in the gain of share in associates and the increase of dividend received.

7. In 2Q16, there was doubtful account of Baht 20 million, increased by Baht 26 million from 2Q15 and increased by Baht 14 million from 1Q16.

In 1H16, there was doubtful account of Baht 26 million while there was the reversal of doubtful account amounting to Baht 2,823 million from TPI Aromatics Public Company Limited.

8. There was income tax amounting to Baht 847 million and Baht 1,114 million in 2Q16 and 2Q15, respectively. In 1Q16, net gain from tax benefit was Baht 536 million. It was mainly attributed to deferred tax assets of 2015 outstanding net losses amounting to Baht 821 million and of Rayong Tank Terminal Company Limited liquidation amounting to Baht 200 million. However, it was offset by 1Q16 income tax of Baht 485 million.

## 1. Operating Performance

Consolidated Income Statements for Quarter 2/2016 are as follows;

	Unit : Baht Million					Unit : USD per barrel				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Average FX (THB/USD)	35.45	33.41	35.83	35.64	33.10					
Total Crude Intake (Mbbbl)	16.58	17.45	16.99	33.56	33.64					
Average Crude <sup>(1)</sup> (USD/bbl)	46.30	63.55	34.54	40.42	58.73					
Net Sales <sup>(2)</sup>	40,471	55,526	38,250	78,721	105,467	68.87	95.19	62.83	65.82	94.19
Cost of Feedstock (Market Price)	(32,602)	(47,349)	(29,927)	(62,529)	(90,276)	(55.48)	(81.18)	(49.15)	(52.28)	(80.62)
<b>Market GIM</b>	<b>7,869</b>	<b>8,177</b>	<b>8,323</b>	<b>16,192</b>	<b>15,191</b>	<b>13.39</b>	<b>14.01</b>	<b>13.68</b>	<b>13.54</b>	<b>13.57</b>
Stock Gain/(Loss)	2,248	1,915	(1,002)	1,246	(1,626)	3.83	3.28	(1.65)	1.04	(1.45)
Lower of Cost or Market	(6)	-	290	284	3,259	(0.01)	-	0.48	0.24	2.91
Oil Hedging Gain/(Loss)	(821)	15	(920)	(1,741)	5	(1.40)	0.03	(1.51)	(1.46)	-
<b>Accounting GIM</b>	<b>9,290</b>	<b>10,107</b>	<b>6,691</b>	<b>15,981</b>	<b>16,829</b>	<b>15.81</b>	<b>17.32</b>	<b>11.00</b>	<b>13.36</b>	<b>15.03</b>
Other Incomes <sup>(3)</sup>	312	805	311	623	1,126	0.53	1.38	0.51	0.52	1.01
Selling Expenses	(320)	(299)	(308)	(628)	(618)	(0.54)	(0.51)	(0.51)	(0.53)	(0.55)
<b>Accounting GIM and Other Income</b>	<b>9,282</b>	<b>10,613</b>	<b>6,694</b>	<b>15,976</b>	<b>17,337</b>	<b>15.80</b>	<b>18.19</b>	<b>11.00</b>	<b>13.35</b>	<b>15.49</b>
OPEX	(3,175)	(3,141)	(2,942)	(6,117)	(6,151)	(5.41)	(5.38)	(4.83)	(5.11)	(5.49)
<b>EBITDA</b>	<b>6,107</b>	<b>7,472</b>	<b>3,752</b>	<b>9,859</b>	<b>11,186</b>	<b>10.39</b>	<b>12.81</b>	<b>6.17</b>	<b>8.24</b>	<b>10.00</b>
Depreciation	(1,381)	(1,365)	(1,368)	(2,749)	(2,677)	(2.35)	(2.34)	(2.25)	(2.30)	(2.39)
<b>EBIT</b>	<b>4,726</b>	<b>6,107</b>	<b>2,384</b>	<b>7,110</b>	<b>8,509</b>	<b>8.04</b>	<b>10.47</b>	<b>3.92</b>	<b>5.94</b>	<b>7.61</b>
Net Financing Cost	(222)	(232)	(196)	(418)	(739)	(0.38)	(0.40)	(0.32)	(0.35)	(0.66)
Gain/(Loss) from Foreign Exchange	23	(515)	338	361	(341)	0.04	(0.88)	0.56	0.30	(0.30)
Gain/(Loss) from impairment and disposal of fixed assets	-	1	-	-	25	-	-	-	-	0.02
Gain/(Loss) from Investment	55	(13)	(33)	22	(98)	0.09	(0.02)	(0.05)	0.02	(0.09)
Other Expenses / Reversing Doubtful Account	(20)	6	(6)	(26)	2,830	(0.03)	0.01	(0.01)	(0.02)	2.53
<b>Net Profit/(Loss) before Income Tax</b>	<b>4,562</b>	<b>5,354</b>	<b>2,487</b>	<b>7,049</b>	<b>10,186</b>	<b>7.76</b>	<b>9.18</b>	<b>4.10</b>	<b>5.89</b>	<b>9.11</b>
Income Tax	(847)	(1,114)	536	(311)	(2,106)	(1.44)	(1.91)	0.88	(0.26)	(1.88)
Gain/(Loss) from non-controlling interests	(9)	(5)	(9)	(18)	(13)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
<b>Net Profit/(Loss)</b>	<b>3,706</b>	<b>4,235</b>	<b>3,014</b>	<b>6,720</b>	<b>8,067</b>	<b>6.30</b>	<b>7.26</b>	<b>4.97</b>	<b>5.61</b>	<b>7.22</b>

**Note:** <sup>(1)</sup> Average market prices of crude used in the product process

<sup>(2)</sup> Including petroleum business (excluded excise taxes), petrochemical business, power and utilities business

<sup>(3)</sup> Other income consist of sale of lands, port, tank farm and service etc.

