

Securities Code

Tokyo 5020

Supplementary Information

~ JX Group A to Z ~

November 8, 2016



The Future of Energy, Resources and Materials

JX Holdings, Inc.

Contents

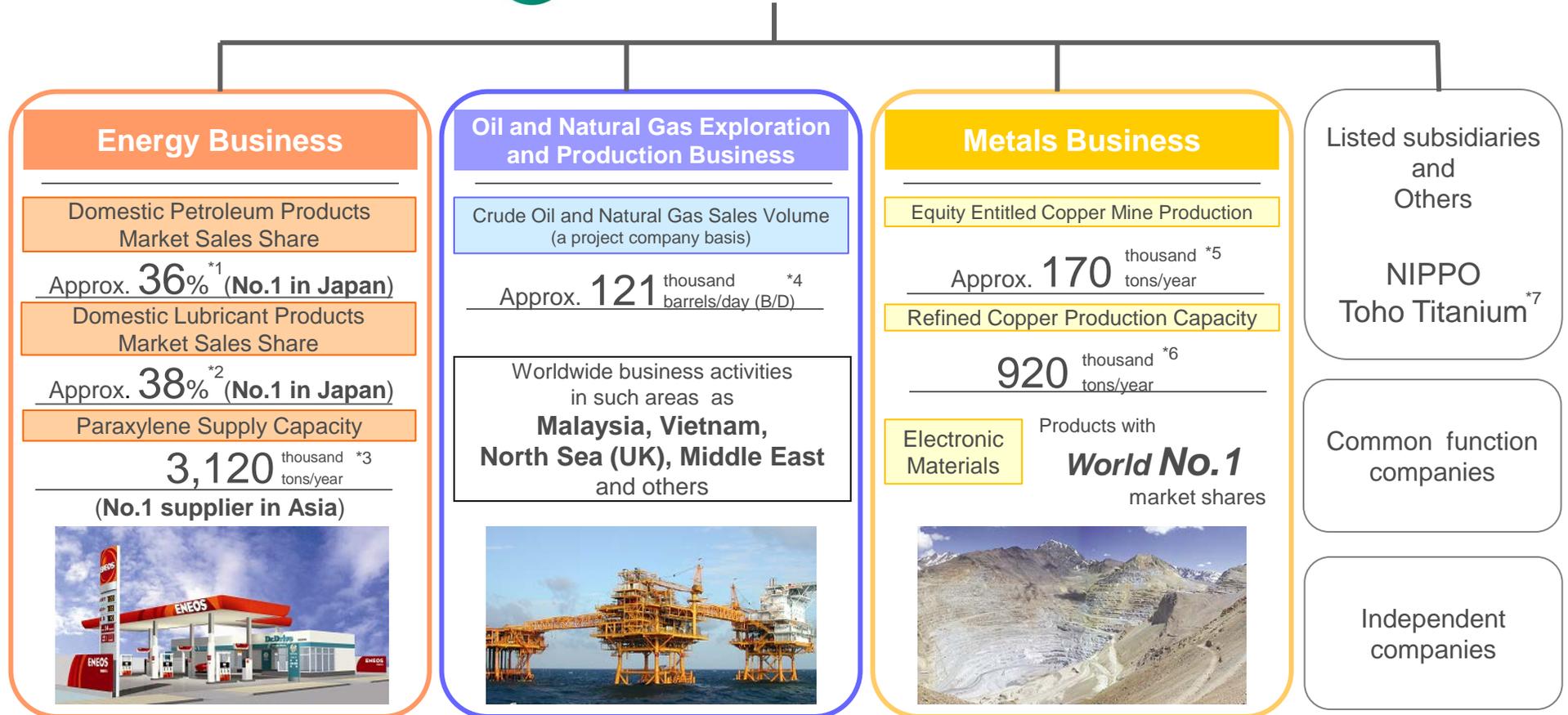


Summary of JX Group's Businesses	2		
Strategy and Financial Results		Oil and Natural Gas E&P Business	
NEW Financial Results Data	4	Business Area	32
Business Environment and Data		Business Activities	33
Energy Business		Outline of Principal Oil and Natural Gas E&P Projects	34
Domestic Petroleum Products Demands	13	NEW Production Schedule of Principal E&P Projects	35
NEW JX Group's Market Share and Demand in Japan, historical CDU Utilization Rate	14	NEW Principal Individual E&P Project Overview	37
NEW Sales Volume by Product	15	JX Group's Reserve Standards	58
NEW Number of Service Stations (Fixed type)	16	Metals Business	
NEW Margins of Petroleum Products (Gasoline, Kerosene, Diesel Fuel and Fuel Oil A)	17	Copper Business	60
NEW Margins of Petroleum Products (by oil type)	18	Overseas Copper Mine Development	61
NEW Margins and Prices of Petrochemical Products (vs. Crude Oil, vs. Naphtha)	22	Electronic Materials	62
NEW Electricity Business	25	Recycling and Environmental Services	63
Lubricants Business	26	NEW Copper Production of JX Group's Mines	64
Hydrogen Business	27	NEW World's Copper Cathodes Supply & Demand	65
Sophisticated Methods of Energy Supply Structures	28	Earnings Structure of Copper Smelting and Refining Business	66
NEW Business Integration	30		

Summary of JX Group's Businesses



JX JX Holdings, Inc.



*1 FY2015 actual *2 FY2015 actual *3 As of Mar. 2016

*4 Crude oil equivalent (average daily production from Jan. to Dec. 2015 actual)

*5 Equity entitled copper production contained in copper concentrate (FY2015 actual)

*6 Pan Pacific Copper (67.8% equity stake) ; 650 thousand tons/year + LS-Nikko Copper (39.9% equity stake) ;270 thousand tons/year (As of Mar. 2016)

*7 Profit and loss of Toho Titanium is included in the Metals Business.



Financial Results

Financial Summary



(JPY billion)	FY2015			FY2016		
	1Q	1H	Full Year	1Q	1H	Full Year
	Actual	Actual	Actual	Actual	Actual	Forecast (Nov. 2016)
Net Sales	2,304.1	4,552.6	8,737.8	1,808.8	3,669.8	8,000.0
Energy	1,904.5	3,742.5	7,122.4	1,449.6	2,965.8	6,510.0
Oil and Natural Gas E&P	45.8	90.3	175.8	56.1	87.4	150.0
Metals	279.7	563.2	1,049.7	233.8	464.6	990.0
Others	74.1	156.6	389.9	69.3	152.0	350.0
Operating Income (Loss)	79.7	(45.5)	(62.2)	26.7	47.5	190.0
Energy	50.6	(91.0)	(141.4)	24.7	30.8	129.0
Oil and Natural Gas E&P	11.7	14.6	21.6	(1.9)	1.2	9.0
Metals	11.3	16.8	14.7	(5.1)	(5.3)	8.0
Others	6.1	14.1	42.9	9.0	20.8	44.0
Ordinary Income (Loss)	97.0	(27.7)	(8.6)	42.5	71.0	230.0
Energy	60.3	(72.4)	(97.1)	37.4	52.2	165.0
Oil and Natural Gas E&P	12.3	17.3	28.2	(3.3)	(2.0)	0.0
Metals	15.6	10.6	13.3	(1.4)	0.5	15.0
Others	8.8	16.8	47.0	9.8	20.3	50.0
Profit attributable to owners of parent	53.3	(44.9)	(278.5)	25.2	25.4	100.0
Energy	42.6	(54.0)	(82.9)	23.5	34.5	106.0
Oil and Natural Gas E&P	3.1	3.5	(191.2)	(1.4)	(15.2)	(43.0)
Metals	5.9	0.0	(47.9)	(1.6)	(2.4)	9.0
Others	1.7	5.6	43.5	4.7	8.5	28.0
Capex	81.0	151.0	320.0	106.0	158.2	380.0
Depreciation and Amortization	54.8	111.0	227.7	65.8	118.1	230.0



Ordinary Income by segment

(JPY billion)	FY2015			FY2016		
	1Q	1H	Full Year	1Q	1H	Full Year
	Actual	Actual	Actual	Actual	Actual	Forecast (Nov. 2016)
Ordinary Income (Loss)	97.0	(27.7)	(8.6)	42.5	71.0	230.0
Energy Business	60.3	(72.4)	(97.1)	37.4	52.2	165.0
Petroleum Products	24.5	11.7	89.1	7.5	9.7	64.0
Petrochemicals	21.3	32.5	77.6	19.7	32.0	56.0
Inventory Valuation	14.5	(116.6)	(263.8)	10.2	10.5	45.0
Oil and Natural Gas E&P Business	12.3	17.3	28.2	(3.3)	(2.0)	0.0
Metals Business	15.6	10.6	13.3	(1.4)	0.5	15.0
Resources Development	(0.3)	(5.5)	(24.2)	(12.0)	(21.1)	(30.0)
Smelting and Refining	7.7	3.0	13.3	5.8	11.3	17.0
Electronic Materials	5.5	10.9	21.9	4.0	8.4	16.0
Recycling and Environmental Services	1.8	2.7	5.0	0.7	2.4	4.0
Titanium	0.9	1.6	3.0	0.8	1.3	3.0
Inventory Valuation	0.0	(2.1)	(5.7)	(0.7)	(1.8)	5.0
Others	8.8	16.8	47.0	9.8	20.3	50.0

Balance Sheets



	Sep. 2015	Mar. 2016	Sep. 2016
(JPY billion)	Actual	Actual	Actual
Total assets	7,182.9	6,724.6	6,217.1
Current assets	2,762.2	2,651.3	2,344.8
- Cash and deposits	272.1	492.7	294.6
Noncurrent assets	4,420.7	4,073.3	3,872.3
Property, plant and equipment	2,557.1	2,453.5	2,373.0
Intangible assets	130.0	117.4	107.2
Investments and other assets	1,733.6	1,502.4	1,392.1
Liabilities	4,848.3	4,796.2	4,412.7
Interest-bearing debt	2,803.3	2,581.4	2,433.4
Other liabilities	2,045.0	2,214.8	1,979.3
Net assets	2,334.6	1,928.4	1,804.4
Shareholders' equity	1,561.2	1,307.6	1,313.2
Accumulated other comprehensive income (loss)	288.2	191.3	90.1
Non-controlling interests	485.2	429.5	401.1



Performance Indicators

	FY2015		FY2016
	1H	Full Year	1H
(JPY billion)	Actual	Actual	Actual
Cash flows from operating activities	(16.8)	555.0	92.5
(Working capital)	10.5	453.3	(70.9)
Cash flows from investing activities	(183.2)	(307.7)	(149.4)
Free cash flows	(200.0)	247.3	(56.9)
Dividend and others	(33.8)	(62.1)	(33.1)
Net cash flows	(233.8)	185.2	(90.0)
	Sep. 2015	Mar. 2016	Sep. 2016
	Actual	Actual	Actual
Net D/E Ratio (times)	1.37	1.39	1.52
Shareholders' equity ratio (%)	25.7	22.3	22.6



Equity in earnings of unconsolidated subsidiaries and affiliates

(JPY billion)	FY2015			FY2016		
	1Q	1H	Full Year	1Q	1H	Full Year
	Actual	Actual	Actual	Actual	Actual	Forecast (Nov. 2016)
Energy	2.0	3.1	5.6	1.0	1.4	4.0
Oil and Natural Gas E&P	(0.3)	0.6	1.0	(0.5)	(0.3)	(4.0)
Metals	8.2	0.6	10.2	6.5	11.4	21.0
Resources Development	6.5	9.7	14.5	4.5	7.8	14.0
Smelting and Refining	1.7	(9.1)	(4.3)	2.0	3.6	7.0
Others	0.4	0.6	1.3	0.5	0.7	1.0
Total	10.3	4.9	18.1	7.5	13.2	22.0



Historical Dubai Crude Oil Price

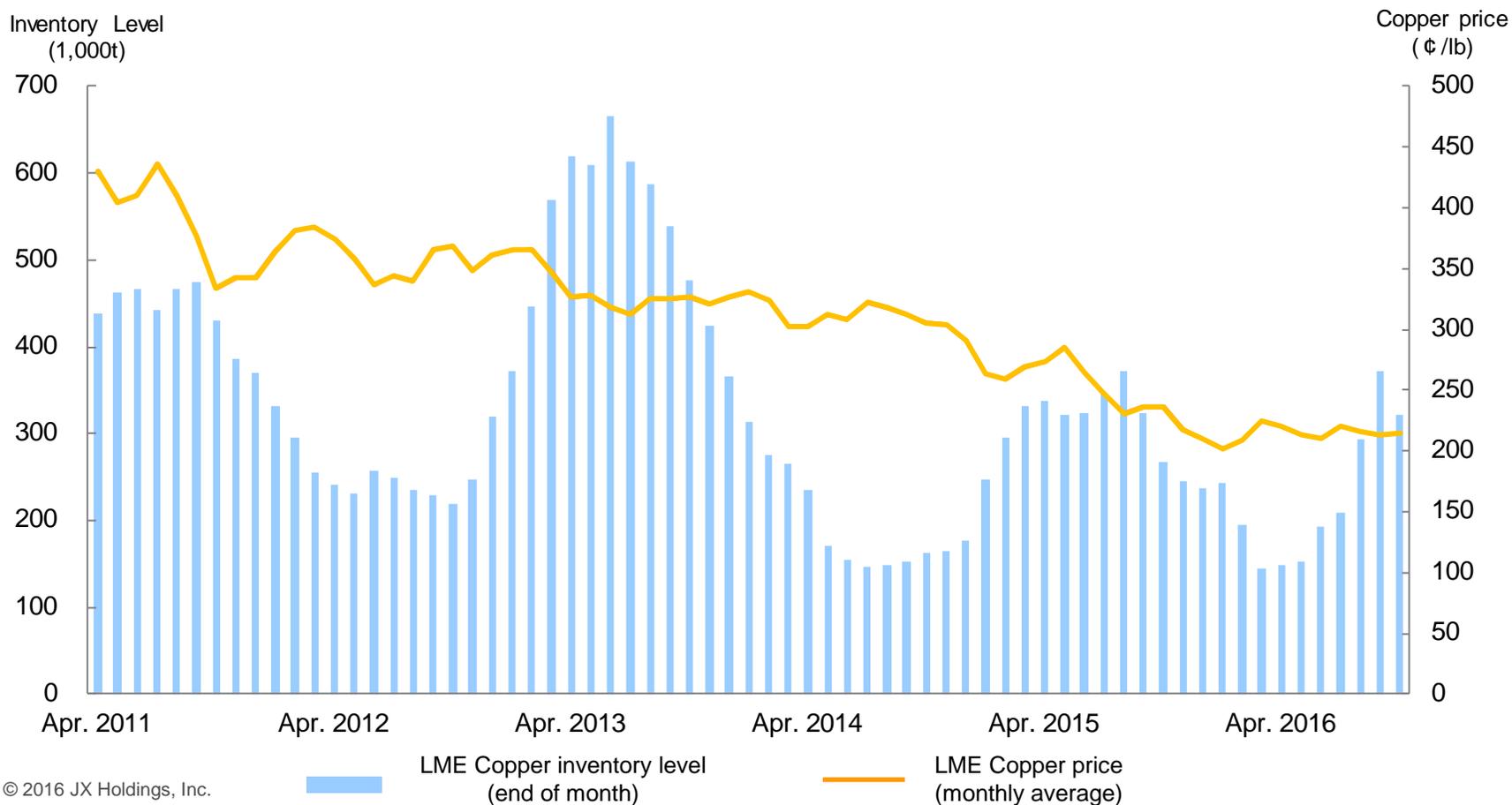
Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1Q	2Q	3Q	4Q	FY	1Q	2Q
Dubai Crude Oil	110	107	105	83	61	50	41	30	46	43	43





Historical Copper Price and Inventory Level

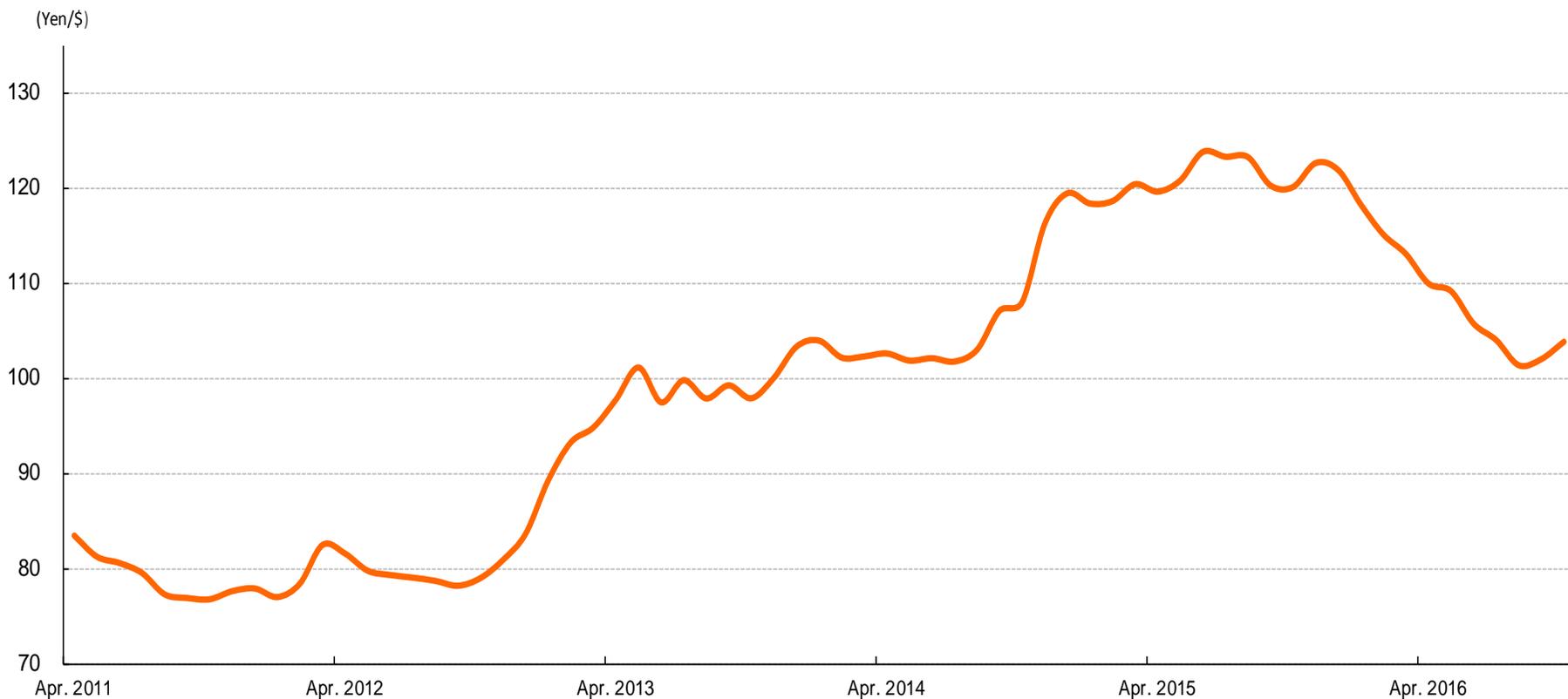
Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1Q	2Q	3Q	4Q	FY	1Q	2Q
Copper	385	356	322	297	275	238	222	212	237	215	216





Historical Exchange Rate

Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1Q	2Q	3Q	4Q	FY	1Q	2Q
Exchange Rate	79	83	100	110	121	122	122	115	120	108	102