## 1.1 Operating Performance by Business

### 1.1.1 Petroleum

#### Petroleum Market Overview

The average Dubai price in 2Q16 was USD 43.18 per barrel, increasing continuously by 42% when compared to USD 30.42 per barrel in the previous quarter but decreasing by 30% when compared to that in 2Q15. At the beginning of June, the crude oil price went up to USD 48.81 per barrel. The price support was derived from the concern over the tight supply owing to the situation of the attack on crude pipeline in Nigeria which became worse - Nigerian oil output fell towards 22-year low. Plus, the USD was likely to be weakening as Federal Reserve left interest rates unchanged in June meeting.

For crude oil outlook in 3Q16, global oil prices remained under pressure by the supply glut and OPEC's decision to maintain their production at high level. Moreover, when United Kingdom voted to exit from European Union (Brexit) on 23 June, the investors were panicking over the Brexit vote and decided a sell-off in Pounds and high-risk assets. This caused USD to be strengthening, which had an impact on the crude oil price. As the crude oil price was going to hit USD 50 per barrel, the US crude oil producers resumed their operations especially the production from the drilled but uncompleted rigs. The supply from US will continue to pressure the crude oil price in the long run.

The spread between key products and raw material is summarized below.

(average price)	Quarter			Change		1H		YoY
	2/2016	2/2015	1/2016	YoY	QoQ	2016	2015	
Dubai Crude Oil (USD/bbl)	43.18	61.30	30.42	(30%)	42%	36.80	56.59	(35%)
<b>Petroleum (USD/bbl)</b>								
Naphtha - Dubai	0.7	(0.5)	6.1	240%	(89%)	3.4	0.5	580%
ULG95 - Dubai	14.5	19.8	18.8	(27%)	(23%)	16.6	17.6	(6%)
Gas Oil 0.05%S - Dubai	10.5	13.7	9.6	(23%)	9%	10.1	15.0	(33%)
FO180 3.5%S - Dubai	(8.7)	(3.5)	(5.2)	(149%)	(67%)	(7.0)	(2.7)	(159%)
<b>Lube Base Oil (USD/MT)</b>								
500SN - FO180 3.5%S	418	399	442	5%	(5%)	430	385	12%
150BS - FO180 3.5%S	780	740	844	5%	(8%)	812	730	11%
Asphalt - FO180 3.5%S	(48)	20	(7)	(340%)	(586%)	(28)	22	(227%)

- Naphtha - Dubai spread in 2Q16 was higher by 240% when compared to that in 2Q15 but lower by 89% when compared to that in 1Q16. The decrease was owing to the maintenance shutdown

season of the crackers and the low price of LPG which induced the producers to substitute LPG for naphtha.

- ULG95 - Dubai spread in 2Q16 was lower by 27% when compared to that in 2Q15 and lower by 23% when compared to that in 1Q16. The decrease was due to the supply glut in Asia especially the gasoline inventories in North Asia which were higher than expected. In addition, China, South Korea and Japan exported gasoline to Asia continuously and Iran resumed its operation.
- Gasoil 0.05%S - Dubai spread moved down by 23% when compared to that in 2Q15 but went up by 9% when compared to that in 1Q16. It was owing to more demand from India, Vietnam and Malaysia. Both high level of diesel inventories and the rising supply from Malaysia, Middle East and China still pressured the market. Oil export from China in May rose up by 16% when compared to that in the previous month.
- Fuel oil - Dubai spread fell down by 149% and by 67% when compared to that in 2Q15 and 1Q16 respectively. The fall was caused by the high level of supply from Europe and Persian Gulf led to the high inventory level in Singapore. Moreover, China approved more crude import quotas for independent refiners that brought the demand for fuel oil down.
- Lube base 500SN - fuel oil spread in 2Q16 increased by 5% when compared to that in 2Q15 but decreased by 5% when compared to that in 1Q16. The demand sloped down because of rainy season in Asia.
- Asphalt - fuel oil spread in 2Q16 went down by 340% and by 586% when compared to that in 2Q15 and 1Q16 respectively. The demand declined due to the economic situation in Asia especially China who cut the new road construction budget. The rainy season was also a plus to press the price down.

### Crude Intake and Capacity

	Quarter			Change		1H		YoY
	2/2016	2/2015	1/2016	YoY	QoQ	2016	2015	
<b>Crude Intake</b>								
Million barrels	16.58	17.45	16.99	(5%)	(2%)	33.56	33.64	(0.2%)
KBD	182	192	187	(5%)	(3%)	184	186	(1%)
<b>Utilization Rate</b>								
Refinery	85%	89%	87%	(4%)	(2%)	86%	86%	0%
Lube Base Oil	95%	100%	100%	(5%)	(5%)	97%	102%	(5%)

Note: Nameplate capacity of refinery is 215,000 barrel per day  
The utilization rate calculated based on the main products.