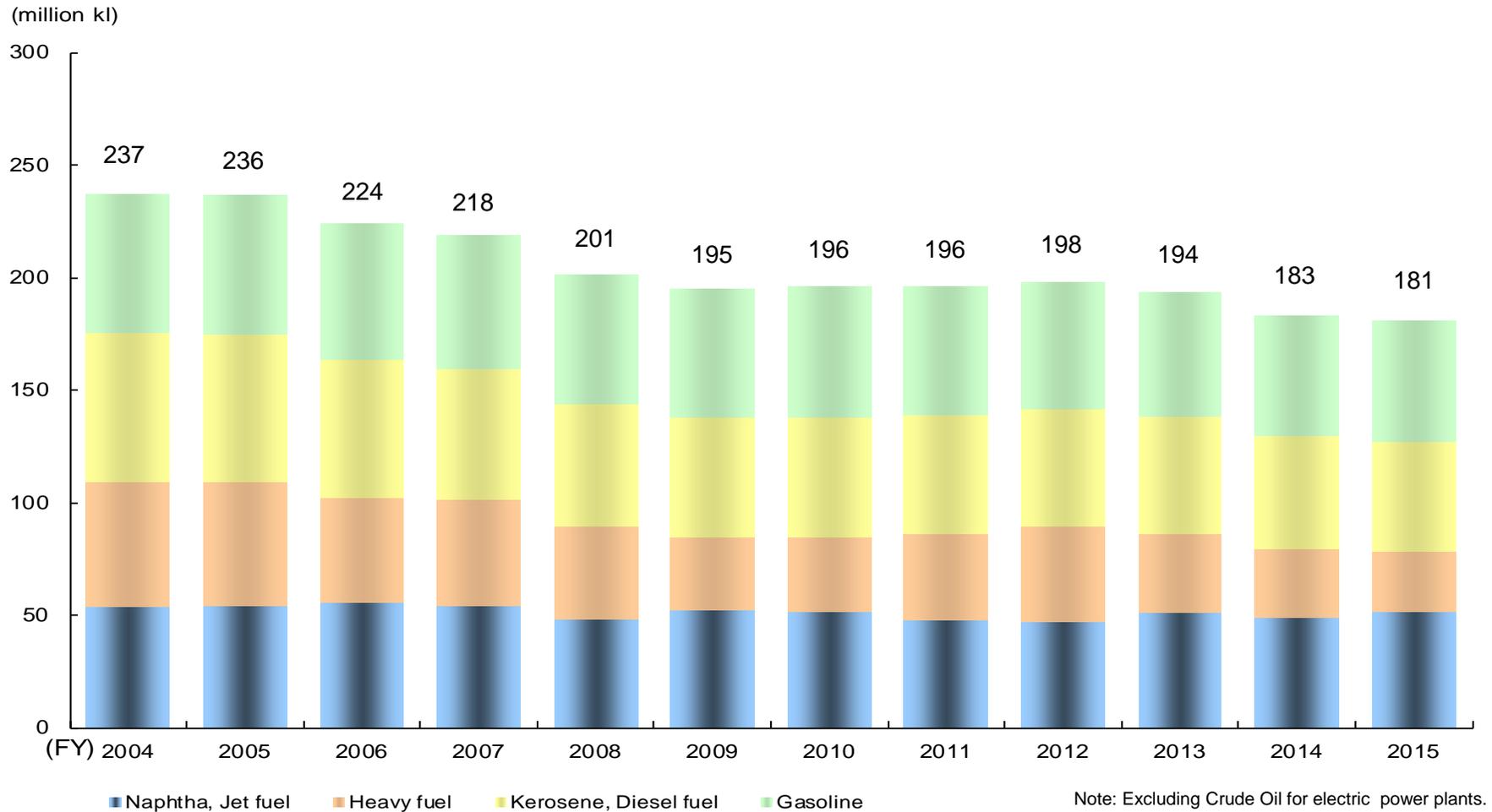


A teal rounded rectangle containing the title text.

Business Environment and Data - Energy Business -



Domestic Petroleum Products Demands



Source: Petroleum Association of Japan and Company data

JX Group's Market Share and Demand in Japan, Historical CDU^{*1} Utilization Rate



Domestic Market Share

	FY2015 1H (%)	FY2015 (%)	FY2016 1H (%)
a) Gasoline	33.5	33.5	34.0
b) Kerosene	40.6	39.2	40.5
c) Diesel Fuel	36.8	36.7	36.8
d) Fuel Oil A	43.0	41.4	41.6
a+b+c+d	35.9	36.1	36.1
Total Domestic Fuel ^{*2}	35.4	35.6	35.9

Domestic Demand

	FY2015 1H (1,000KL)	FY2016 1H (1,000KL)	Changes vs. FY2015 1H (%)
a) Gasoline	27,055	26,798	99.1
b) Kerosene	3,607	3,548	98.4
c) Diesel Fuel	16,615	16,331	98.3
d) Fuel Oil A	4,925	5,092	103.4
a+b+c+d	52,202	51,769	99.2
Total Domestic Fuel ^{*2}	84,710	81,767	96.5

CDU^{*1} Utilization Rate (Excluding the impact of periodic repair)

	FY2012	FY2013	FY2014	FY2015	FY2016 1Q	FY2016 2Q
JX Group ^{*3}	88%	89%	91%	92%	93%	89%

Source: Petroleum Association of Japan and Company data

NOTES:

*1 Crude Distillation Unit

*2 Excluding crude oil for electric power plants

*3 Excluding condensate splitters of Mizushima and Kashima

Sales Volume by Product

	FY2015 1H	FY2016 1H	variation	Changes vs. FY2015 1H
	ten thousand KL	ten thousand KL	ten thousand KL	
Gasoline	907	911	+4	+0.4%
Premium	106	105	-1	-0.9%
Regular	796	801	+5	+0.6%
Naphtha	188	223	+35	+18.6%
JET	79	74	-5	-6.3%
Kerosene	126	124	-2	-1.6%
Diesel Fuel	610	600	-10	-1.6%
Fuel Oil A	212	212	0.0	0.0%
Heavy Fuel Oil C	307	266	-41	-13.4%
For Electric Power	210	169	-41	-19.5%
For General Use	98	97	-1	-1.0%
Total Domestic Fuel	2,429	2,410	-19	-0.8%
Crude Oil	113	45	-68	-60.2%
Lubricants & Specialities	135	143	+8	+5.9%
Petrochemicals (ten thousand ton)	316	303	-13	-4.1%
Exported Fuel	512	653	+141	+27.5%
LPG (ten thousand ton)	17	9	-8	-47.1%
Coal (ten thousand ton)	357	223	-134	-37.5%
Total Excluding Barter Trade & Others	3,879	3,786	-93	-2.4%
Barter Trade & Others	996	1,075	+79	+7.9%
Total	4,875	4,861	-14	-0.3%

Number of Service Stations (Fixed-Type) (As of the end of fiscal years)

	FY2013	FY2014	FY2015	FY2016 ^{*5} Sep 30
JX Group	11,017	10,783	10,548	10,442
EMG ^{*1}	3,379	3,481	3,410	3,396
Idemitsu Kosan	3,786	3,725	3,666	3,627
Showa Shell Sekiyu	3,442	3,317	3,193	3,173
Cosmo Oil	3,228	3,133	3,054	3,028
Others ^{*2}	1,096	836	837	832
Oil Companies	25,948 (74.8%)	25,275 (75.4%)	24,708 (76.4%)	24,498 (76.3%)
Private Brands and Others ^{*3}	8,758 (25.2%)	8,235 (24.6%)	7,625 (23.6%)	7,602 (23.7%)
Total	34,706	33,510	32,333	32,100

Notes:

*1. Figures are total of Esso, Mobil and Tonen General Sekiyu until FY2013.

Since FY2014, figures are total of Esso, Mobil, Tonen General Sekiyu and Mitsui Oil & Gas.

*2. Figures are total of Taiyo Petroleum, Kygnus Sekiyu and Mitsui Oil & Gas until FY2013.

Since FY2014, figures are total of Taiyo Petroleum and Kygnus Sekiyu.

*3. FY2015 is estimated by JX Holdings.

*4. Figures include only self-service retail outlets that are affiliated to oil companies.

*5. Data except for JX Group and Idemitsu Kosan is as of Jun 30, 2016.

<Number of Company-Owned Service Stations>

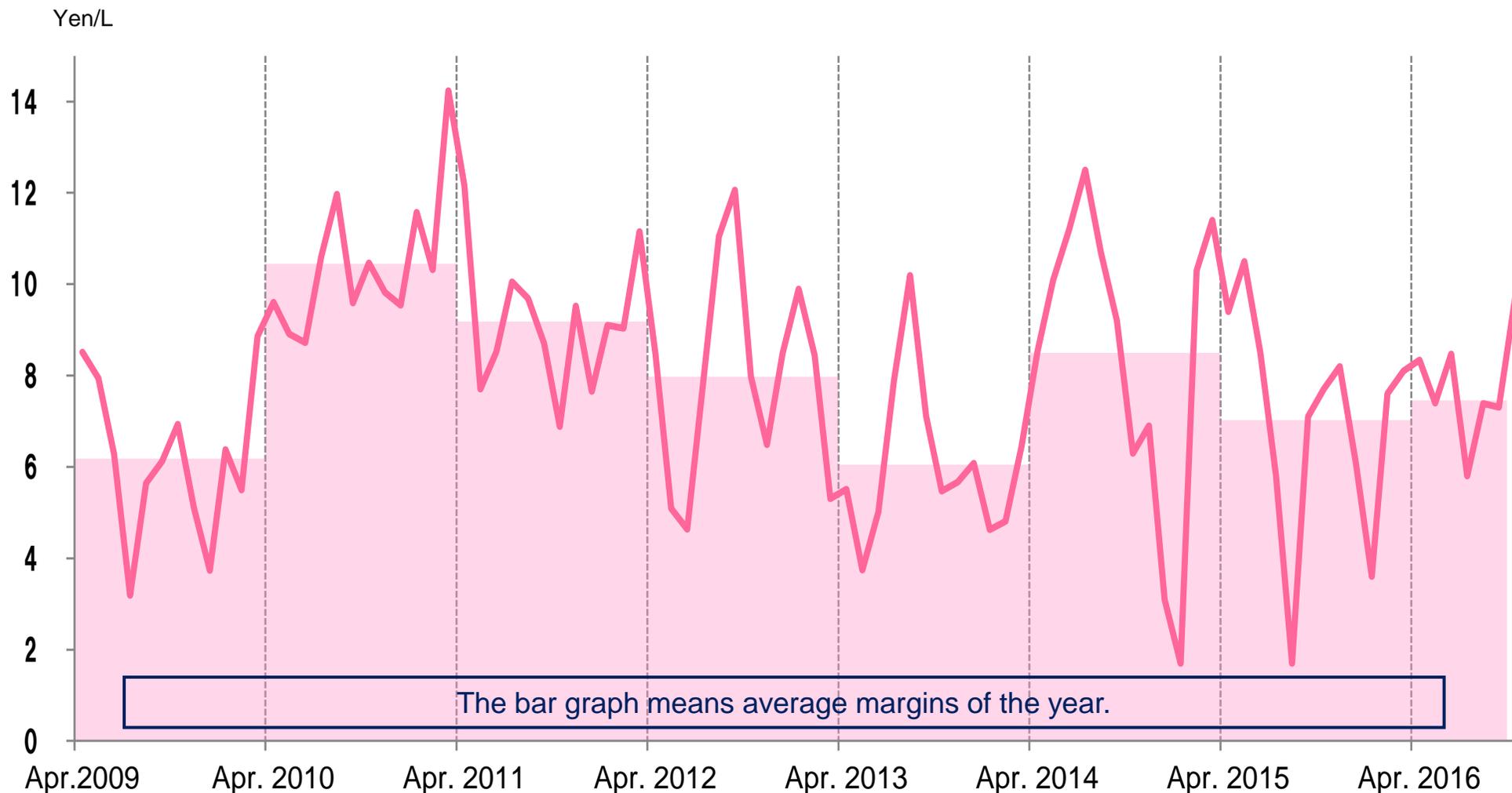
	FY2013	FY2014	FY2015	FY2016 ^{*5} Sep 30
JX Group	2,433	2,404	2,375	2,351

<Number of Self-Service Stations>

	FY2013	FY2014	FY2015	FY2016 ^{*5} Sep 30
JX Group	2,654	2,752	2,805	2,825
Total for Japan ^{*4}	7,415	7,622	7,772	7,818



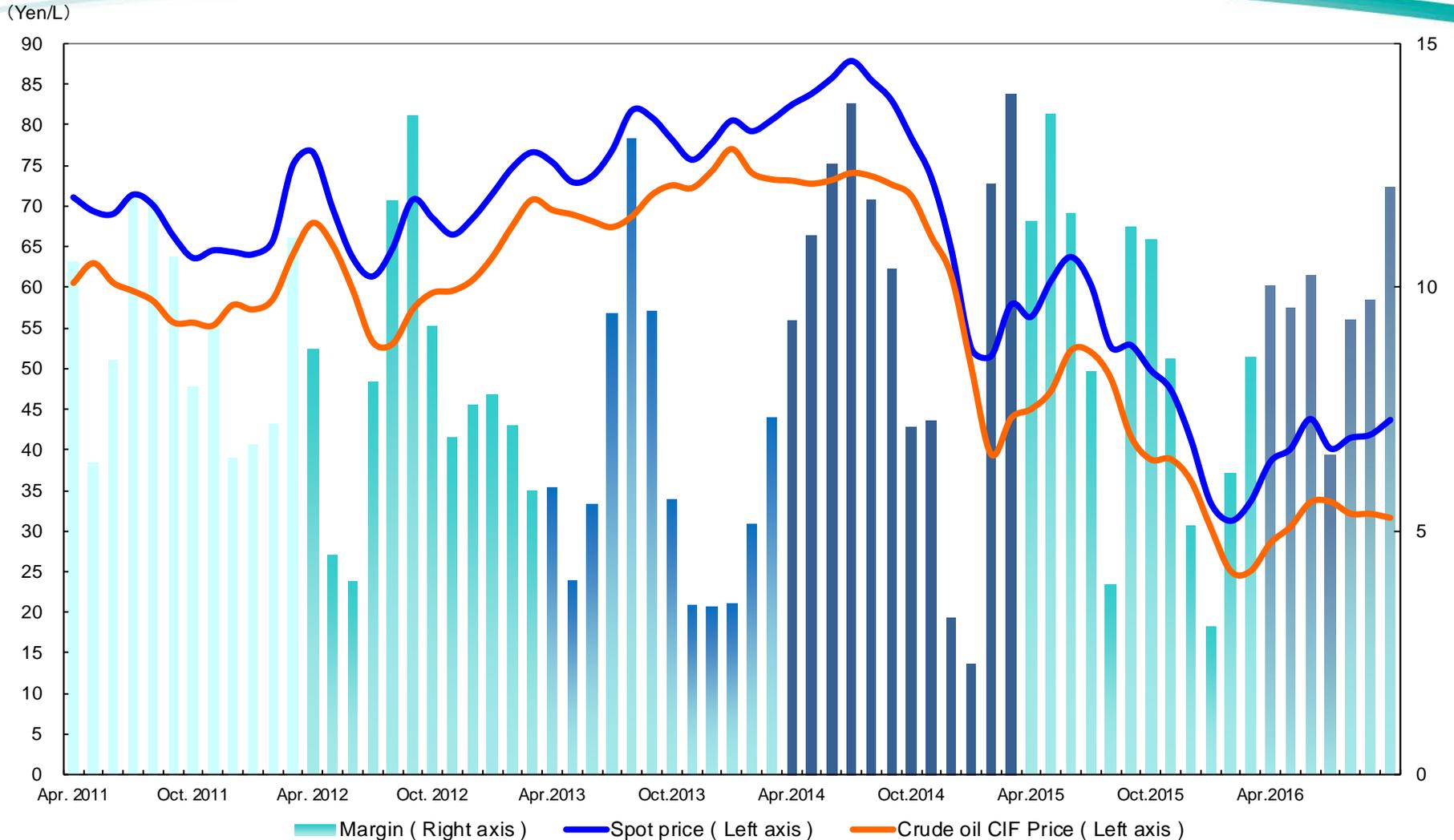
Margins* of Petroleum Products (Gasoline, Kerosene, Diesel Fuel and Fuel Oil A)



* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)



Margins* of Petroleum Products (Gasoline)

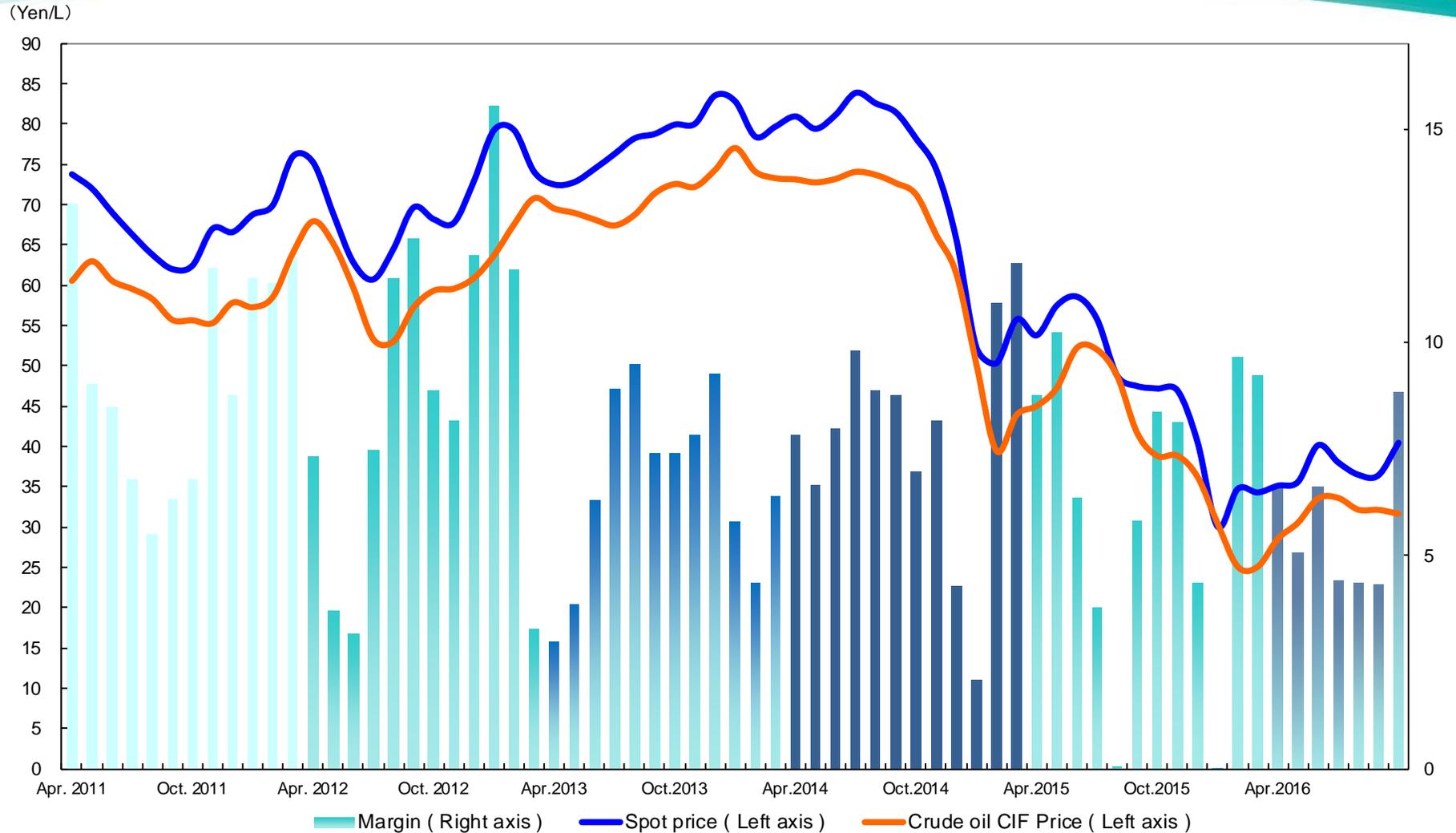


* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)



Margins* of Petroleum Products (Kerosene)