Total production in 2Q16 was 16.58 million barrels or 182 KBD with the utilization rate at 85%, decreasing from 2Q15 and 1Q16 as the lower of product spreads.

The utilization rate of lube base oil plant in 2Q16 was 95%, slightly decreased by 5% when compared to that in 2Q15 and 1Q16 as a result of falling asphalt demand during rainy season.

### Petroleum Sales

	Sales Volume (Million barrel)					Sales Value (Baht million)				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Refinery	12.11	14.15	13.15	25.26	27.06	23,354	35,675	20,981	44,335	65,541
Lube Base Oil	1.81	1.91	2.02	3.82	4.44	3,734	5,314	3,985	7,719	11,706
<b>Total</b>	<b>13.92</b>	<b>16.06</b>	<b>15.17</b>	<b>29.08</b>	<b>31.50</b>	<b>27,088</b>	<b>40,989</b>	<b>24,966</b>	<b>52,054</b>	<b>77,247</b>

Net sales of petroleum businesses in 2Q16 were Baht 27,088 million, decreasing by Baht 13,901 million or 34% from Baht 40,989 million in 2Q15. The falling in sales revenue was driven by a decline of 21% in the product prices following the crude oil price together with a lower of 13% or 2.14 million barrels in sales volume from 16.06 million barrels in 2Q15 to 13.92 million barrels in 2Q16. Compared with the previous quarter, net sales revenue amounting to Baht 24,966 million improved by Baht 2,122 million or 9% mainly owing to an increase in product price for 17%, partly offset by a decrease of 1.25 million barrels or 8% in sales volume.

In 1H16, net sales of petroleum businesses were Baht 52,054 million, moved down by Baht 25,193 million or 33% when compared with Baht 77,247 million in 1H15. This was mainly due to a decrease in the product price for 25% and a decrease in sales volume of 2.42 million barrels or 8% from 31.50 million barrels in 1H15 to 29.08 million barrels.

### Petroleum Sales Breakdown

	Quarter						1H			
	2/2016		2/2015		1/2016		2016		2015	
	Local	Export	Local	Export	Local	Export	Local	Export	Local	Export
Refinery	56%	44%	66%	34%	70%	30%	63%	37%	67%	33%
Lube Base Oil	50%	50%	40%	60%	49%	51%	49%	51%	38%	62%
<b>Total</b>	<b>55%</b>	<b>45%</b>	<b>62%</b>	<b>38%</b>	<b>67%</b>	<b>33%</b>	<b>61%</b>	<b>39%</b>	<b>63%</b>	<b>37%</b>

The percentage of petroleum product selling in 2Q16 was domestic 55% and export 45%. The domestic percentage decreased by 7% from 2Q15. The domestic sale volume of fuel oil fell. So did Kerosene because the local refineries shutdown for maintenance. On the contrary, the domestic sale volume of asphalt and lube base oil grew.

## Gross Refinery Margin

	Baht million					USD per bbl				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Refinery	818	2,222	1,949	2,767	4,981	1.39	3.81	3.20	2.32	4.45
Lube Base Oil	1,509	1,277	1,676	3,185	2,249	2.57	2.19	2.76	2.66	2.01
<b>Market GRM</b>	<b>2,327</b>	<b>3,499</b>	<b>3,625</b>	<b>5,952</b>	<b>7,230</b>	<b>3.96</b>	<b>6.00</b>	<b>5.96</b>	<b>4.98</b>	<b>6.46</b>
Net Stock Gain/(Loss)	988	1,728	(1,419)	(431)	1,814	1.68	2.96	(2.33)	(0.36)	1.62
<b>Accounting GRM</b>	<b>3,315</b>	<b>5,227</b>	<b>2,206</b>	<b>5,521</b>	<b>9,044</b>	<b>5.64</b>	<b>8.96</b>	<b>3.63</b>	<b>4.62</b>	<b>8.08</b>

In 2Q16, the Market Gross Refinery Margin (Market GRM) was Baht 2,327 million or USD 3.96 per barrel, falling by USD 2.04 per barrel when compared to Baht 3,499 million or USD 6.00 per barrel in 2Q15. It was attributed to the lower of refined products for USD 2.42 per barrel while lube products increased for USD 0.38 per barrel. The falling of refined product margin was mainly due to the lower product spreads especially in diesel while the product spreads of lube base business improved. When compared to the previous quarter, it was dropped by Baht 1,298 million or USD 2.00 per barrel from refined products for USD 1.81 per barrel and lube products for USD 0.19 per barrel on account of the lower product spreads.

The crude oil prices continuously increased leading to the net stock gain of Baht 988 million or USD 1.68 per barrel. It comprised of a stock gain of Baht 1,809 million or USD 3.08 per barrel offsetting with an oil hedging loss of Baht 821 million or USD 1.40 per barrel. This resulted in the Accounting GRM amounting to Baht 3,315 million or USD 5.64 per barrel. It fell by Baht 1,912 million or USD 3.32 per barrel when compared with that in 2Q15 but improved by Baht 1,109 million or USD 2.01 per barrel when compared to the previous quarter.

The Market GRM was Baht 5,952 million or USD 4.98 per barrel in 1H16, declining by Baht 1,278 million or USD 1.48 per barrel from 1H15. The main reason was the falling product spreads particularly in diesel.