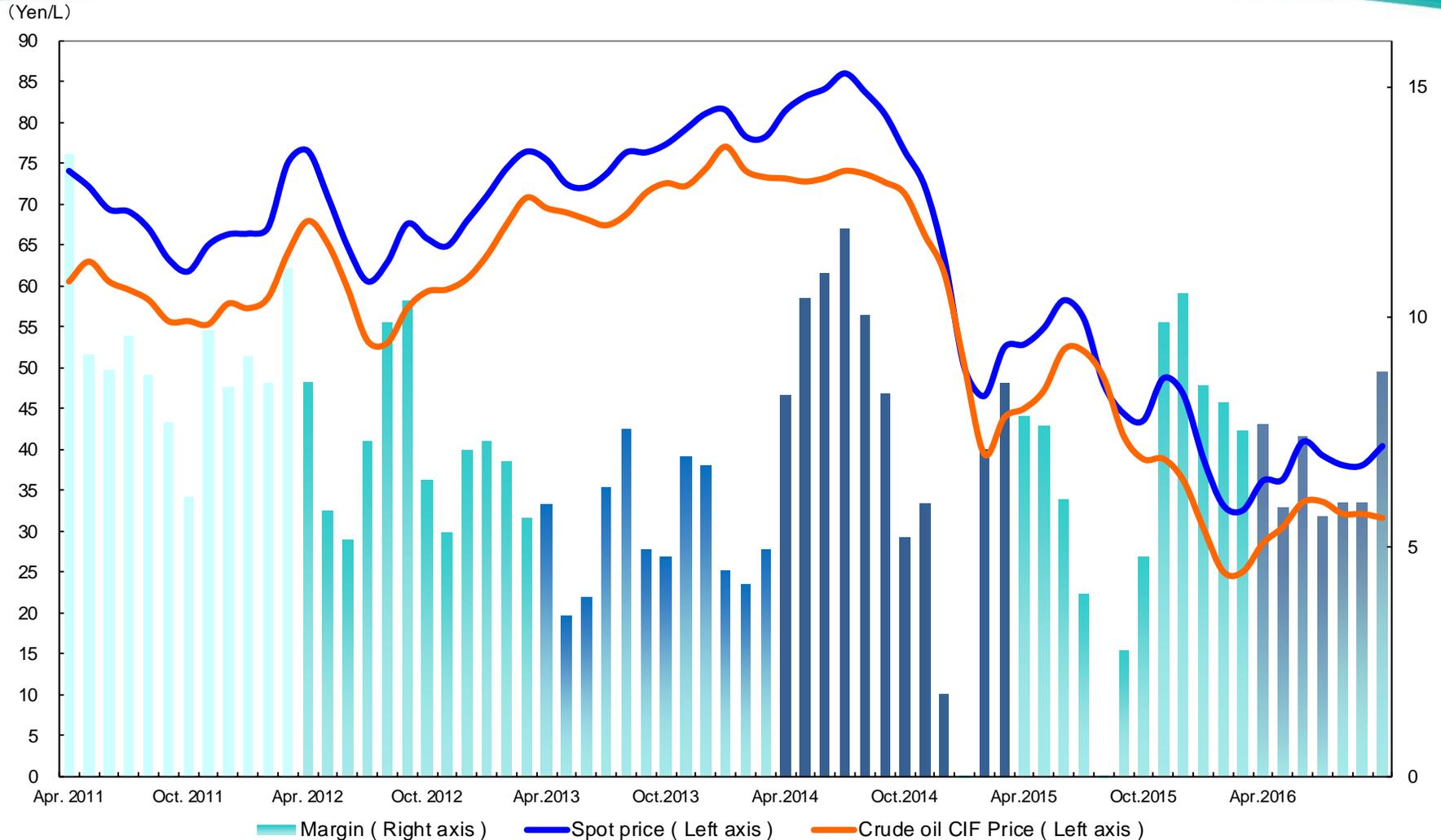


* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)



Margins* of Petroleum Products (Diesel Fuel)

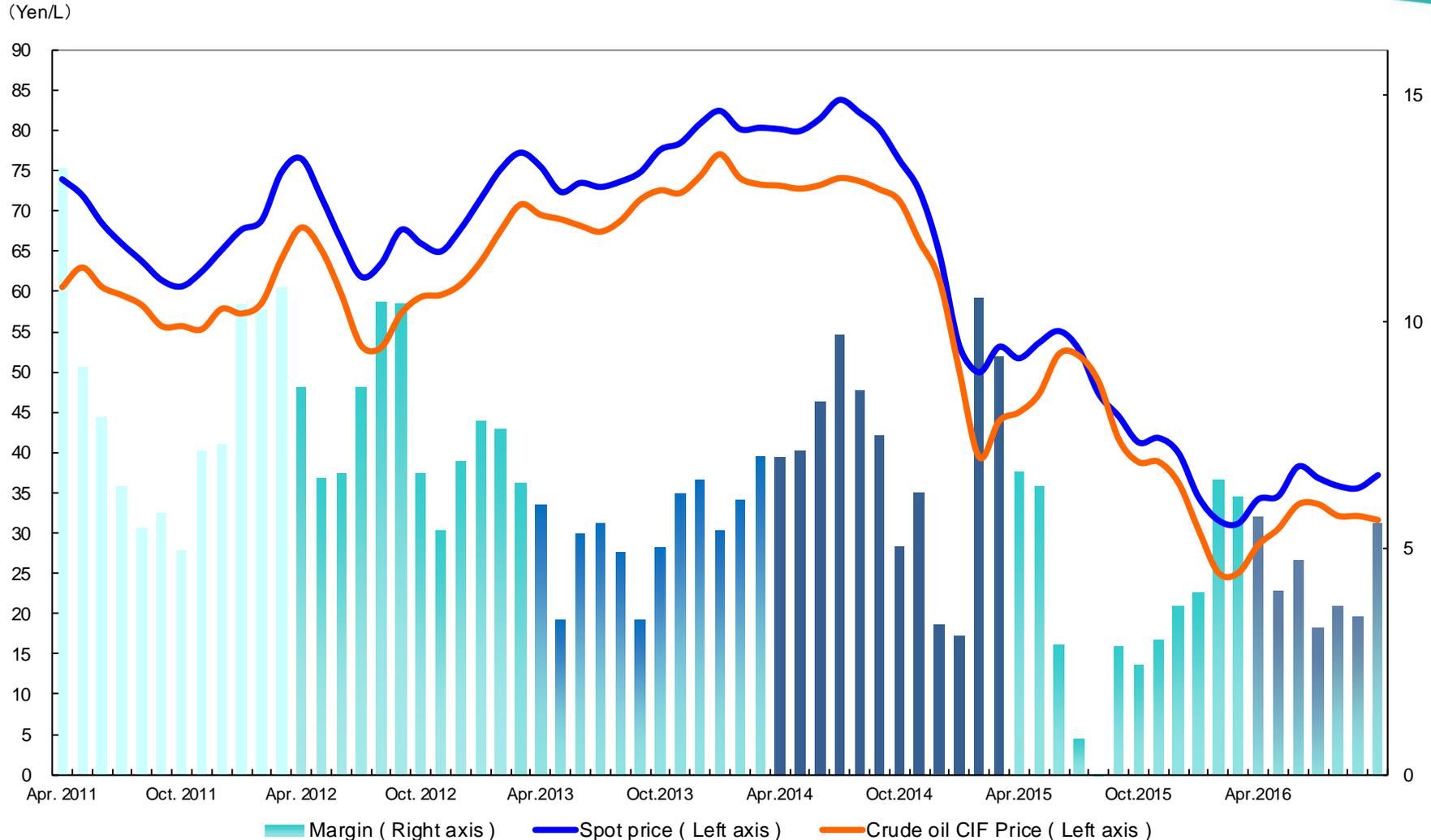


* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)



Margins* of Petroleum Products (Fuel Oil A)

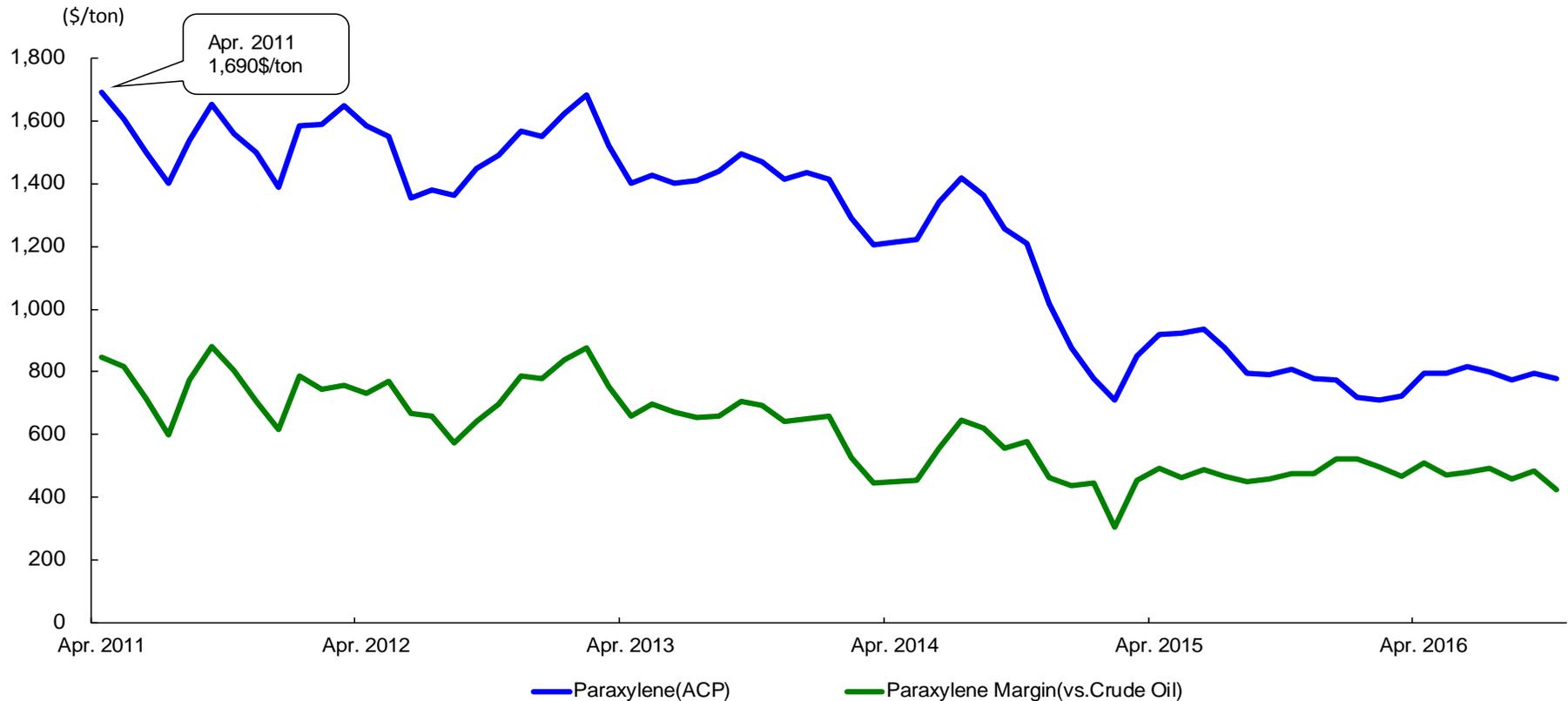


* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)

Paraxylene Price and Margin (vs. Crude Oil)

Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1 Q	2Q	3Q	4Q	FY	1 Q	2Q
Asian Contract Price	1,555	1,510	1,401	1,105	927	820	788	718	813	802	790
Margin (vs. Crude Oil)	754	732	639	498	481	459	492	496	482	488	476

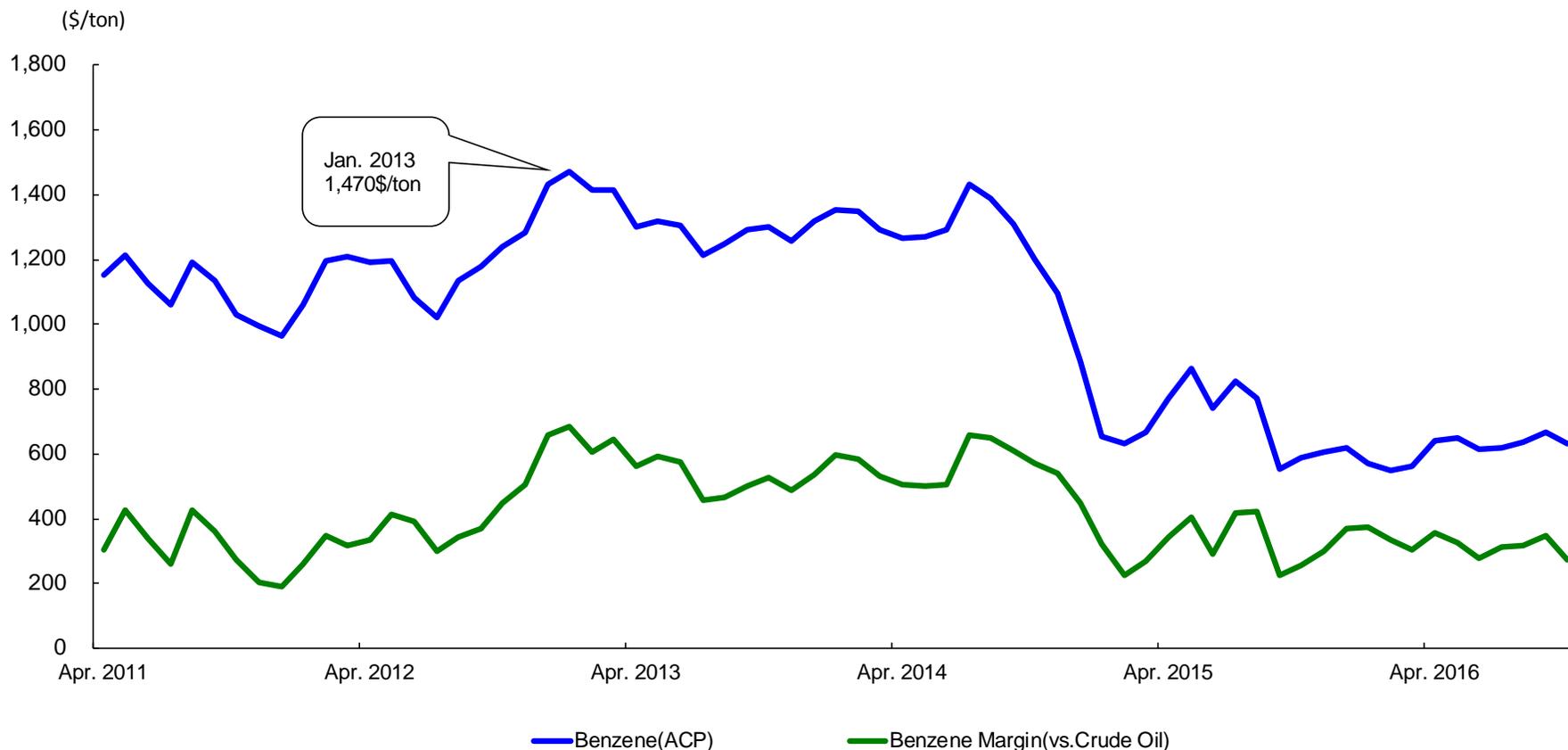


* In case of ACP undecided, average price of spot market is adopted.



Benzene Price and Margin (vs. Crude Oil)

Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1 Q	2Q	3Q	4Q	FY	1 Q	2Q
Asian Contract Price	1,111	1,255	1,296	1,090	792	717	605	560	668	635	640
Margin (vs. Crude Oil)	310	476	535	483	346	355	309	339	337	321	326

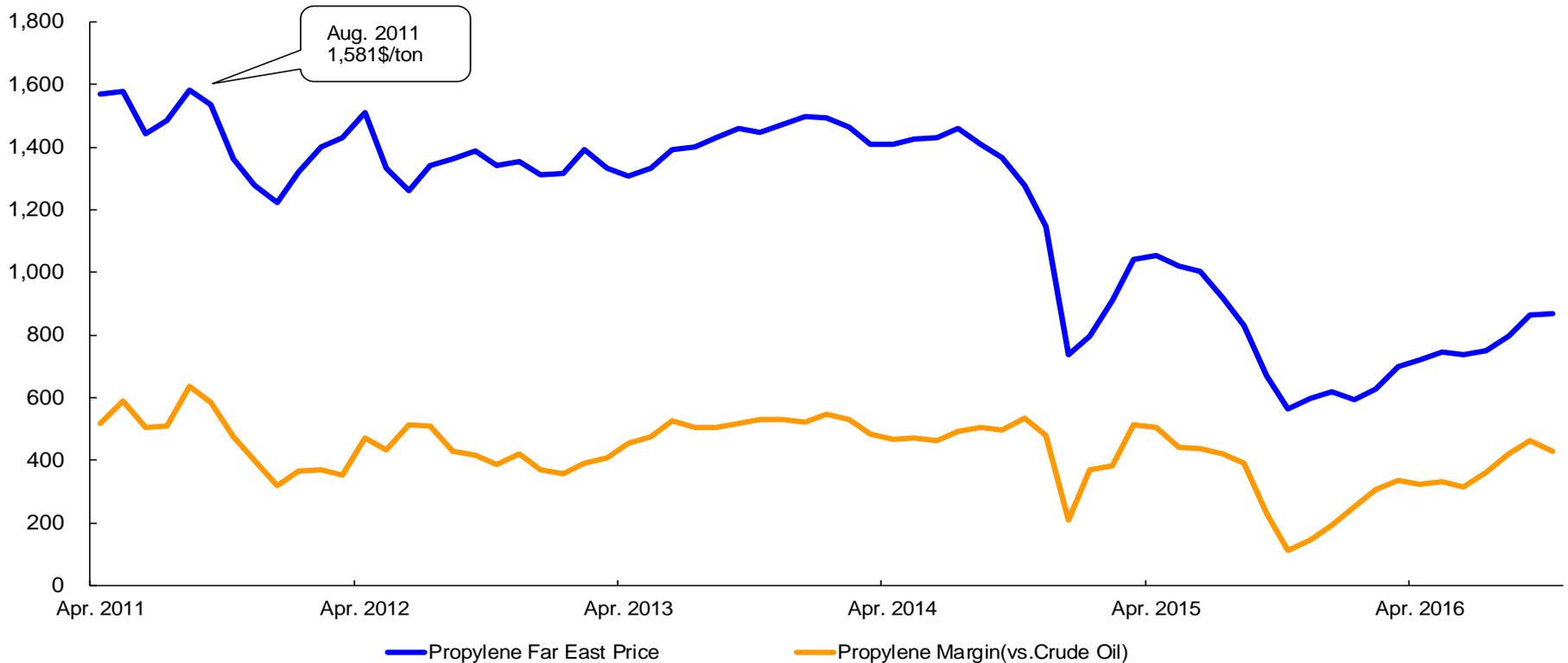




Propylene Price and Margin (vs. Naphtha)

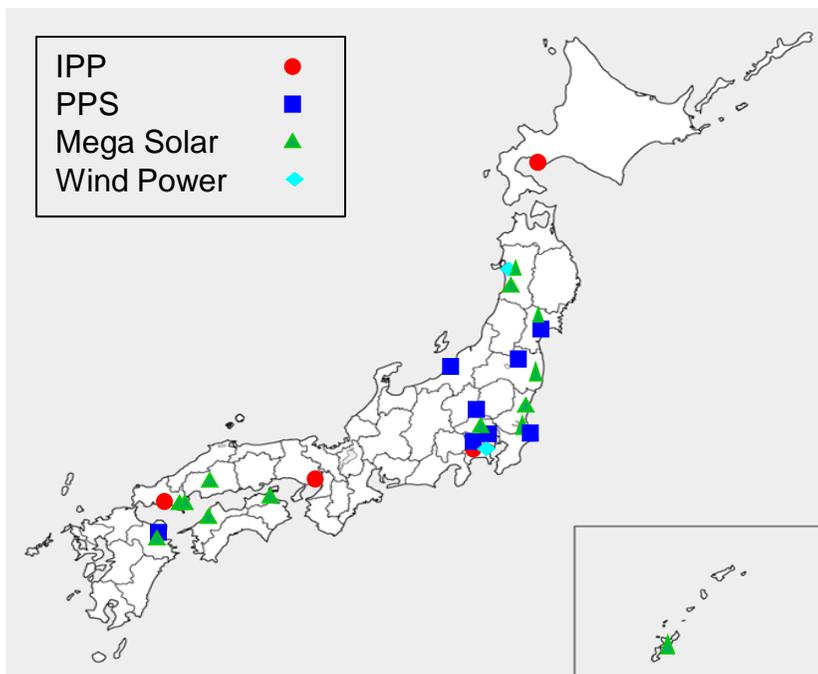
Average Price	FY2011	FY2012	FY2013	FY2014	FY2015					FY2016	
					1Q	2Q	3Q	4Q	FY	1Q	2Q
Far East Spot Price	1,383	1,353	1,426	1,201	1,025	807	595	640	767	734	804
Margin (vs. Naphtha)	362	426	511	449	461	347	149	297	314	323	415