In 1H16, the net stock loss was Baht 431 million or USD 0.36 per barrel which attributed to a stock gain of Baht 1,161 million or USD 0.97 per barrel and a reversal of LCM of Baht 149 million or USD 0.13 per barrel offsetting by an oil hedging loss of Baht 1,741 million or USD 1.46 per barrel.



## 1.1.2 Petrochemical

### Petrochemical Market Overview

The spread between key products and raw material is summarized below.

(Average Price)	Quarter			%Change		1H		YoY
	2/2016	2/2015	1/2016	YoY	QoQ	2016	2015	
Naphtha (USD/MT)	411	563	344	(27%)	19%	377	529	(29%)
<b>Olefins (USD/MT)</b>								
Ethylene - Naphtha	688	823	668	(16%)	3%	679	677	0.3%
HDPE – Ethylene	188	68	239	176%	(21%)	213	168	27%
HDPE – Naphtha	876	891	907	(2%)	(3%)	892	845	6%
Propylene – Naphtha	308	377	304	(18%)	1%	307	357	(14%)
PP – Propylene	376	416	295	(10%)	27%	336	366	(8%)
PP – Naphtha	684	793	600	(14%)	14%	643	723	(11%)
<b>Aromatics (USD/MT)</b>								
BZ – Naphtha	217	234	233	(7%)	(7%)	226	206	10%
TOL – Naphtha	184	203	224	(9%)	(18%)	204	165	24%
MX – Naphtha	262	222	254	18%	3%	259	195	33%
<b>Styrenics (USD/MT)</b>								
SM – Naphtha	645	793	677	(19%)	(5%)	662	658	1%
ABS – Naphtha	897	1,095	854	(18%)	5%	876	1,082	(19%)
ABS – SM	252	302	176	(17%)	43%	214	424	(50%)
PS (GPPS) - Naphtha	806	931	809	(13%)	(0.4%)	808	822	(2%)
PS (GPPS) – SM	161	138	131	17%	23%	146	164	(11%)

- HDPE - Naphtha spread in 2Q16 moved down by 2% and by 3% when compared to that in 2Q15 and 1Q16 respectively. It was because the feedstock price rose following the crude oil price while HDPE price went up less than the feedstock did. The demand for HDPE was replaced by PP products which were cheaper.

PP - Naphtha spread in 2Q16 decreased by 14% when compare to that in 2Q15 but increased by 14% when compared to that in 1Q16. The supply was tight owing to the refineries' maintenance shutdown in the region. However, the demand derived from the economic situation made the product price stable.

- Toluene - Naphtha spread in 2Q16 moved down by 9% and by 18% when compared to that in 2Q15 and 1Q16 respectively. As the gasoline spread was narrower, the demand for Toluene for the gasoline production lessened.

Mixed Xylene - Naphtha spread, in contrast, moved up by 18% and by 3% when compared to that in 2Q15 and 1Q16 respectively. The rise was caused by the tight supply as a result of Japanese plants' maintenance shutdown.

- ABS-Naphtha spread was lower by 18% when compared to that in 2Q15 while higher by 5% when compared to that in 1Q16. Positive economic outlook resulted in the increasing demand.

PS-Naphtha spread in 2Q16 shrank by 13% when compared to that in 2Q15 but remained the same with the previous quarter. Both demand and supply stayed unchanged.

## Petrochemical Capacity

	Quarter			Change		1H		YoY
	2/2016	2/2015	1/2016	YoY	QoQ	2016	2015	
<b>Utilization Rate</b>								
1. Olefins Group	95%	90%	94%	5%	1%	94%	89%	5%
2. Aromatics and Styrenics Group	90%	83%	99%	7%	(9%)	94%	85%	9%

Remark: The utilization rate calculated from the main raw materials.

In 2Q16, the utilization rate of Olefins was 95%, increasing by 5% compared to 90% in 2Q15. The utilization rate went up because the PP unit was shutdown in 2Q15. When compared to the last quarter, the utilization rate was slightly increased by 1%.

The utilization rate of Aromatics and Styrenics in 2Q16 was up by 7% from 2Q15 due to the EBSM and Polystyrene units were shutdown in that period. On the other hand, it was lower by 9% when compared to the previous quarter due to the high level of product spreads during 1Q16 as well as the scheduled maintenance shutdown of EBSM in 2Q16.

## Petrochemical Sales

	Sales Volume (Kton)					Sales Value (Baht million)				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
1. Olefins Group	212	197	196	407	402	7,497	8,285	6,781	14,277	15,826
2. Aromatics and Styrenic Group	152	146	182	335	302	5,076	5,446	5,690	10,766	10,800
<b>Total</b>	<b>364</b>	<b>343</b>	<b>378</b>	<b>742</b>	<b>704</b>	<b>12,573</b>	<b>13,731</b>	<b>12,471</b>	<b>25,043</b>	<b>26,626</b>

Net sales of petrochemical businesses in 2Q16 were Baht 12,573 million, declining by Baht 1,158 million or 8% from 2Q15 as the product prices dropped by 14% following the crude oil price while the sales volume grew by 6%. They increased by Baht 102 million or 1% from the last quarter as the product prices rose by 5% according to the higher feedstock price but the sales volume fell by 4%.

In 1H16, net sales of petrochemical businesses were Baht 25,043 million, decreasing by Baht 1,583 million or 6%, compared to the sales in 1H15 as a consequence of 11% decrease in the product price while the sales volume increased by 38 Kton or 5%.