(\$/ton)



Electricity Business

✓ Location of Electricity Business (As of Oct. 2016)



✓ Power Generating Capacity of each Business

IPP	4 stations	828 thousand kW
PPS	7 stations	762 thousand kW
Mega Solar	14 stations	35 thousand kW
Wind Power	2 stations	4 thousand kW
Total (equity basis)		1,629 thousand kW

✓ Expansion of Electricity Business

PPS

- Started receiving electricity from Kawasaki Natural Gas Power Generation Co., Ltd, joint venture with Tokyo Gas Co., Ltd.(2008)
- Established the Solvent De-Asphalting equipment and the power generation facility at Kashima Refinery.(FY2015)
- Started home electricity retail business.(Apr 1,2016)
- Scheduled to establish the power generation facilities in the Mizushima Refinery.(FY2018)

Mega Solar

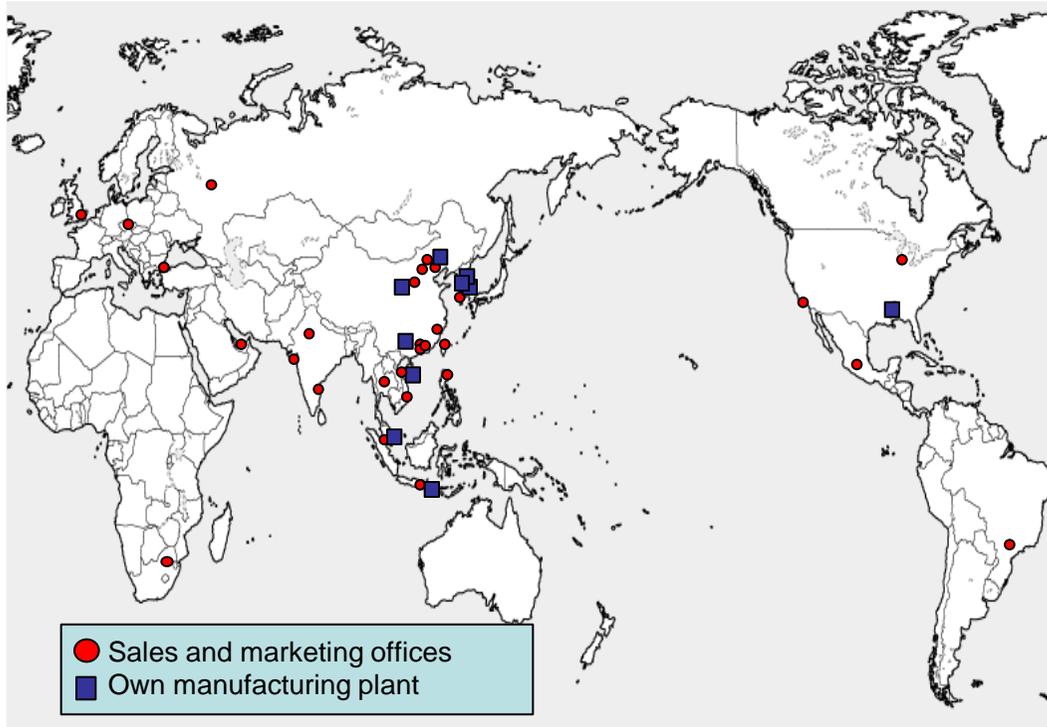
Started Operation		Started Operation	
Sendai	Feb. 2013	Oga	Mar. 2016
Kudamatsu	Mar. 2013	Asaka	Mar. 2016
Kasumigaura	Nov. 2013	Hiroshima	Mar. 2016
Iwaki	Jul. 2014	Hitachi	Mar. 2016
2nd Kudamatsu	Sep. 2014		
Akita	Oct. 2014	Start-up Plan	
Masaki	Feb. 2015	Toyama	Dec. 2016
Takamatsu	Feb. 2015	Sakai	Dec. 2016
Uruma	Mar. 2015	Gamagori	Mar. 2017
Oita	Mar. 2015		

Wind Power

- Started operation of Wind Power at the Akita Oil Terminal.(2003)
- Started operation of Ohgishima Wind Power Station.(2010)

Lubricants Business

✓ Location of Overseas Lubricants Business (As of Oct. 2016)



➤ Expanding overseas business, especially in Asia.

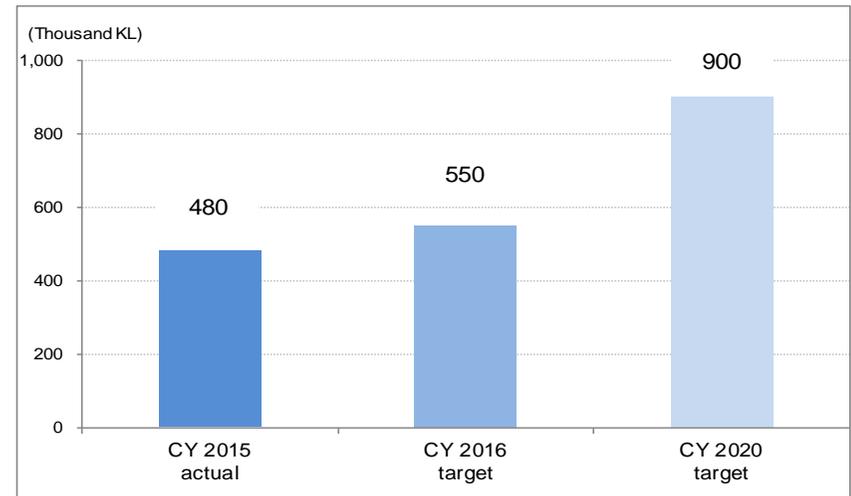
Sales and marketing offices	29
Manufacturing plant	48
(Own manufacturing plant:10, Contractors:38)	



✓ Expansion of Overseas Lubricants Business

- Established a lubricants marketing company in Dubai. (Jul. 2011)
- Lubricants manufacturing plant started its operation in Indonesia. (Apr. 2012)
- Started joint venture business for lubricants base oil with SK Group of South Korea. (Oct. 2012)
- Lubricants manufacturing plant started its operation in Vietnam. (Feb. 2014)
- Established a marketing office in Johannesburg. (Apr. 2014)
- Established a lubricants marketing company in India. (Aug. 2014)
- Established a lubricants marketing company in Mexico. (Jan. 2015)
- Established a marketing office in Manila. (May. 2016)

✓ Medium-Term Target of Overseas Lubricants Sales



Hydrogen Business

✓ Construction of Hydrogen supply system(As of Oct. 2016)

- Constructed 37 hydrogen supply places around four major urban areas as for prior construction.
- Planning to open 3 supply places until the end of FY2016.

✓ Construction situation of hydrogen station of JX group

[Metropolitan area]25

1. Kasuga, Tsukuba city
2. Dr. Drive Self Owada
3. Minuma, Saitama city
4. Midori, Saitama city
5. Dr. Drive Self Kasukabe-Chuou
6. Dr. Drive Self Sayama-Negishi
7. Shinmeicho Koshigaya city
8. Dr. Drive Self Takeishi inter
9. Rokkoudai Matsudo city
10. Dr. Drive Self Shiomi-Koen
11. Meguroku, Tokyo
12. Suginamiku, Tokyo
13. Itabashiku, Tokyo
14. Takakura, Hachioji city
15. Osanbashi, Yokohama city
16. Minami Yokohama city
17. Asahiku, Yokohama city
18. Dr. Drive Self Kamiida
19. IKEA-Kohoku, Yokohama city
20. Kawasakiku, Kawasaki city
21. Chuouku, Sagamihara city
22. Minami, Sagamihara city
23. Shimotsuchidana, Fujisawa city
24. Okazaki, Isehara city
25. Dr. Drive Self Ebina-Chuou

[Aichi area]5

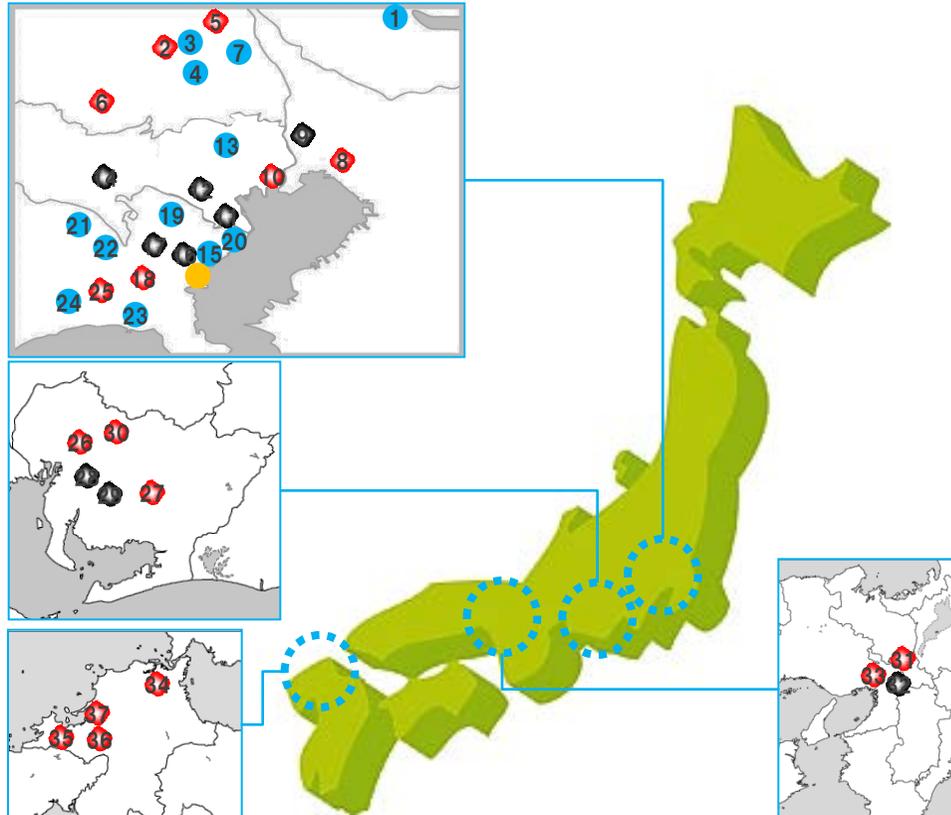
26. Dr. Drive Self Kaminokura
27. Dr. Drive Self Okazaki-Hane
28. Igaya, Kariya city
29. Ozaki, Anjo city
30. Dr. Drive Self Miyoshigaoka

[Kansai area]3

31. Dr. Drive Self Hishikawa
32. Hashiridani, Hirakata city
33. Dr. Drive Self Ibaraki inter

[Kitakyushu area]4

34. Dr. Drive Self Yahata-Higashida
35. Dr. Drive Self Ito
36. Dr. Drive Self Dazaihu inter
37. Dr. Drive Self Fukuoka-Kuko



◆: Built-in type



◆: Independent type



●: Portable type



●: Hydrogen plant and shipping facility



Sophisticated Methods of Energy Supply Structures

- Sophisticated Methods of Energy Supply Structures was established as control measures to introduce and expand non-fossil energy source and to utilize fossil fuel in July 2009.
- The Sophisticated Methods' former assessment criteria expired at the end of 2014
- To promote the effective use of crude oil while responding flexibly to these changes, METI announced the Sophisticated Methods' new assessment criteria. (Deadline Mar. 2017)

	First stage of the Sophisticated Methods of Energy Supply Structures	Second stage of the Sophisticated Methods of Energy Supply Structures																
Details	Aiming to increase Japan's ratio of cracking capacity to crude oil distillation capacity to 13% by fiscal 2013, each petroleum refining company was required to achieve improvement rates in three stages, in line with the current ratio.	Aiming to increase Japan's ratio of heavy oil cracking units to the capacity of crude distillation units in refineries to 50% by the end of March 2017, each petroleum refining company is required to achieve improvement rates in three stages, in line with the current ratio.																
Improvement rate	<ul style="list-style-type: none"> • Nationwide ratio of cracking capacity to crude oil distillation capacity: 10% → 13% • Targets for each company are as follows: <table border="1"> <thead> <tr> <th>Ratio of cracking capacity to crude oil distillation capacity at any time plans were presented</th> <th>Target improvement rate</th> </tr> </thead> <tbody> <tr> <td>Less than 10%</td> <td>45% or more</td> </tr> <tr> <td>10% or more to less than 13%</td> <td>30% or more</td> </tr> <tr> <td>13% or more</td> <td>15% or more</td> </tr> </tbody> </table>	Ratio of cracking capacity to crude oil distillation capacity at any time plans were presented	Target improvement rate	Less than 10%	45% or more	10% or more to less than 13%	30% or more	13% or more	15% or more	<ul style="list-style-type: none"> • Nationwide ratio of heavy oil cracking units to the capacity of crude oil distillation units in refineries: 45% → 50% • Targets for each company are as follows: <table border="1"> <thead> <tr> <th>Ratio of heavy oil cracking units to capacity of crude oil distillation units in refineries at any time plans were presented</th> <th>Target improvement rate</th> </tr> </thead> <tbody> <tr> <td>Less than 45%</td> <td>13% or more</td> </tr> <tr> <td>45% or more to less than 55%</td> <td>11% or more</td> </tr> <tr> <td>55% or more</td> <td>9% or more</td> </tr> </tbody> </table>	Ratio of heavy oil cracking units to capacity of crude oil distillation units in refineries at any time plans were presented	Target improvement rate	Less than 45%	13% or more	45% or more to less than 55%	11% or more	55% or more	9% or more
Ratio of cracking capacity to crude oil distillation capacity at any time plans were presented	Target improvement rate																	
Less than 10%	45% or more																	
10% or more to less than 13%	30% or more																	
13% or more	15% or more																	
Ratio of heavy oil cracking units to capacity of crude oil distillation units in refineries at any time plans were presented	Target improvement rate																	
Less than 45%	13% or more																	
45% or more to less than 55%	11% or more																	
55% or more	9% or more																	

Sophisticated Methods of Energy Supply Structures

~Petroleum Refining Capacity trends of Japan~



Company	Thousands of BD		
	As of the end of December 2008	As of the end of March 2016	Changes
JX Group	1,891	1,426	(465)
TonenGeneral Group	836	698	(138)
Idemitsu Kosan	640	535	(105)
Showa Shell Sekiyu Group	515	445	(70)
COSMO OIL	635	452	(183)
Others	417	361	(56)
Japan Total	4,934	3,917	(1,017)

*1 includes Osaka International Refining Company, Limited, and the Mizushima refinery and Kashima refinery condensate splitters.

*2 Figures for the TonenGeneral Group include Kyokuto Petroleum Industries, Ltd.

*3 Figures for the Showa Shell Sekiyu Group include TOA OIL Co., Ltd., SHOWA YOKKAICHI SEIKYU CO., LTD., Seibu Oil Co., Ltd.

*4 Others includes Fuji Oil Company, Ltd., Nansei Sekiyu K.K., TaiyoOil Company, Limited, and Teiseki Topping Plant Co., Ltd.

*5 Japan Total is based on documents of Petroleum Association of Japan

➤ JX Capacity Reduction Plan

Corresponded to Sophistication of Energy Supply Structure Act

Refinery	Due Date	Reduction Capacity	Completion
Toyama	March, 2009	(60) thousand B/D	<input checked="" type="checkbox"/>
Kashima	May, 2010	(21)	<input checked="" type="checkbox"/>
Oita	May, 2010	(24)	<input checked="" type="checkbox"/>
Mizushima	June, 2010	(110)	<input checked="" type="checkbox"/>
Negishi	October, 2010	(70)	<input checked="" type="checkbox"/>
Muroran	March, 2014	(180)	<input checked="" type="checkbox"/>
Subtotal		(465)	
Osaka	October, 2010	(115) Convert to exportation refinery	<input checked="" type="checkbox"/>
Total		(580)	



Business Integration of JX and TonenGeneral Sekiyu

Outline

Purpose of Business Integration

Through business integration, establish a strong company group that is among Asia's most prominent and internationally competitive comprehensive energy, natural resource and materials company groups

New corporate names

Integrated Holding Company

JXTG Holdings, Inc.

Integrated Energy Company

JXTG Nippon Oil & Energy Corporation

Integration Effects

Aim to achieve in excess of 100 billion yen in profit improvements within 3 years after the Business Integration

Items	Per fiscal year
Supply, Distribution and Sales	28 billion yen
Manufacturing	40 billion yen
Procurement	15 billion yen
Efficiencies in IT and other	17 billion yen
Total	100 billion yen

To achieve further profit improvements, conduct refinery closure at the earliest timing

Schedule

Dec. 21, 2016

Shareholders' meetings, required for the approval of the business integration

Apr. 1, 2017

The Business Integration Date

A teal rounded rectangle containing the text.

Business Environment
- Oil and Natural Gas E&P Business -



Business Area





Business Activities

	▼ Project Company	In Production ●	Under Development ●	Under Exploration ●
01 Japan	JX Nippon Oil & Gas Exploration Corp.	●	●	●
02 The U.S. Gulf of Mexico	JX Nippon Oil Exploration (U.S.A.) Ltd.	●		
	JX Nippon Oil Exploration (EOR) Ltd. / Petra Nova Parish Holdings LLC		●	
03 Canada	Japan Canada Oil Company / Mocal Energy	●		
04 Thailand	JX Nippon Oil & Gas Exploration Corp.			●
05 Vietnam	Japan Vietnam Petroleum Co., Ltd.	●	●	●
	JX Nippon Oil & Gas Exploration Corp.			●
06 Myanmar	Nippon Oil Exploration (Myanmar) Ltd.	●	●	●
07 Malaysia	JX Nippon Oil & Gas Exploration (Malaysia) Ltd.	●	●	●
	JX Nippon Oil & Gas Exploration (Sarawak) Ltd.	●		
	JX Nippon Oil & Gas Exploration (Deepwater Sabah) Ltd.			●
	JX Nippon Oil & Gas Exploration (Offshore Malaysia) Sdn. Bhd.			●
08 Indonesia	Nippon Oil Exploration (Berau) Ltd.	●	●	●
09 Australia	JX Nippon Oil & Gas Exploration (Australia) Pty Ltd.	●		●
10 Papua New Guinea	Merlin Petroleum Company / Southern Highlands Petroleum Co., Ltd.	●	●	●
	Nippon Oil Exploration (Niugini) Ltd.			●
	Nippon Papua New Guinea LNG LLC	●		
11 12 U A E · Qatar	Abu Dhabi Oil Co., Ltd.	●	●	
	United Petroleum Development Co., Ltd.	●		
	JX Nippon Oil & Gas Exploration (Qatar) Ltd.			●
13 The North Sea	JX Nippon Exploration and Production (U.K.) Ltd.	●	●	●



Outline of Principal Oil and Natural Gas E&P Projects

Project Name/Company	Sales Volume (1,000BOED) * 1			Reserves (million BOE) *1 *2			Reference pages
	Apr.-Sep. 2016	Oil	Gas	As of the end of 2013	As of the end of 2014	As of the end of 2015	
(Gulf of Mexico(U.S.A.)) JX Nippon Oil Exploration U.S.A. Limited	3	2	1	16	17	16	37 ~ 38
(Canada) Japan Canada Oil Company Limited	10	10	0	260	283	155	39
(Vietnam and other) Japan Vietnam Petroleum Company, Limited, other	5	5	0				40 ~ 41
(Myanmar) Nippon Oil Exploration (Myanmar) Limited	7	1	6				42
(Malaysia) JX Nippon Oil & Gas Exploration (Malaysia) Limited JX Nippon Oil & Gas Exploration (Sarawak) Limited	25 8	2 1	23 7				43 ~ 46
(Indonesia) Nippon Oil Exploration (Berau) Limited	18	0	18	<Sub Total> 196	<Sub Total> 213	<Sub Total> 189	47
(Australia and other) JX Nippon Oil & Gas Exploration (Australia) Pty Ltd., other	2	2	0				48 ~ 50
(Papua New Guinea) Merlin Southern Highlands Petroleum Co., Ltd.	17	6	11	<Sub Total> 95	<Sub Total> 92	<Sub Total> 85	51 ~ 52
(United Arab Emirates, Qatar and others) Abudhabi Oil Co., Ltd., United Petroleum Development Co., Ltd. and others	13	13	0	57	48	43	53 ~ 54
(North Sea, U.K.) JX Nippon Exploration and Production (U.K). Limited	10	9	1	184	193	181	55 ~ 57
Total	118	51	67	808	846	669	

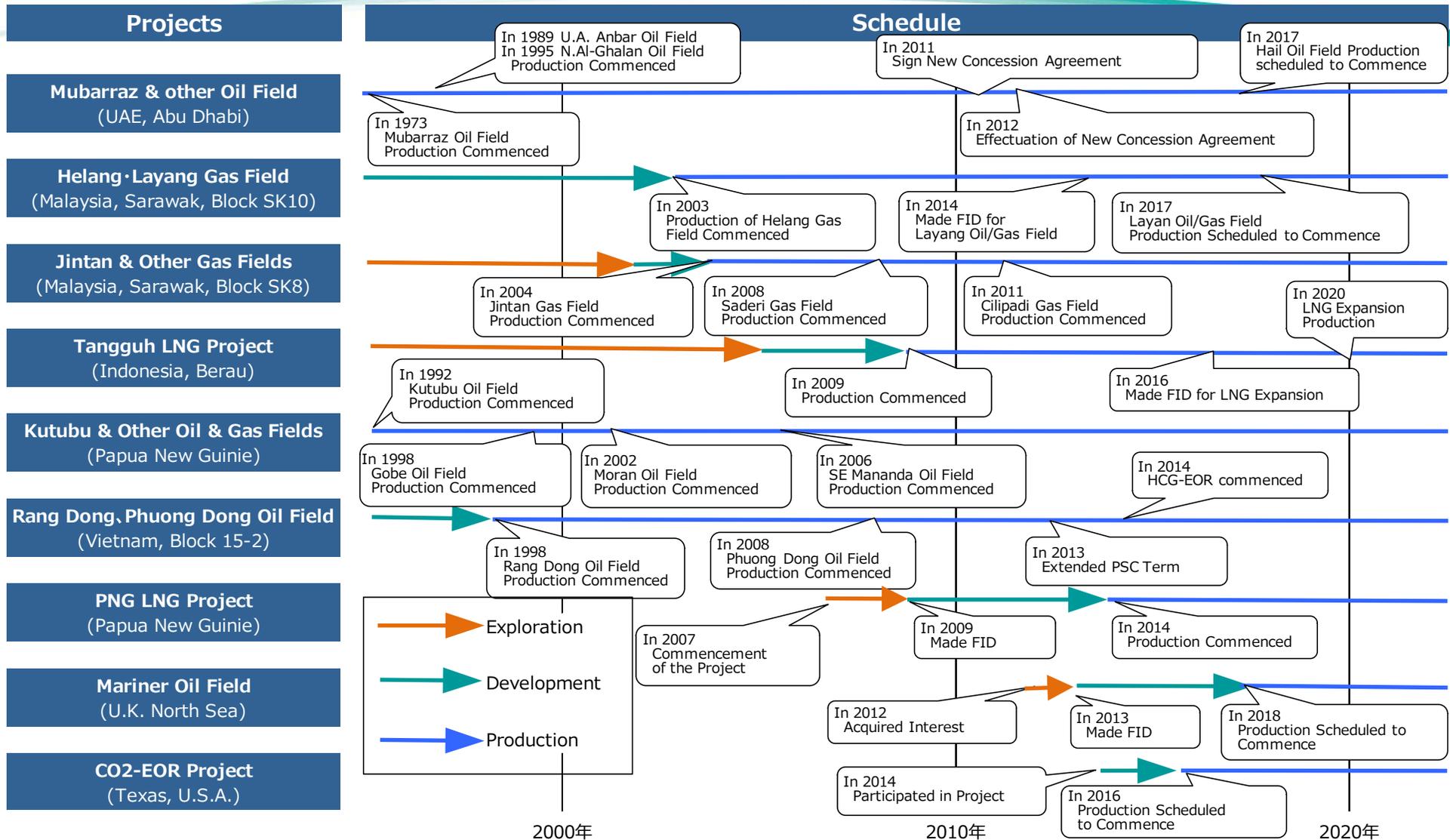
*1 Project company basis.

*2 Proved reserves and probable reserves, including reserves from projects currently under development.

(Please refer P58 about our reserve standard.)



Production Schedule of Principal E&P Projects





Next Page

Principal Individual E&P Project Overview



Principal Individual E&P Project Overview (U.S.①)

Gulf of Mexico

Production



	K2 (offshore)	Orchard North (onshore)	MP140, WC265/266 (offshore)
Company holding the Acreage	JX Nippon Oil Exploration(U.S.A.) Ltd.		
Shareholders(Holding Percentages)	JX Holdings (U.S.A.) Inc.(100%)		
Project Status	Production	Production	Production
Interest	11.6%	50.0%	35.0%~60.0%
Partners	Anadarko(41.8%) ENI(13.4%) ConocoPhillips(12.4%) MCX(11.6%) EcoPetrol(9.2%)	Hilcorp (50.0%)	Fieldwood Enven
Operator	Anadarko	Hilcorp	Fieldwood and others
Sales Volumes(Apr.~Sep. 2016)	3,000 boed (Oil 2,100b/d、 Gas 5.2mmcf/d)		

Production

Mining Area under production : K2, Orchard North, MP140, WC265/266

- In 1990, began exploration, development, and production operations at an onshore field in Texas and offshore blocks in both deep as well as shallow waters in the Gulf of Mexico.
- In 2007, acquired 11.6% interest in K2 from Anadarko.

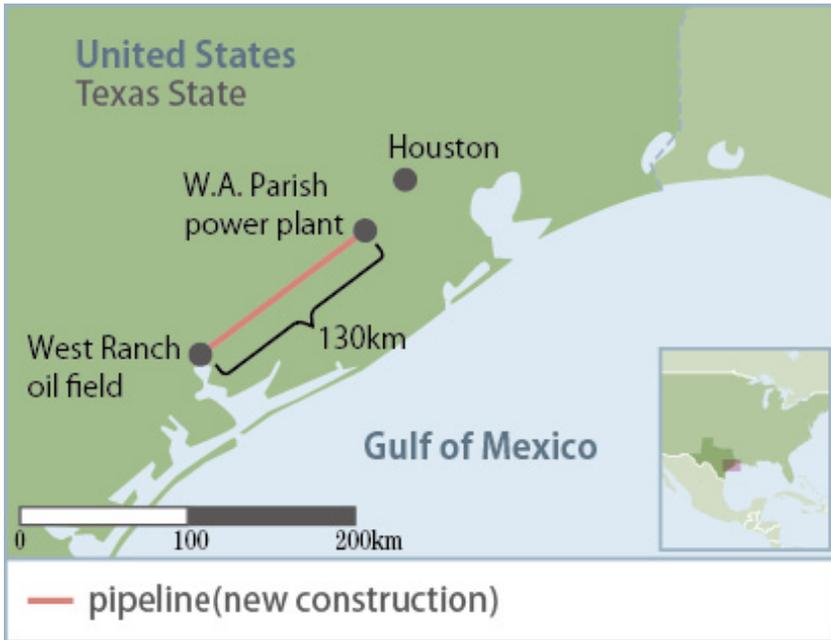
We hold assets in the Gulf of Mexico in the United States, which range from the continental shelf (less than 200meters in depth) to deep water area (more than 200 meter in depth).



Principal Individual E&P Project Overview (U.S.②)

Texas

Development



Development

CO2-EOR Project

- In July 2014, participated in CO2-EOR business.
- In 4th quarter of 2016, scheduled to start production.

Constructing carbon capture system that captures 90% of carbon dioxide (CO₂) in the processed flue gas from an existing unit at the WA Parish power plant, and by pressing captured carbon dioxide in West Ranch oil field, trying to increase crude oil production.

EOR is expected to boost oil production at the field from around 500barrels per day to approximately 12,000 barrels per day (average for project terms).

	CO2-EOR Project
Operating Company of JX NOEX	JX Nippon Oil Exploration (EOR) Ltd.
Shareholders * 1 (Holding Percentages:Common Stocks)	JX Nippon Oil Exploration (U.S.A.) Ltd. (100%)
Project Status	Development
Interest	50.0%
Project Company	Petra Nova Parish Holdings LLC * 2

* 1 JBIC holds preferred stocks issued by JX Nippon Oil Exploration (EOR) Ltd. other than the common stocks.

* 2 JX Nippon Oil Exploration (EOR) Limited and a subsidiary of NRG Energy Inc. respectively hold 50% interest in Petra Nova Parish Holdings LLC. Petra Nova Parish Holdings LLC holds 50% interest in the West Ranch Oil Field through its subsidiary. (JX Nippon Oil Exploration (EOR) Limited indirectly holds 25% interest in the West Ranch Oil Field.)



Principal Individual E&P Project Overview (Canada)

Canada

Production

Development



	Syncrude Project
Company Holding the Acreages	Japan Canada Oil/Mocal Energy
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)
Project Status	Development / Production
Interest	5.0%
Partners	Suncor Energy (53.7%) Imperial Oil Resources (25.0%) Sinopec (9.0%) Nexen (7.2%)
Operator	Syncrude Canada
Sales Volumes(Apr. ~ Sep. 2016)	10,400boed (oil 10,400b/d)

We are a partner in the Syncrude Project that produces synthetic crude oil from oil sand, the sand containing bitumen, huge deposits of which are found in Canada.

Production

- In 1978, Started Shipment of Synthetic Crude Oil.
- In 1992, acquired a working interest from PetroCanada.



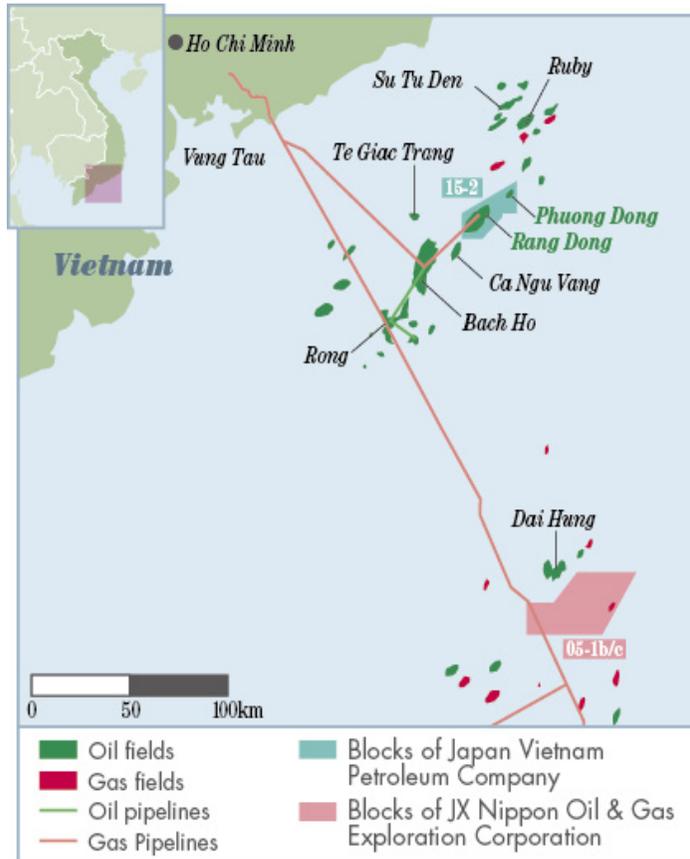
Principal Individual E&P Project Overview (Vietnam ①)

Vietnam

Production

Development

Exploration



	Block 15-2		Block 05-1b/c
	Rang Dong Oil Field	Phuong Dong Oil Field	
Company Holding the Acreages	Japan Vietnam Petroleum Company		JX Nippon Oil & Gas Exploration(100%)
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (97.1%) Mitsubishi Corporation (2.9%)		-
Project Status	Exploration/Development/Production		Exploration
Interest	46.5%	64.5%	35.0%
Partners	PVEP (17.5%) Perenco (36.0%)	PVEP (35.5%)	Idemitsu Kosan (35.0%) INPEX (30.0%)
Operator	Japan Vietnam Petroleum Company		Idemitsu Kosan
Sales Volumes(Apr. ~ Sep. 2016)	5,300 boed (oil 5,300b/d, gas 0.1mmcf/d)		-



Principal Individual E&P Project Overview (Vietnam ②)

Block 15-2 (Rang Dong, Phuong Dong Oil Fields)

Production

Development

Exploration

Since the acquisition in 1992, the project has been one of our key operations. JVPC, our subsidiary, act as operator in the block. The Rang Dong Oil Field and The Phuong Dong Oil Field feature an unconventional fractured granite basement rock reservoir that is unique in the world. Our fracture evaluation technology is highly valued and receiving worldwide recognition. As part of our corporate activities, we have been promoting social welfare activities in Vietnam to improve the lives of the people of Vietnam.

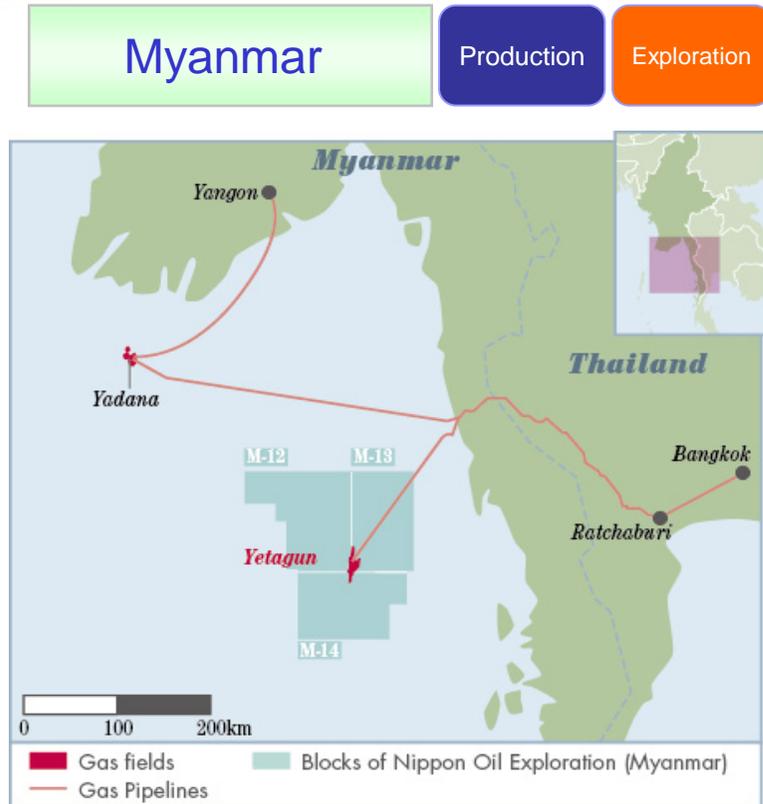
- In 1992, JVPC acquired a working interest in block 15-2
- In 1994, JVPC discovered the [Rang Dong Oil Field](#) within block 15-2, and it began production in that field from 1998.
- In July 2008, Rang Dong Oil Field achieved a cumulative production volume of 150 million barrels.
- In August 2008, JVPC began production in the [Phuong Dong Oil Field](#).
- In November 2013, determined on term extension of the Rang Dong Oil Field (5 years).
- In July 2014, block 15-2 achieved a cumulative production volume of 200 million barrels.
- In October 2014, JVPC began HCG-EOR project.

Block 05-1b/c

Exploration

- In October 2004, acquired a working interest in [block 05-1b/c](#) offshore Vietnam.
- In February 2007, excavated test well No.1.
- In August 2010, excavated test well No.2, and discovered gas and oil.
- In August 2012, excavated appraisal well No.1.
- In June 2013, confirmed gas and condensate.
- In August 2014, discovered gas and condensate.

Principal Individual E&P Project Overview (Myanmar)



We have been participating in the Yetagun project in Myanmar since exploration stage. After the appraisal activities and the construction of the production and shipping facilities, the project is now at a stable production stage.

	Block M-12, 13, 14
Company Holding the Acreages	Nippon Oil Exploration (Myanmar)
Shareholders (Holding Percentages)	JX Nippon Oil & Gas Exploration (40.0%) Mitsubishi Corporation (10.0%) Government of Japan (50.0%)
Project Status	Exploration / Production
Interest	19.3%
Partners	Petronas Carigali (40.9%) MOGE(20.5%) PTTEP International (19.3%)
Operator	Petronas Carigali
Sales Volumes(Apr.~Sep. 2016)	6,400boed (oil 600b/d, gas 34.7mmcf/d)

- In 1991, NOEX Myanmar acquired a working interest in [blocks M-13/14](#) offshore Myanmar.
- The following year, acquired a working interest in [block M-12](#) and discovered the Yetagun Gas Field in that block.
- In 2000, production at the Yetagun Gas Field commenced, with the produced gas supplied to the Ratchaburi power plants in Thailand.
- In October 2014, began production in the Yetagun North Gas Field.



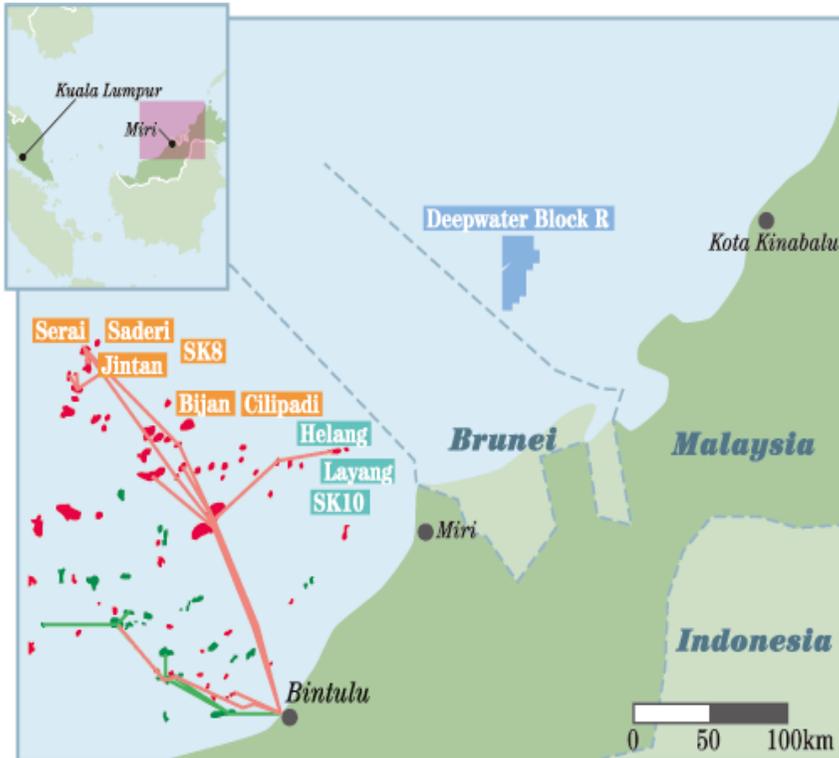
Principal Individual E&P Project Overview (Malaysia ①)

Malaysia

Production

Development

Exploration



	SK10 (Herang Gas Field, Others)	SK8 (Jintan, Cilipadi Gas Field, Others)
Company holding the Acreage	JX Nippon Oil & Gas Exploration (Malaysia)	JX Nippon Oil & Gas Exploration (Sarawak)
Shareholders (Holding Percentages)	JX Nippon Oil & Gas Exploration (78.7%) Inpex (15.0%) Mitsubishi Corporation (6.3%)	JX Nippon Oil & Gas Exploration (76.5%) Inpex (15.0%) Mitsubishi Corporation (8.5%)
Project Status	Exploration/Development/Production	Production
Interest	75.0%	37.5%
Partnaers	Petronas Carigali (25.0%)	Shell Oil and Gas Malaysia (37.5%) Petronas Carigali (25.0%)
Operator	JX Nippon Oil & Gas Exploration (Malaysia)	Shell Oil and Gas Malaysia
Sales Volume (Apr. ~ Sep. 2016)	24,600boed (Oil 2,300b/d, Gas 133.9mmcf/d)	8,000boed (Oil 900b/d, Gas 42.8mmcf/d)

- Oil fields
- Gas fields
- Oil pipelines
- Gas Pipelines
- JX Nippon Oil & Gas Exploration (Malaysia)
- JX Nippon Oil & Gas Exploration (Sarawak)
- JX Nippon Oil & Gas Exploration (Deepwater Sabah)



Principal Individual E&P Project Overview (Malaysia ②)

Block SK10 (Helang Gas Field and others)

Since the acquisition of Block SK10 in 1987, the project has been one of our key operations. We act as the operator in the block. The natural gas from the block is exported in the form of liquefied natural gas (LNG) to various countries including Japan.