#### Petrochemical Sales Breakdown

	Quarter						1H			
	2/2016		2/2015		1/2016		2016		2015	
	Local	Export	Local	Export	Local	Export	Local	Export	Local	Export
1. Olefins Group	66%	34%	65%	35%	73%	27%	69%	31%	67%	66%
2. Aromatics and Styrenic Group	47%	53%	49%	51%	45%	55%	48%	52%	49%	51%
<b>Total</b>	<b>59%</b>	<b>41%</b>	<b>59%</b>	<b>41%</b>	<b>60%</b>	<b>40%</b>	<b>59%</b>	<b>41%</b>	<b>60%</b>	<b>40%</b>

The proportion of Petrochemical sales were 59% domestic and 41% export which was in line with those in 2Q15 and 1Q16.

#### Product to Feed Margin (PTF)

	Baht million					USD per bbl				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Olefins Group	3,450	2,809	2,987	6,438	4,936	5.87	4.81	4.91	5.38	4.41
Aromatics and Styrenics Group	1,407	1,217	1,116	2,523	1,779	2.39	2.08	1.83	2.11	1.59
<b>Market PTF</b>	<b>4,857</b>	<b>4,026</b>	<b>4,103</b>	<b>8,961</b>	<b>6,715</b>	<b>8.26</b>	<b>6.89</b>	<b>6.74</b>	<b>7.49</b>	<b>6.00</b>
Net Stock Gain/(Loss)	433	202	(213)	220	(176)	0.74	0.35	(0.35)	0.18	(0.16)
<b>Accounting PTF</b>	<b>5,290</b>	<b>4,228</b>	<b>3,890</b>	<b>9,181</b>	<b>6,539</b>	<b>9.00</b>	<b>7.24</b>	<b>6.39</b>	<b>7.67</b>	<b>5.84</b>

In 2Q16, the Market Product to Feed (Market PTF) was Baht 4,857 million or USD 8.26 per barrel, increasing by USD 1.37 per barrel when compared with Baht 4,026 million or USD 6.89 per barrel in 2Q15. The Market PTF was attributed to Olefins by USD 1.06 per barrel and Aromatics & Styrenics by USD 0.31 per barrel. When compared with the Market PTF in the previous quarter amounting to Baht 4,103 million or USD 6.74 per barrel, improved by Baht 754 million or USD 1.52 per barrel, which was attributed to USD 0.96 per barrel of Olefins and USD 0.56 per barrel of Aromatics & Styrenics as the product spreads increased.

The Accounting PTF was Baht 5,290 million or USD 9.00 per barrel, raised by Baht 1,062 million or USD 1.76 per barrel and Baht 1,400 million or USD 2.61 per barrel when compared with that in 2Q15 and 1Q16 respectively.

In 1H16, the Market PTF for Petrochemical business was Baht 8,961 million or USD 7.49 per barrel, in aggregate with the net stock gain of Baht 220 million or USD 0.18 per barrel which attributed to a stock

gain of Baht 84 million or USD 0.07 per barrel and a reversal of LCM of Baht 136 million or USD 0.11 per barrel. Therefore, the Accounting PTF improved to Baht 9,181 million or USD 7.67 per barrel, jumped by Baht 2,642 million or USD 1.83 per barrel when compared with that in 1H15.

### 1.1.3 Power Plant and Utility

#### Power Plant Capacity

	Quarter			%Change		1H		YoY
	2/2016	2/2015	1/2016	YoY	QoQ	2016	2015	
<b>Utilization Rate</b>								
Electricity	77%	80%	72%	(3%)	5%	74%	79%	(5%)
Steam	74%	81%	79%	(7%)	(5%)	76%	77%	(1%)
<b>Sales (Baht Million)</b>								
Electricity	501	474	511	6%	(2%)	1,013	968	5%
Steam	256	292	257	(12%)	(0.4%)	514	552	(7%)
Others	53	40	45	33%	18%	97	74	31%
<b>Total</b>	<b>810</b>	<b>806</b>	<b>813</b>	<b>0.5%</b>	<b>(0.4%)</b>	<b>1,624</b>	<b>1,594</b>	<b>2%</b>

The utilization rate of electricity and steam were 77% and 74% respectively, decreasing by 3% and 7% from 2Q15 due to the annual turnaround of nearby plants. When compared to 1Q16, the utilization rate of electricity went up by 5% but the utilization rate of steam fell by 5%.

In 2Q16, net sales of power & utility businesses were Baht 810 million, slightly increased by Baht 4 million or 0.5% from 2Q15 as a higher sales volume while it slightly decreased from the previous quarter by Baht 3 million or 0.4% because the product prices was reduce according to their feedstock prices.

In comparison with net sales in 1H15, they were up by Baht 30 million or 2% from Baht 1,594 million to Baht 1,624 million.

## 1.2 Total Operating Performance

### 1.2.1 Market Gross Integrated Margin

Market GIM	Baht million					USD per bbl				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Petroleum (GRM)	2,327	3,499	3,625	5,952	7,230	3.96	6.00	5.96	4.98	6.46
Petrochemical (PTF)	4,857	4,026	4,103	8,961	6,715	8.26	6.89	6.74	7.49	6.00
Power and Utilities	685	652	595	1,279	1,246	1.17	1.12	0.98	1.07	1.11
<b>Market GIM</b>	<b>7,869</b>	<b>8,177</b>	<b>8,323</b>	<b>16,192</b>	<b>15,191</b>	<b>13.39</b>	<b>14.01</b>	<b>13.68</b>	<b>13.54</b>	<b>13.57</b>

In 2Q16, the Market Gross Integrated Margin (Market GIM) was Baht 7,869 million or USD 13.39 per barrel, declining by USD 0.62 per barrel compared to Baht 8,177 million or USD 14.01 per barrel in 2Q15. The falling in the Market GIM was mainly attributed to 1) the lower petroleum product spreads which led to a drop of USD 1.30 per barrel in Market GIM 2) Everest Project which contributed to an increase in GIM of USD 0.68 per barrel. When compared to the last quarter, it also fell by USD 0.29 per barrel from Baht 8,323 million or USD 13.68 per barrel as the lower of petroleum product spreads by USD 0.65 per barrel while there was an improvement from Everest Project by USD 0.36 per barrel.

In 1H16, the Market GIM was Baht 16,192 million or USD 13.54 per barrel, slightly dropped by USD 0.03 per barrel when compared with that in 1H15. This was caused by 1) a decrease in the petroleum product spreads which led to a decrease of USD 0.53 per barrel in Market GIM. 2) Everest Project which led to a rise of USD 0.50 per barrel in Market GIM.

### 1.2.2 Accounting Gross Integrated Margin

Accounting GIM	Baht million					USD per bbl				
	Quarter			1H		Quarter			1H	
	2/2016	2/2015	1/2016	2016	2015	2/2016	2/2015	1/2016	2016	2015
Petroleum (GRM)	3,315	5,227	2,206	5,521	9,044	5.64	8.96	3.63	4.62	8.08
Petrochemical (PTF)	5,290	4,228	3,890	9,181	6,539	9.00	7.24	6.39	7.67	5.84
Power and Utilities	685	652	595	1,279	1,246	1.17	1.12	0.98	1.07	1.11
<b>Accounting GIM</b>	<b>9,290</b>	<b>10,107</b>	<b>6,691</b>	<b>15,981</b>	<b>16,829</b>	<b>15.81</b>	<b>17.32</b>	<b>11.00</b>	<b>13.36</b>	<b>15.03</b>

An increase in the crude oil price from USD 35.14 per barrel in 1Q16 to USD 43.18 per barrel in 2Q16 led to a stock gain of Baht 2,248 million or USD 3.83 per barrel, partly offset by a loss from oil hedging of Baht 821 million or USD 1.40 per barrel and the LCM of Baht 6 million or USD 0.01 per barrel. This resulted in the 2Q16 Accounting GIM of Baht 9,290 million or USD 15.81 per barrel, lower by Baht 817 million or USD 1.51 per barrel from 2Q15 while higher by Baht 2,599 million or USD 4.81 per barrel from the previous quarter.

In 1H16, the Company reported the net stock loss of Baht 211 million or USD 0.18 per barrel which was attributed to a stock gain of Baht 1,246 million or USD 1.04 per barrel plus a reversal for LCM of Baht 284 million or USD 0.24 per barrel, while there was a loss from oil hedging of Baht 1,741 million or USD 1.46 per barrel. These led to the Accounting GIM amounting to Baht 15,981 million or USD 13.36 per barrel. In 1H15, the Accounting GIM was Baht 16,829 million or USD 15.03 per barrel. By that, the company reported a stock loss of Baht 1,626 million or USD 1.45 per barrel, an offset by the reversal of LCM of Baht 3,259 million or USD 2.91 per barrel and a profit from oil hedging of Baht 5 million.

### 1.3 Other incomes

Other incomes in 2Q16 were Baht 312 million, sharply dropped by Baht 493 million when compared with that in 2Q15 mainly due to there was the receipts of insurance compensation for the fire incident in the VGOHT unit of Baht 460 million in 2Q15. While they were slightly increased by Baht 1 million from the previous quarter.

In 1H16, other incomes were Baht 623 million, declining by Baht 503 million when compared with Baht 1,126 million in 1H15 as a result of insurance compensation receipt as mentioned above.

### 1.4 Operating Expenses

In 2Q16, the operating expenses were Baht 3,175 million or USD 5.41 per barrel, while they were 3,141 million or USD 5.38 per barrel in 2Q15. They were slightly increased by Baht 34 million or 1% mainly because the increase of staff costs and maintenance expense, partly offset by the decrease of insurance expense and donation. They moved up by Baht 233 million or 8% from Baht 2,942 million in 1Q16 as the consultant, maintenance and other expenses increased.

In 1H16, the operating expenses amounted to Baht 6,117 million or USD 5.11 per barrel, while they were Baht 6,151 million or USD 5.49 per barrel in the same period last year. The operating expenses therefore a bit decreased by Baht 34 million or 1%. The main factors were the dropping in the donation from Baht 370 million in 1H15 to Baht 50 million in 1H16 as well as a decrease of insurance expense, offsetting with an increase in staff costs, maintenance expense and consultant fee.

### 1.5 Depreciation Expenses

Depreciation expenses in 2Q16 were Baht 1,381 million, raised by Baht 16 million and Baht 13 million compared to those incurred in 2Q15 and 1Q16 respectively. When compared 1H16 with 1H15, they increased by Baht 72 million due to the completion of the operational improvement and the expansion projects.