Production

Development

Exploration

Mining Area under production : SK10 (Helang Gas Field)

- In 1987, acquired a working interest in Block SK10 offshore Sarawak, Malaysia.
- In 1990, discovered the Helang Gas Field, where production commenced in 2003.
- In 1991, discovered the Layang Oil and Gas Field.
- In 2014, decided to develop the Layang Oil and Gas Field.
- In 2017, scheduled to start production.

Block SK8 (Jintan, Cilipadi Gas Fields and others)

Production

Development

Mining Area under production : SK8 (Jintan, Saderi, Cilipadi Gas Fields)

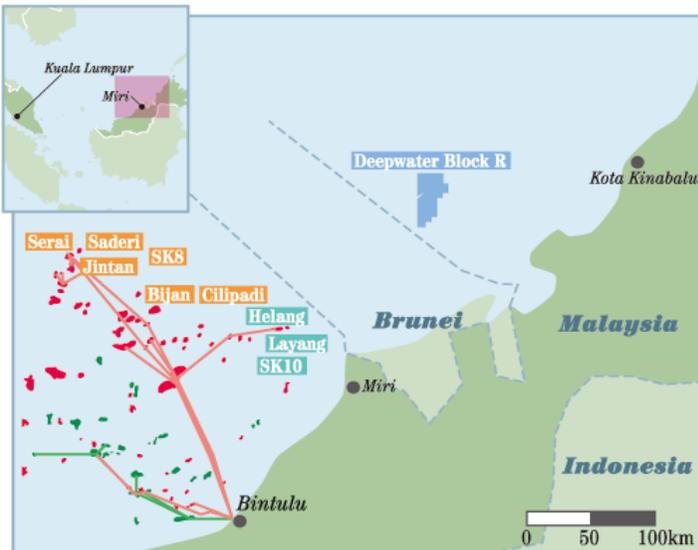
- In 1991, acquired a working interest in Block SK8 .
- From 1992 through 1994, the Jintan and other 6 gas fields were discovered in that block, and production of Jintan and Serai were commenced in 2004.
- In 2008, the Saderi Gas Field commenced production.
- In 2011, the Cilipadi Gas Field commenced production.



Principal Individual E&P Project Overview (Malaysia ③)

Malaysia

Exploration



- Oil fields
- Gas fields
- Oil pipelines
- Gas Pipelines
- JX Nippon Oil & Gas Exploration (Malaysia)
- JX Nippon Oil & Gas Exploration (Sarawak)
- JX Nippon Oil & Gas Exploration (Deepwater Sabah)

	Deepwater Block R	Deepwater Block 2F
Company holding the Acreage	JX Nippon Oil & Gas Exploration (Deepwater Sabah)	JX Nippon Oil & Gas Exploration (Offshore Malaysia)
Shareholders (Holding Percentages)	JX Nippon Oil & Gas Exploration (51.05%) JOGMEC (48.95%)	JX Nippon Oil & Gas Exploration (100%)
Project Status	Exploration	Exploration
Interest	27.5%	40.0%
Partners	Inpex Offshore South Sabah(27.5%) Petronas Carigali(25.0%) Santos Sabah BlockR(20.0%)	Petronas Carigali (40.0%) Engie E&P (20.0%)
Operator	JX Nippon Oil & Gas Exploration (Deepwater Sabah)	JX Nippon Oil & Gas Exploration (Offshore Malaysia)

	Deepwater Block 3F
Company holding the Acreage	JX Nippon Oil & Gas Exploration (Offshore Malaysia)
Shareholders (Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)
Project Status	Exploration
Interest	40.0%
Partners	Petronas Carigali (40.0%) Engie E&P (20.0%)
Operator	Petronas Carigali



Principal Individual E&P Project Overview (Malaysia ④)

Deepwater Block R

Exploration

- In January 2012, acquired a working interest in [Deepwater Block R](#) deep sea, offshore Sabah, Malaysia.
- In April 2015, discovered oil.

Deepwater Block 3F

Exploration

- In December 2013, acquired a working interest in [Deepwater Block 3F](#) deep sea, offshore Sarawak, Malaysia.

Deepwater Block 2F

Exploration

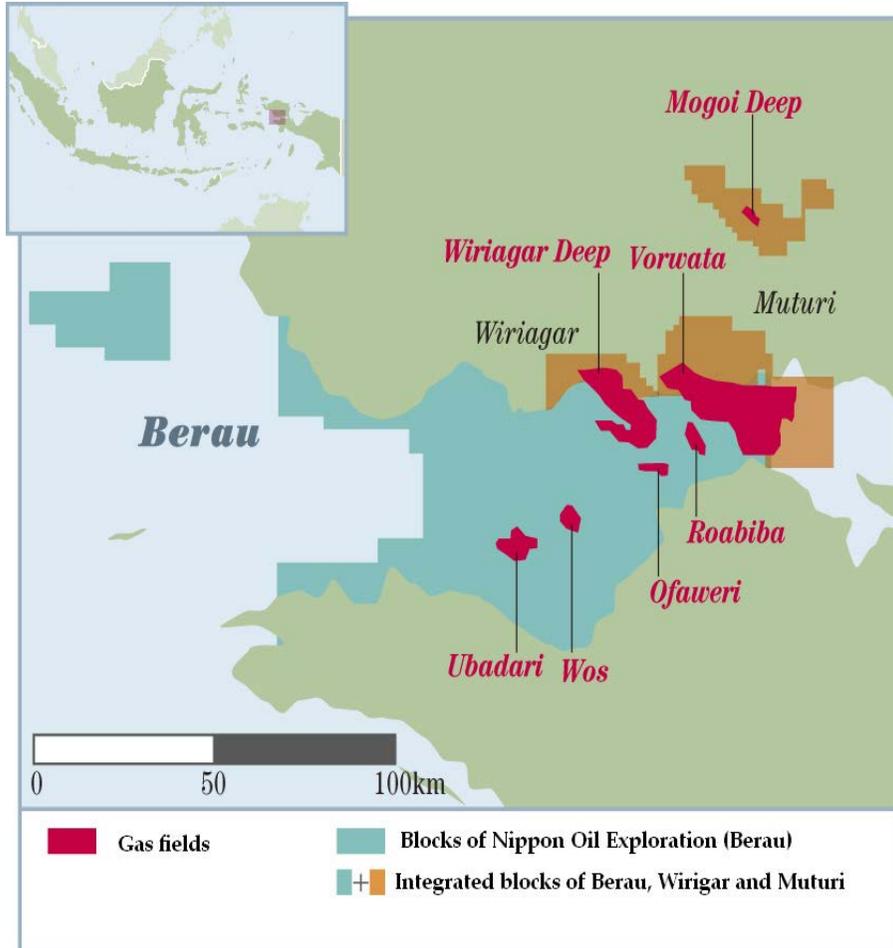
- In September 2013, acquired a working interest in [Deepwater Block 2F](#) deep sea, offshore Sarawak, Malaysia.



Principal Individual E&P Project Overview (Indonesia)

Indonesia

Production Development Exploration



	Tangguh LNG Project	
Company Holding the Acreages	Nippon Oil Exploration (Berau)	
Shareholders (Holding Percentages)	JX Nippon Oil & Gas Exploration (51.0%) JOGMEC (49.0%)	
Project Status	Exploration/Development/Production	
Interest	12.2%(After Unitization)	
Partners	BP(37.2%) MI Berau(16.3%) CNOOC(13.9%)	KG Berau / KG Wiriagar (10.0%) LNG Japan (7.3%) Talisman (3.1%)
Operator	BP	
Sales Volumes(Apr.~ Sep. 2016)	18,300boed (oil 500b/d, gas 106.7mmcf/d)	

We have been participating Tangguh LNG Project since exploration stage and started LNG production in 2009. This is the second LNG project we have participated in, following the LNG Tiga project in Malaysia, and we are working to attain long-term and stable LNG production and revenue.

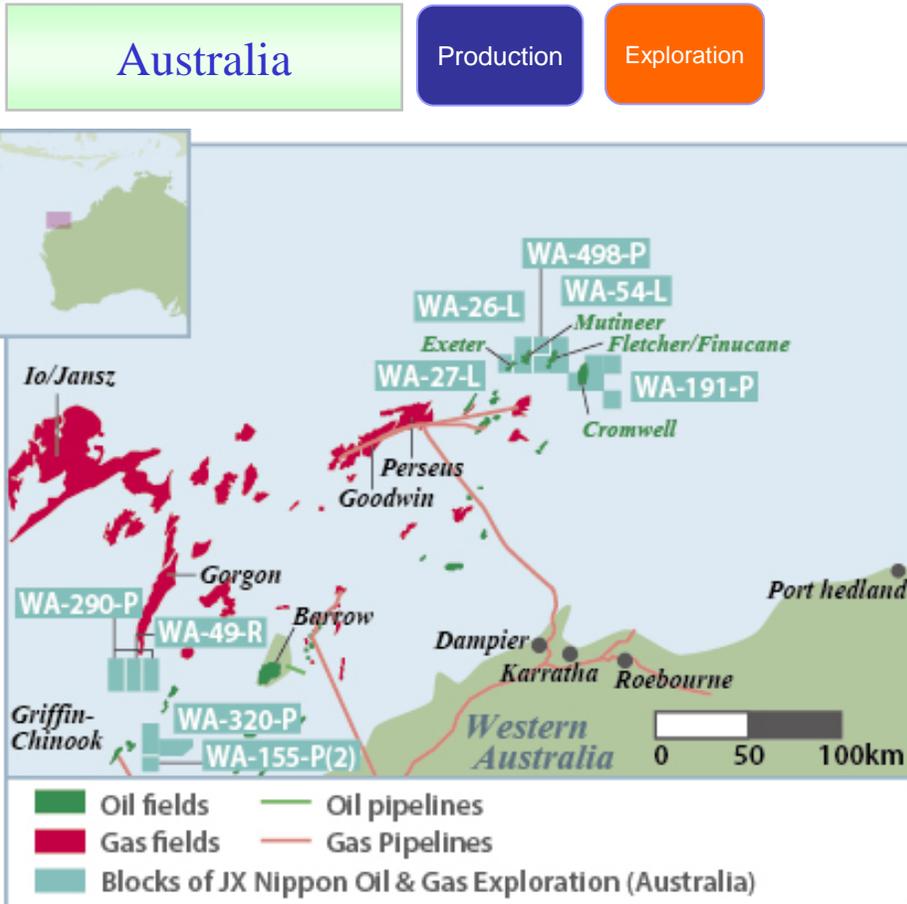
Production

Project under production : Tangguh LNG Project

- From 1990, excavated three test wells, natural gas was discovered in the area. Subsequently, discovered natural gas in the Vorwata Gas Field, Wiriagar Deep structure, and other gas field.
- From December 2002, those with interests in the Berau, Wiriagar, and Muturi blocks agreed to become partners in unitizing the blocks and undertake development work cooperatively.
- LNG production commenced in June 2009, and the first cargo was shipped in July 2009.
- In July 2016, decided to expand Tangguh LNG Facility.
In 2020, scheduled to start production.



Principal Individual E&P Project Overview (Australia①)



Production Production Exploration

	Mutineer/Exeter Oil Field	Finucane South Oil Field Block WA-191-P
Company Holding the Acreages	JX Nippon Oil & Gas Exploration (Australia) Pty Ltd	
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration(100%)	
Project Status	Production	Exploration/Production
Interest	25.0%	25.0%
Partners	Santos (37.5%) Kufpec (37.5%)	Santos (37.4977%) Kufpec (37.5023%)
Operator	Santos	Santos
Sales Volumes(Apr. ~ Sep. 2016)	1,800 boed(Oil 1,800b/d)	

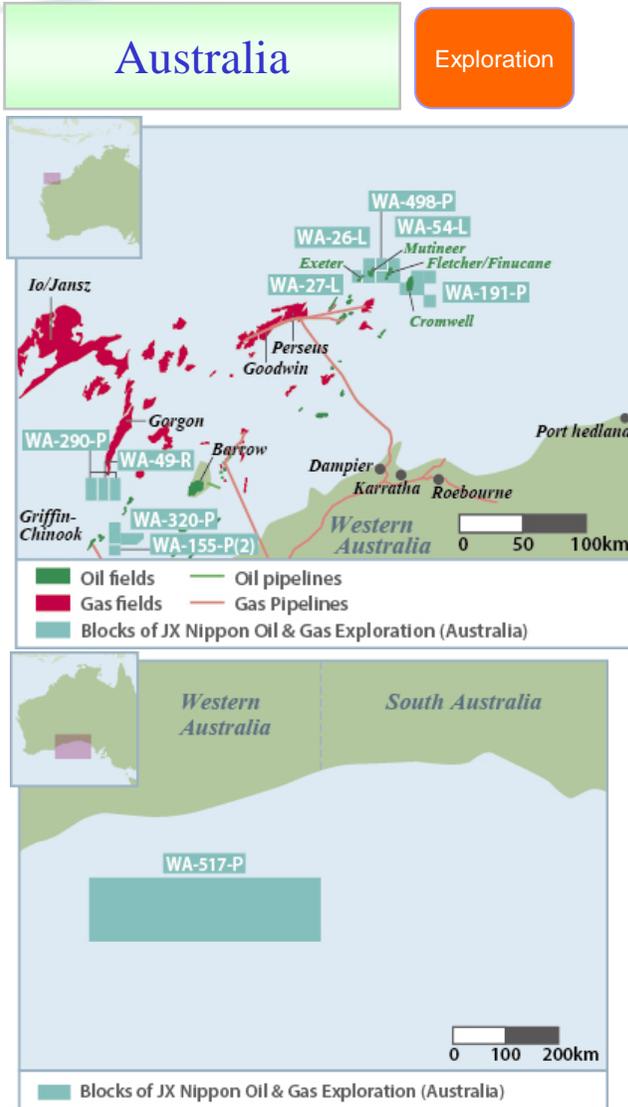
We are producing high-quality low-sulfur crude oil from Mutineer / Exeter oil fields. Revenue from the sales of the crude oil is used for new exploration activities within Australia and in May 2013, newly started production from Finucane South Oil Field.

Production Production Exploration

- In May 1997, acquired a working interest in Block WA-191-P (present Block WA-26/27-L)
- From 1997 to 2002, discovered Mutineer and Exeter Oil Fields
- In March 2005, oil production commenced in Mutineer and Exeter Oil Fields
- In May 2011, discovered oil in Finucane south structure.
- In May 2013, oil production commenced in Finucane South Oil Fields.



Principal Individual E&P Project Overview (Australia②)



	WA-290-P WA-49-R	WA-320-P
Company Holding the Acreages	JX Nippon Oil & Gas Exploration (Australia) Pty Ltd	
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)	
Project Status	Exploration	Exploration
Interest	15.0%	10.0%
Partners	Quadrant (30.25%) Santos (24.75%) OMV(20.00%) Tap(10.00%)	Quadrant (40.665%) OMV (39.557%) Tap (9.778%)
Operator	Quadrant	Quadrant

	WA-155-P(2)	WA-498-P	WA-517-P
Company Holding the Acreages	JX Nippon Oil & Gas Exploration (Australia) Pty Ltd		
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration(100%)		
Project Status	Exploration	Exploration	Exploration
Interest	7.0%	25.0%	50.0%
Partners	Quadrant (40.665%) OMV(27.11%) Inpex (18.67%) Tap(6.555%)	Santos (75.0%)	Santos (50.0%)
Operator	Quadrant	Santos	Santos



Principal Individual E&P Project Overview (Australia③)

Block WA-290-P,Block WA-49-R

Exploration

- In April 2011, excavated test well "Zola-1", and discovered Gas
- In July 2013, excavated appraisable well "Bianchi-1", and discovered Gas

WA-498-P

Exploration

- In April 2014, acquired working interests in WA-498-P.

Block WA-320-P,Block WA-155-P(2)

Exploration

- In June 2013, acquired working interests in Block WA-320-P and Block WA-155-P(2)

WA-517-P

Exploration

- In August 2015, acquired working interests in WA-517-P.

Some working interests in Australia are under sales procedure.



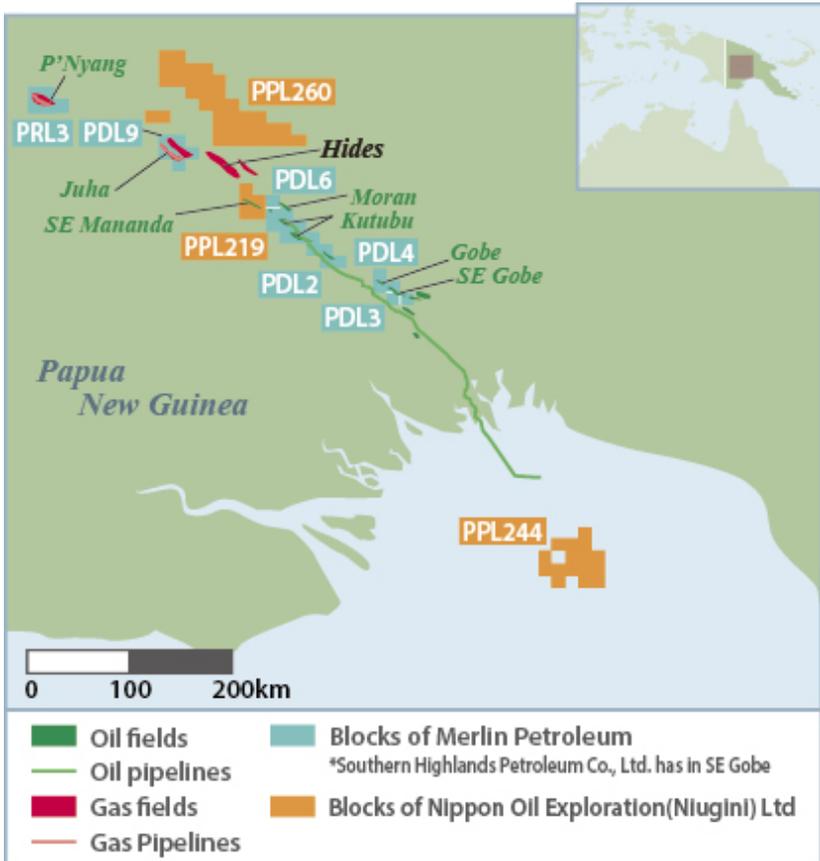
Principal Individual E&P Project Overview (Papua New Guinea ①)

Papua New Guinea

Production

Development

Exploration



	Kutubu, Moran, Gobe oil fields, Others	PNG LNG Project
Company Holding the Acreages	Merlin Petroleum Company (79.0%) Nippon Oil Exploration (Niugini) Pty LTD (30.7%) Southern Highland Petroleum (80.0%)	Nippon Papua New Guinea LNG LLC (79.0%)
Project Status	Exploration / Development / Production	Production
Interest	8.6%~73.5%	4.68%
Partners	Oil Search ExxonMobil Santos PNG Government, Landowners	ExxonMobil (33.20%) Oil Search (29.00%) Santos (13.53%) PNG Government, Landowners (19.58%)
Operator	Oil Search, ExxonMobil	ExxonMobil
Sales Volumes (Apr. ~ Sep. 2016)	17,200 boed (oil 6,100b/d, gas 66.5mmcf/d)	



Principal Individual E&P Project Overview (Papua New Guinea ②)

Kutubu, Moran, Gobe oil fields and others

Production

- In 1990, Japan Papua New Guinea Petroleum acquired Merlin and acquired original exploration rights of Merlin in Papua New Guinea. Subsequently, development, and production activities have been undertaken in the [Kutubu, Moran, Gobe, SE Gobe, and SE Mananda oil fields](#).
- In 2008, acquired additional equity of oil field from AGL Energy.

Exploration

- In April 2011, excavated test well “Mananda-5” in [Block PPL219](#), and discovered oil.

PNG LNG Project

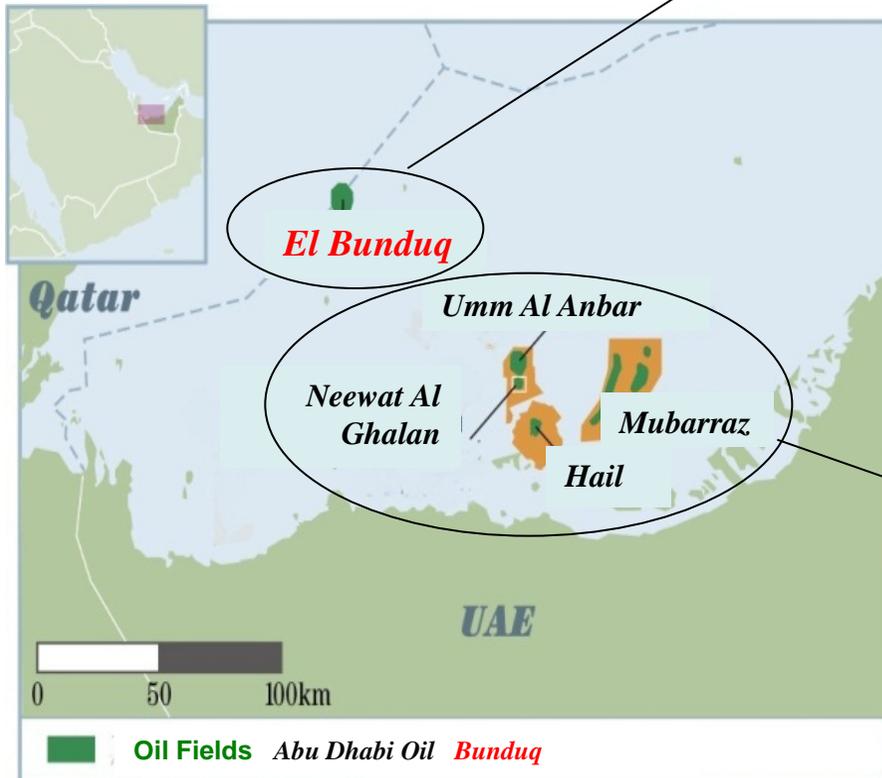
Production

Project under development : PNG LNG Project

- We have been involved in PNG LNG Project since the beginning of the project. In December 2009, we made a Final Investment Decision on the Project, and the development work is in progress with the goal of starting shipments in 2014. PNG LNG Project has the full support of the PNG government, and we expect it to contribute to our revenues in the future.
- In December 2009, PNG LNG Project was made a final investment decision to proceed with the development.
 - In May 2014, PNG LNG Project ships first LNG cargo.



Principal Individual E&P Project Overview (UAE, Qatar ①)



	El Bunduq
Company Holding the Acreages	United Petroleum Development (Bunduq Company Limited)
Partners	JX Nippon Oil & Gas Exploration (45.0%) Cosmo Energy Exploration & Production Co., Ltd. (45.0%) Mitsui Oil Exploration Co., Ltd.(10.0%)
Project Status	Production
Interest	100.0%
Operator	Bunduq Company Limited

- In 1970, United petroleum Development acquired a working interest in El Bunduque Oil Field.
- In 1975, oil production commenced in [El Bunduq oil field](#).
- In 1983, oil production was resumed by a secondary recovery scheme using water injection.
- In 2006, El Bunduque achieved a cumulative production volume of 200 million barrels.
- In 2015, United petroleum Development acquired the rest of working interest in El Bunduque Oil Field from BP.

	Mubaraz, Umm Al-Anbar, Neewat Al-Ghalan
Company Holding the Acreages	Abu Dhabi Oil
Partners	JX Nippon Oil & Gas Exploration (32.2%) Cosmo Abu Dhabi Energy Exploration & Production Co., Ltd.(64.4%) Chubu Electric Power Co., Inc.(1.7%) Kansai Electric Power Co., Inc.(1.7%)
Project Status	Development / Production
Interest	100.0%
Operator	Abu Dhabi Oil

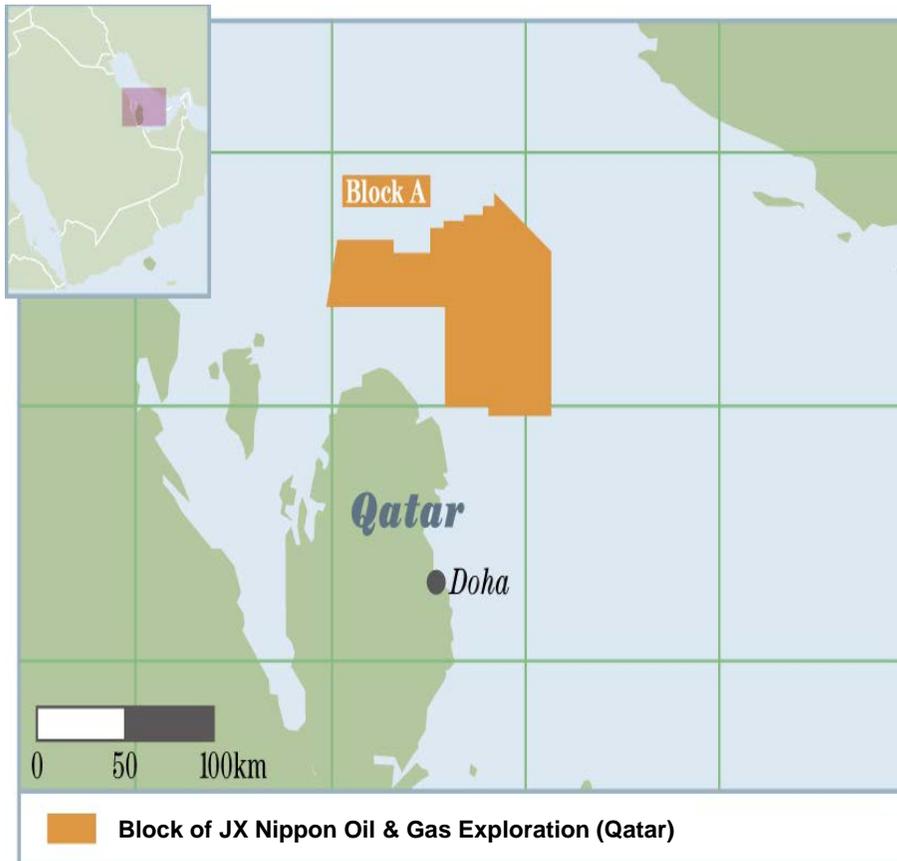
- In 1967, acquired a working interest in block of Mubarraz.
- In 1973, oil production commenced in [Mubarraz Oil Field](#).
- In 1989, oil production commenced in [Umm Al Anbar Oil Field](#).
- In 1995, oil production commenced in [Neewat Al Ghalan Oil Field](#).
- In 2009, 3 fields achieved cumulative production volume of 300 million barrels.
- In 2012, Effectuation of New Concession Agreement.
- In 2017, scheduled to start production in [Hail Oil Field](#).

Principal Individual E&P Project Overview (UAE, Qatar ②)



Qatar

Exploration

**Project Company**

JX Nippon Oil & Gas Exploration (Qatar) Limited (55%)
 (%) = JX Group Shareholding

Interest in Individual Fields

100%

Operator

JX Nippon Oil & Gas Exploration (Qatar) Limited

Exploration

- In May 2011, acquired a working interest in **Block A** (Pre-Khuff), offshore Qatar .
- In March 2012, established interest in Block A (Pre-Khuff), offshore Qatar officially came into effect.
- In November 2015, finished excavating test well No1 and evaluating the test.



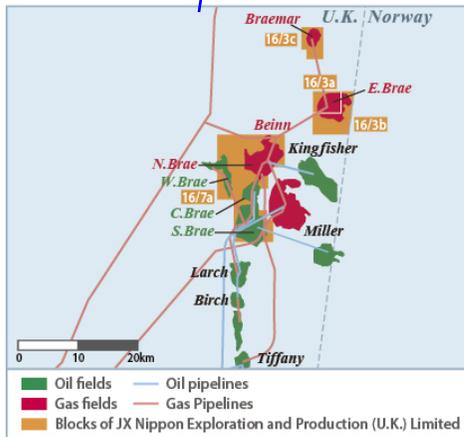
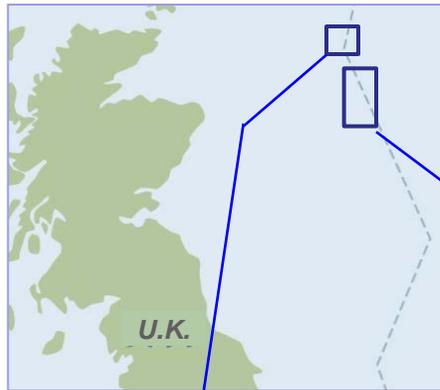
Principal Individual E&P Project Overview (U.K. ①)

U.K. North Sea ①

Production

Development

Exploration



We have over 10 fields currently producing oil and gas as well as such projects as Culzean gas field and Mariner Oil Field underway.

	Brea, Andrew, Blane, Kinnoull and other fields	Culzean gas field
Company Holding the Acreages	JX Nippon Exploration and Production (U.K.) Ltd.	
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)	
Project Status	Exploration/Production	Development
Interest	4.0% ~ 27.39%	18.01%
Partners	BP, Talisman, Marathon and others	Maersk(49.99%) BP(32.00%)
Operator	BP, Talisman, Marathon and others	Maersk
Sales Volumes(Apr. ~ Sep. 2016)	10,300 boed (oil 8,900b/d, gas 8.0mmcf/d)	

Production

Mining Area under production : Andrew, Kinnoull, Brae, Mirren / Madoes, Blane Oil and Gas Fields etc.

- From 1994 to 2002, acquired a working interest in individual blocks.
- In December 2012, acquired some interest in production of plural assets from ENI.
- In December 2014, Kinnoull started production

Development

Mining Area under Development : 22/25a Culzean gas field.

- In March 2011, confirmed the presence of a significant hydrocarbon accumulation.
- In December 2012, acquired the additional interest from ENI.
- In August 2015, decided to develop.
- In May 2016, sold part of working interest.
- In 2019 Production scheduled to commence.

Exploration

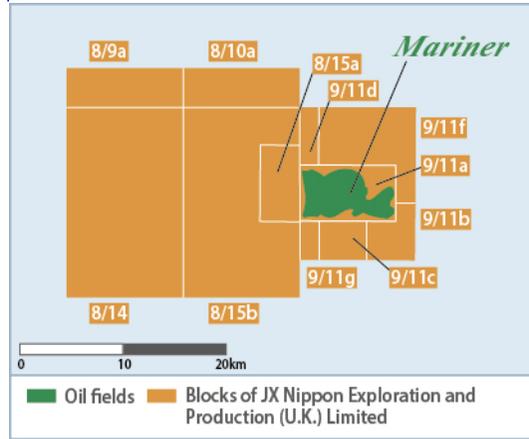
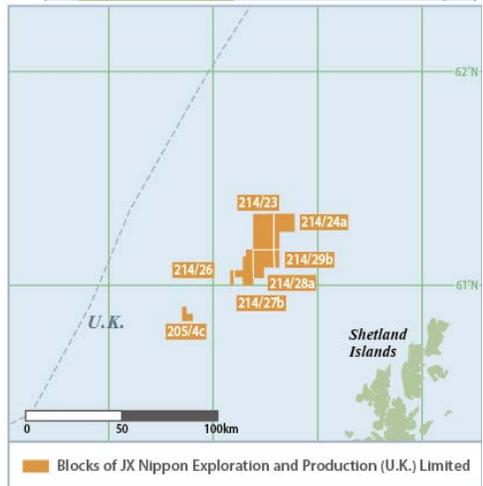
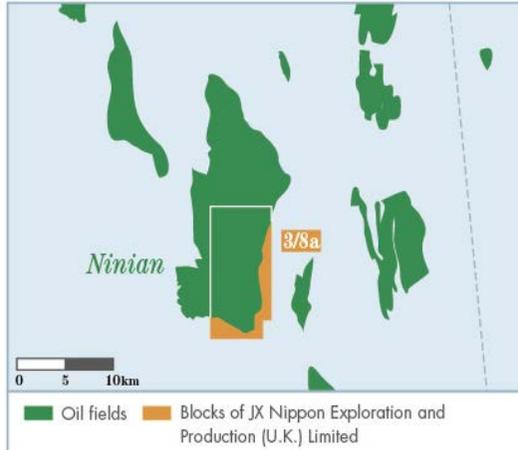
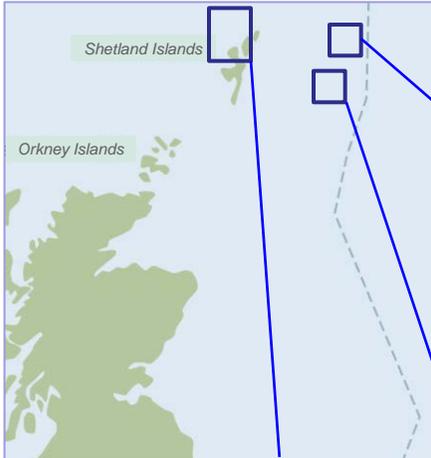
- In June 2016, sold a working interest in the Utgard Gas and Condensate Field.

Principal Individual E&P Project Overview (U.K. ②)



U.K. North Sea ②

Production
Development
Exploration



	Mariner Field	Ninian Field	Exploration Areas
Company Holding the Acreages	JX Nippon Exploration and Production (U.K.) Ltd.		
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)		
Project Status	Development	Production	Exploration
Interest	20.00%	12.94%	17.5%~55%
Partners	Statoil (65.11%) Siccar Point(8.89%) Dyas (6.00%)	CNR(87.06%)	ENGIE, Idemitsu and others
Operators	Statoil	CNR	JXNEPUK, ENGIE Idemitsu and others

Development Mining Area under Development : Mariner Oil Field

- In December 2012, acquired the explorational interest in Mariner Oil Field from ENI.
- In February 2013, decided to develop.
- In August 2016, sold part of the working interest. In 2018 Production scheduled to commence.

Exploration Mining Area under Exploration : West of Shetlands Area

- In October 2012, new blocks are acquired by 27th round of governmental open tender.

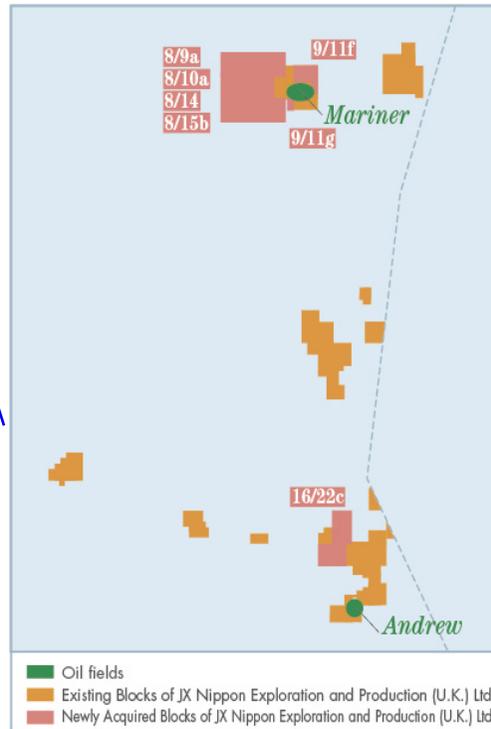
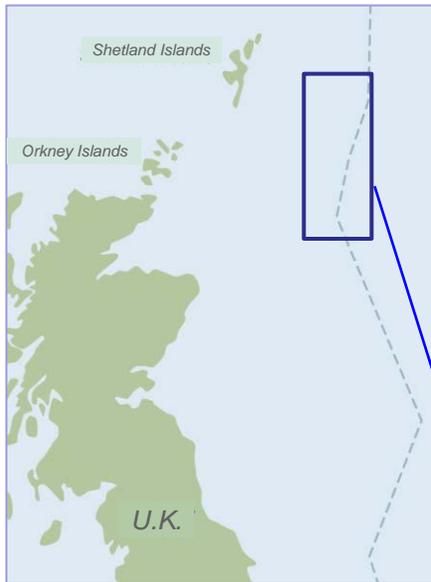


Principal Individual E&P Project Overview (U.K. ③)

U.K. North Sea ③

Exploration

New blocks are acquired in 2014 by 28th round of governmental open tender .



	North Sea Central Area	North Sea Northern Area
	16/22c	8/9a, 8/10a, 8/14, 8/15b, 9/11f, 9/11g
Company Holding the Acreages	JX Nippon Exploration and Production (U.K.) Ltd.	
Shareholders(Holding Percentages)	JX Nippon Oil & Gas Exploration (100%)	
Project Status	Exploration	
Interest	30.00%	28.89%
Partners	BP (70.00%)	Statoil (65.11%) Dyas (6.00%)
Operator	BP	Statoil

These areas are next to the Andrew oil field and developed Mariner oil field which are our main asset, in the case when oil and gas field were found, we expect developing cost reduction by using facilities in these oil fields.



JX Group's Reserve Standards

JX Group's criteria for evaluating reserves conforms to the PRMS (Petroleum Resources management System) Standards, drafted by the SPE (Society of Petroleum Engineers), WPC (World Petroleum Congress), AAPG (American Association of Petroleum Geologists), and SPEE (Society of Petroleum Evaluation Engineers).

JX Group's reported reserves are in line with reserves as defined by the PRMS Standards. The degree of certainty of the reserve values is categorized, in order, as either Proved, Probable, or Possible. Following trends common at other industry firms, JX Group's has used Proven and Probable reserves to arrive at its total reserves.

Definition of Proved Reserves:

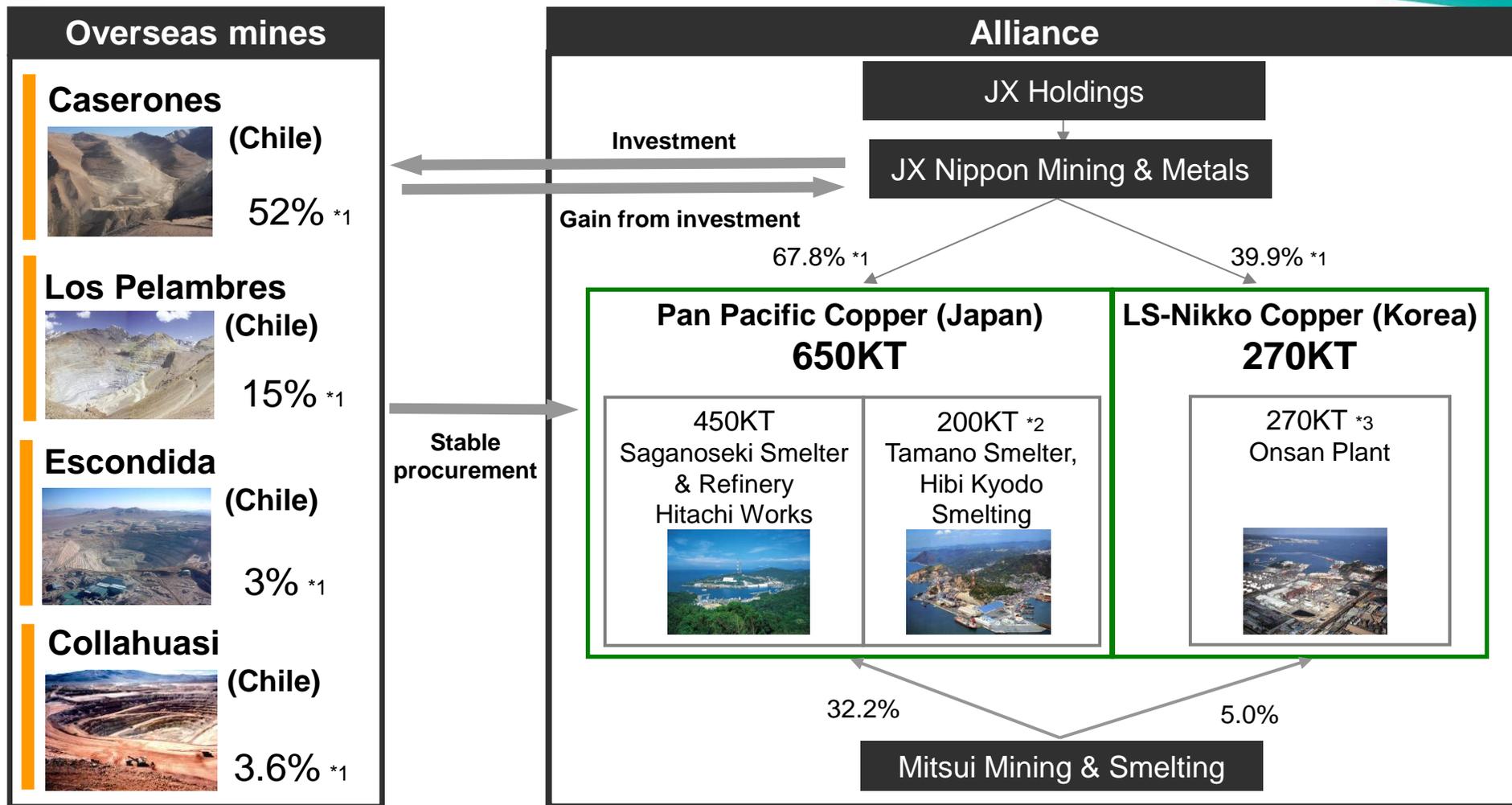
Reserves judged to have a high level of certainty from analysis of geoscience and production/petroleum engineering data, based on economic conditions, operational methods and laws and regulations assumed by JX Group in light of discovered reservoirs—there is at least a 90% probability that actual recovered volume will equal or exceed estimates of oil and natural gas deposits reasonably evaluated as commercially recoverable.