### 1.6 Financial Costs

In 2Q16, net financial costs of Baht 222 million was softened by Baht 10 million from 2Q15, mainly due to the decrease of interest payment caused by the interest capitalizing to the asset under construction increasingly. Nevertheless, these increased by Baht 26 million from the last period as the higher outstanding debt.

In 1H16, net financial costs decreased significantly by Baht 321 million from 1H15 mainly due to the decrease of interest payment caused by the interest capitalizing to the asset under construction increasingly by Baht 80 million as well as the higher of gain from financial derivatives contracts amounting to Baht 243 million.

### **1.7 Gain/Loss from Foreign Exchange**

In 2Q16, there was unrealized foreign exchange gain of Baht 23 million due to the appreciation of Thai Baht. However, In 2Q15, there was unrealized foreign exchange loss amounting to Baht 515 million. The Company had USD-denominated debt of USD 393 million.

There was unrealized foreign exchange gain of Baht 361 million in 1H16, while in 1H15, there was unrealized foreign exchange loss amounting to Baht 341 million due to the appreciation of Thai Baht.

### **1.8 Gain/Loss from Impairments and Write-off of Assets**

In 2Q16, there was no gain or loss from impairments and write-off of assets while gain from the impairments and a write-off of assets was Baht 1 million in 2Q15.

In 1H16, there was no gain or loss from impairments and write-off of assets, while there was gain from sales of fixed assets amounting to Baht 25 million.

### **1.9 Gain/Loss from Investments**

In 2Q16, the increase of Baht 68 million from investment compared to that in 2Q15 was caused by the higher of gain from share in associates as well as the higher of dividend received. When compared to the previous quarter of Baht 33 million loss from investments, it increased by Baht 88 million as the higher of gain from share in associates.

In 1H16, gain from investment was increased by Baht 120 million from the same period of last year, mainly caused by the higher of gain from share in associates plus the increase of dividend received.

### **1.10 Other expenses**

There was doubtful account of Baht 20 million and Baht 6 million in 2Q16 and 1Q16 respectively. However, there was gain from reversing doubtful account of Baht 6 million in 2Q15.

In 1H16, there was doubtful account of Baht 26 million whereas there was the reversal of doubtful account amounting to Baht 2,830 million in 1H15 mostly caused by TPI Aromatics Public Company Limited, who is the Company's debtor. The Company had received debt repayment from TPI Aromatics Public Company Limited in 1Q15, that was Baht 2,823 million higher than the balances after offsetting of assets and liabilities in the consolidated statement of financial position.

### **1.11 Income Tax**

There was income tax amounting to Baht 847 million and Baht 1,114 million in 2Q16 and 2Q15, respectively. In 1Q16, net gain from tax benefit was Baht 536 million. It was mainly attributed to deferred tax assets of 2015 outstanding net losses amounting to Baht 821 million and of Rayong Tank Terminal Company Limited liquidation amounting to Baht 200 million. However, it was offset by 1Q16 income tax of Baht 485 million.

Compared 1H16 with 1H15, income tax shrank by Baht 1,795 million mainly owing to the increase of deferred tax assets of 2015 outstanding net losses and of Rayong Tank Terminal Company Limited liquidation.

## 2. Financial Positions

Consolidated Statement of Financial Position as at 30 June 2016 are as follows;

(unit : Baht million)

	Jun 30, 2016	Dec 31, 2015	Change	%
Current assets	39,249	35,984	3,265	9%
Non-current assets	129,763	127,190	2,573	2%
<b>Total assets</b>	<b>169,012</b>	<b>163,174</b>	<b>5,838</b>	<b>4%</b>
Current liabilities	48,778	36,210	12,568	35%
Non-current liabilities	42,198	51,086	(8,888)	(17%)
<b>Total Liabilities</b>	<b>90,976</b>	<b>87,296</b>	<b>3,680</b>	<b>4%</b>
<b>Shareholders' Equity</b>	<b>78,036</b>	<b>75,878</b>	<b>2,158</b>	<b>3%</b>
<b>Total Liabilities and Shareholders' Equity</b>	<b>169,012</b>	<b>163,174</b>	<b>5,838</b>	<b>4%</b>

### 2.1 Assets

As at 30 June 2016, total assets were Baht 169,012 million increased by Baht 5,838 million from 31 December 2015. It was due to the following reasons:

- Account receivable increased by Baht 27 million largely because of an increase in the product prices. As at 30 June 2016, account receivable that was more than 3 months overdue amounted to Baht 116 million or 1.29% of the total account receivable or 0.13% of the total sales. This was incorporated in the provision for doubtful debt of Baht 98 million. The average collection period in 2Q16 was 17 days, decreased by 1 day compared to that at the end of 2015.
- Inventory increased by Baht 5,420 million or 25% because the quantity of inventory increased from 8.93 million barrels at the end of 2015 to 12.05 million barrels at the end of 2Q16. It was mainly due to an increase of crude oil intake for production and the reserve under the strategic plan. The inventory day was 57 days, increased by 13 days compared to that at the end of 2015.
- Other current assets fell by Baht 2,182 million or 38%. It was mainly due to a decrease of Baht 2,230 million in cash at bank, a decrease of Baht 126 million in other current assets, partly offset by an increase of Baht 115 million in refundable value added tax including an increase of Baht 59 million in prepaid excise tax.
- Non-current assets raised by Baht 2,573 million or 2% due to an increase in fixed assets, largely contributed from the UHV project and PPE&PPC project. However, these were partially offset by



the depreciation and amortization expenses of Baht 2,749 million as well as a decrease of Baht 280 million in deferred tax asset.