Definition of Probable Reserves:

There is at least a 50% probability that additional oil and natural gas reserves will equal or exceed actual recovered volume of the total of estimated proved and probable reserves. While these additional reserves are evaluated in the same manner as proved reserves, the probability of recoverability of probable reserves is lower than proved reserves, but higher than possible reserves.

Business Environment and Data - Metals Business -

Copper Business



*1. Shares indirectly owned by JX Nippon Mining & Metals

*2. Allocated to PPC. Total Capacity is 290KT. *3 Total Capacity is 680KT. JX has 39.9% equity.

Overseas Copper Mine Development

Caserones Copper Mine (Chile)



Acquisition date May 2006

Acquisition price \$137 million

Initial investment \$ 4.20 billion

In July 2011, project finance(\$1.1billion) and long-term loan(\$0.3billion) were concluded.

Ownership (As of Sep. 2016)

Pan Pacific Copper (PPC)* 77.37%

- Jointly established by JX Nippon Mining & Metals (67.8%) and Mitsui Mining & Smelting (32.2%)
- Mitsui & Co., Ltd. 22.63%

Mine life From 2013 to 2040 (28 years)

Total production (28years)

Copper : 3,550kt From Copper Concentrate 3,140kt

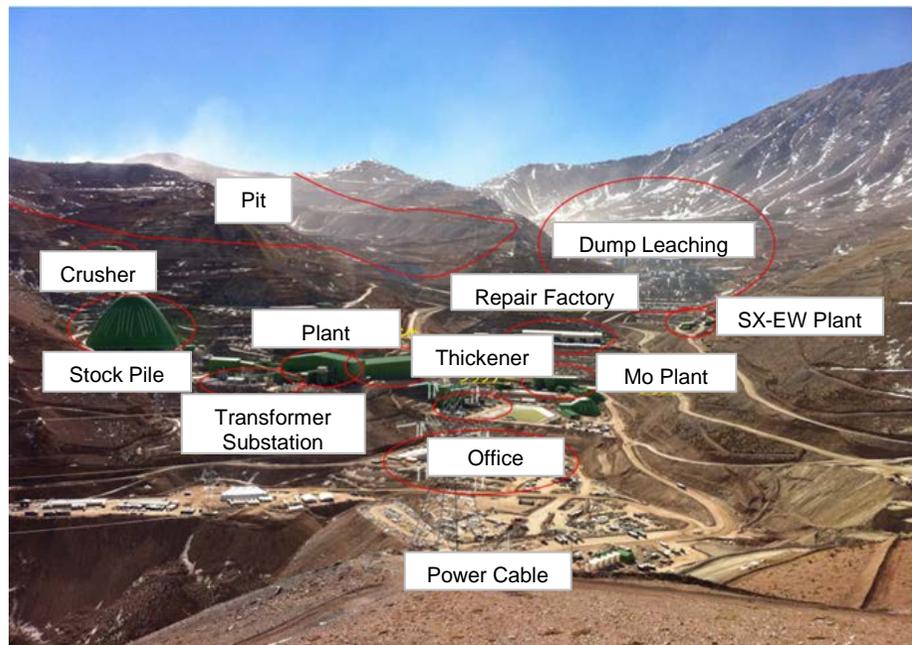
From SX-EW Process 410kt

Molybdenum : 87kt

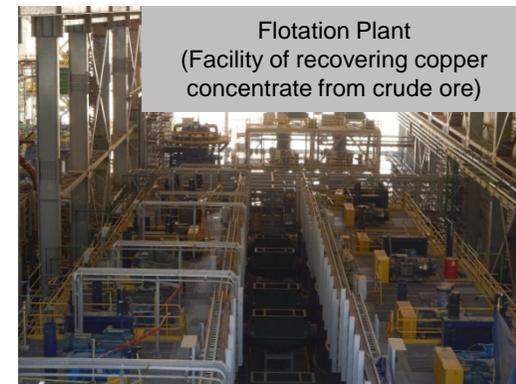
Production plan

In Mar. 2013, started to SX-EW Copper Cathode Production

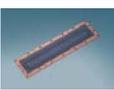
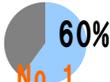
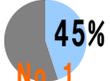
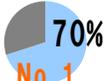
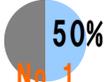
In May. 2014, started to Copper Concentrate Production



		first 10 years	average (28years)	total (28years)
Copper	Copper Concentrate	150 kt/year	110 kt/year	3140 kt
	SX-EW Process	30 kt/year	10 kt/year	410 kt
	total	180 kt/year	120 kt/year	3550 kt
Molybdenum		3 kt/year	3 kt/year	87 kt

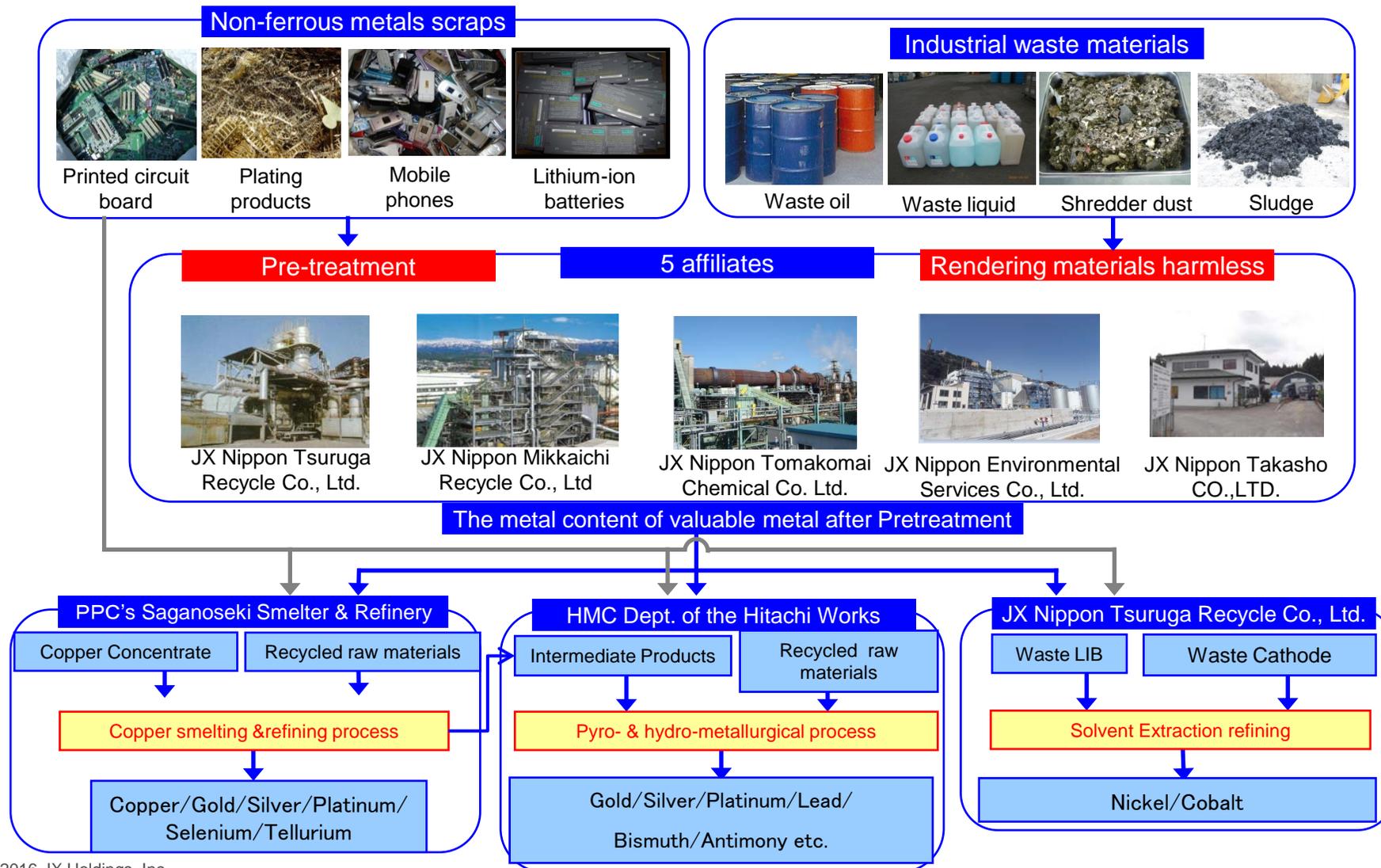


Electronic Materials

Main products	Global market share	Primary applications	End-use applications				
			PCs	Mobile phones / Smart phones	Digital, Avs	Telecom infra/ Data canter	Auto mobiles
 Treated rolled copper foil	 70% No. 1	Flexible printed circuit boards	○	⊙	⊙		○
 Semiconductor targets	 60% No. 1	CPUs, memory chips, etc.	⊙	⊙	⊙	○	○
 ITO targets for FPDs *	 30% No. 1	Transparent electrodes	⊙	⊙	⊙		○
 HD media targets	 60% No. 1	HDD (Hard disk drives), etc.	⊙		○	○	
 Phosphor bronze	 20% No. 1	Connectors	○	⊙	○		○
 Corson alloy (C7025)	 45% No. 1	Lead frames, Connectors	⊙	○	○	○	○
 Titanium copper alloy	 70% No. 1	High-class connectors, etc.	○	⊙	○		○
 In-P compound semiconductors	 50% No. 1	Optical communication devices High-speed IC			○	⊙	○

* Flat Panel Displays

Recycling and Environmental Services



Copper Production of JX Group's Mines

(Thousand Ton)		*2	2015	2015	2016		2016
			1H	Full	(1Q)	(2Q)	1H
			Actual	Actual	Actual	Actual	Actual
Caserones	Copper concentrate		17	52	17	19	36
	SX-EW copper cathode		14	31	8	9	17
	Total		31	83	25	28	53
Los Pelambres	Copper concentrate *1		188	367	89	88	177
Collahuasi	Copper concentrate *1		197	419	110	122	232
	SX-EW copper cathode		13	22	2	1	3
	Total		210	441	112	123	235
Escondida	Copper concentrate *1		508	799	175	182	357
	SX-EW copper cathode		166	326	85	85	170
	Total		674	1,125	260	267	527

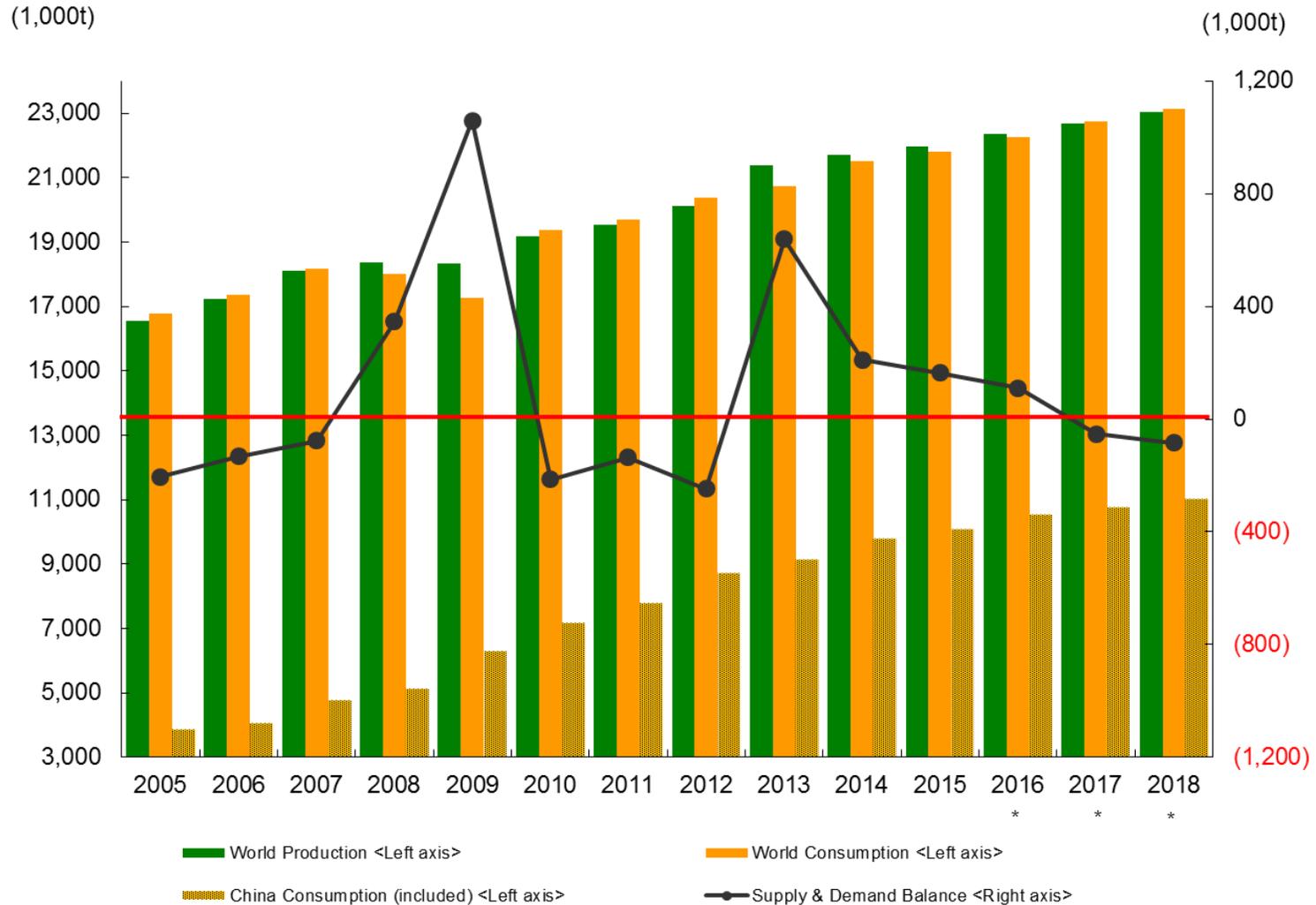
*1 Payable copper contained in concentrate

*2

	1H	Full
Caserones/Los Pelambres	Apr.-Sep.	Apr.-Mar.
Collahuasi/Escondida	Jan.-Jun.	Jan.-Dec.



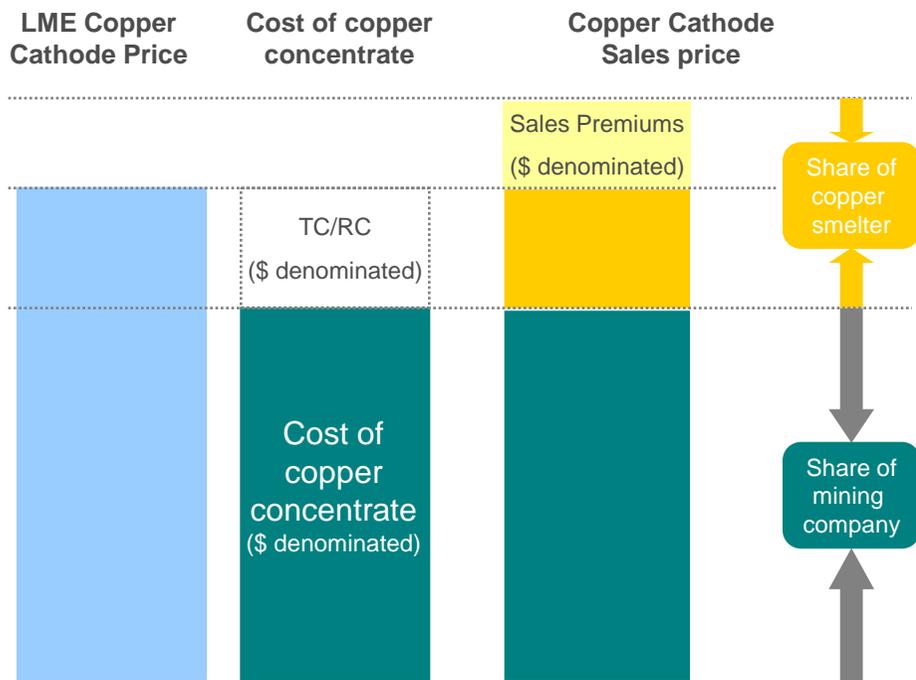
World's Copper Cathodes Supply & Demand





Earnings Structure of Copper Smelting and Refining Business

Earnings Structure of Copper Smelter & Refinery



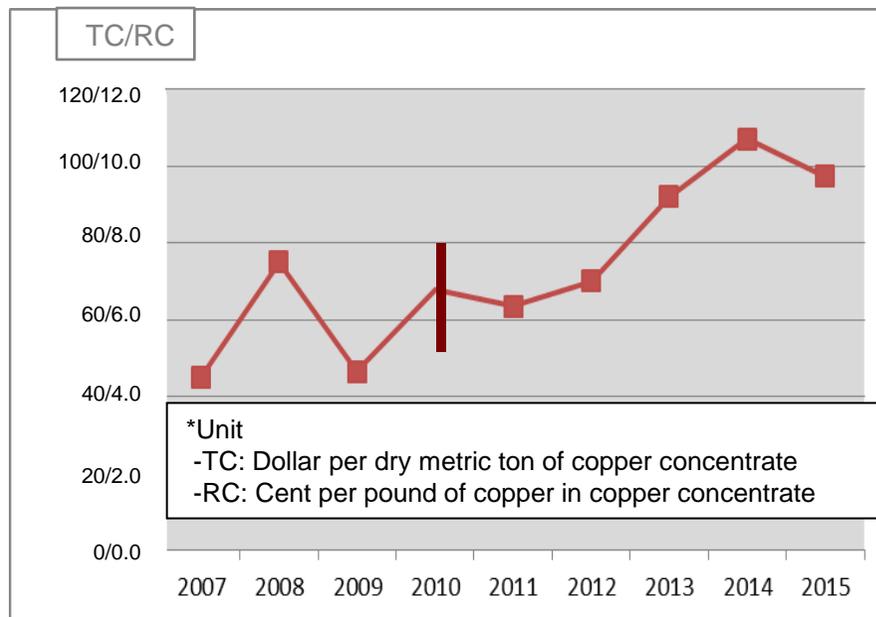
Cost of copper concentrate :

The price of copper concentrate, which custom smelters pay to mining companies, is LME copper cathode price less TC/RC, which is smelting and refining margins. TC/RC under long-term contracts is normally determined through annual negotiation between copper smelters and mining companies.

Copper cathode sales price :

Actual sales price of copper cathode produced by copper smelters is LME price plus sales premium, which is established by reference to various factors including importation costs, qualities and others.

Trends of Base TC/RC (negotiation each year-end)



* For 2010 year-end, several types of agreement have been made depending on negotiating parties, contractual period, etc..