## 2.2 Liabilities

As at 30 June 2016, total liabilities were Baht 90,976 million, increased by Baht 3,680 million or 4% when compared to those reported at the end of 2015 due to the following reasons:

- Account payable went up by Baht 257 million as a result of the higher price of crude oil purchased while the quantity was reduce. The payment period was 68 days, increased by 9 days compared to that at the end of 2015.
- Other current liabilities fell by Baht 29 million, which was largely due to a decrease of Baht 1,009 million in accrued bonus. Nevertheless, there were an increase of Baht 579 million in short-terms loan as well as an increase of Baht 401 million in other liabilities.
- Long-terms loan including long-terms loan to be repaid within one year increased by Baht 3,405 million, mainly consisted of the long-terms loan drawdown of Baht 6,000 million offset repaid for loan by Baht 2,232 million and unrealized foreign exchange gain as a result of the Thai Baht appreciation amounting to Baht 358 million.

The details of long-terms debt are shown below.

(unit : Baht million)

	Jun 30, 2016	Dec 31, 2015	Change
USD Bonds	8,408	8,622	(214)
Thai Baht Bonds	22,626	22,623	3
USD Loan	5,459	5,959	(500)
Thai Baht Loan	20,412	16,296	4,116
<b>Total</b>	<b>56,905</b>	<b>53,500</b>	<b>3,405</b>
less current portion of long-terms loan	(16,605)	(4,265)	(12,340)
<b>Net Outstanding Debt</b>	<b>40,300</b>	<b>49,235</b>	<b>(8,935)</b>

- Other non-current liabilities raised by Baht 47 million, which was mainly caused by an increase in the employee benefit obligations.

## 2.3 Shareholders' Equity

- As at 30 June 2016, shareholders' equity amounted to Baht 78,036 million, which was higher than that reported as at 31 December 2015 for Baht 2,158 million. This was mainly because of an increase in net profit amounting to Baht 6,720 million while there was dividend payment amounted to Baht 4,490 million and a decrease in the fair value of available-for-sale investment amounting to Baht 71 million.

### 3. Statement of Cash Flow

(unit : Baht million)

		Jan-Jun 2016	Jan-Jun 2015
1	EBITDA	9,859	11,186
2	Change in operating assets and liabilities	(5,991)	5,193
3	<b>Net cash flows from(used in) operating activities</b>	<b>3,868</b>	<b>16,379</b>
4	Net cash flows from (used in) investing activities	(4,724)	(5,821)
5	Net cash flows from (used in) financing activities	(1,374)	(11,055)
6	Net increase (decrease)	<b>(2,230)</b>	<b>(497)</b>
7	Cash at beginning	3,576	2,009
8	<b>Cash at ending</b>	<b>1,346</b>	<b>1,512</b>

As at 30 June 2016, the cash balance was Baht 1,346 million. Net cash flow decreased by Baht 2,230 million, which was mainly contributed from the following items.

- Net cash inflow of Baht 3,868 million from operation consisted of EBITDA of Baht 9,859 million and cash outflow of Baht 5,991 million resulting from the changes in the operating assets and liabilities. Important items contributing to cash outflow included an increase of Baht 5,134 million in inventories, a decrease of Baht 1,009 million in accrued bonus as well as an increase of Baht 115 million in value added tax, partially offset with an increase of Baht 257 million in account payable.
- Net cash outflow of Baht 4,724 million from investing activities mainly for the Upstream Project for Hygiene & Value-added Products (UHV) and PPE&PPC project.
- Net cash outflow of Baht 1,374 million from financing activities mainly consisted of the repayments for short-terms and long-terms loans of Baht 2,233 million, interest payment of Baht 1,238 million and dividend payment of Baht 4,490 million, while there was cash inflow from long-terms loan drawdown of Baht 6,000 million.

#### 4. Key Financial Ratios

	Unit	Quarter		
		2/2016	2/2015	1/2016
<b>Profitability Ratios</b>				
EBITDA Margin	%	13.55	12.62	8.81
Net Profit Margin	%	10.39	7.15	7.08
Earnings per share	Baht/share	0.23	0.21	0.15
Return on Equity <sup>(1)</sup>	%	17.48	22.68	15.59
<b>Liquidity Ratios</b>				
Current Ratio	time	0.80	0.96	1.05
Quick Ratio	time	0.21	0.28	0.35
<b>Financial Policy Ratios</b>				
Net Debt to Equity	time	0.72	0.69	0.64

**Note:** <sup>(1)</sup> annualized

#### Liquidity and Capital Structure

In 2Q16, current ratio was 0.80 times, comparing to 1.05 times in last period and 0.96 times in 2Q15, it decreased mainly due to the rising of short-terms loan. The company did not have the liquidity situation because of the well preparation of sufficient liquidity for the operations.

At the end of 2Q16, Net Debt to Equity ratio was 0.72 times, increasing from 0.64 times in 1Q16 due to the higher of long-terms loan partially offset by the improvement of financial performance. The company could make the payment on due date and could follow all of the Financial Covenant.