

Security Code

Tokyo 5020

Supplementary Information

【Full Report】

November 5, 2010



The Future of Energy, Resources and Materials

JX Holdings, Inc.

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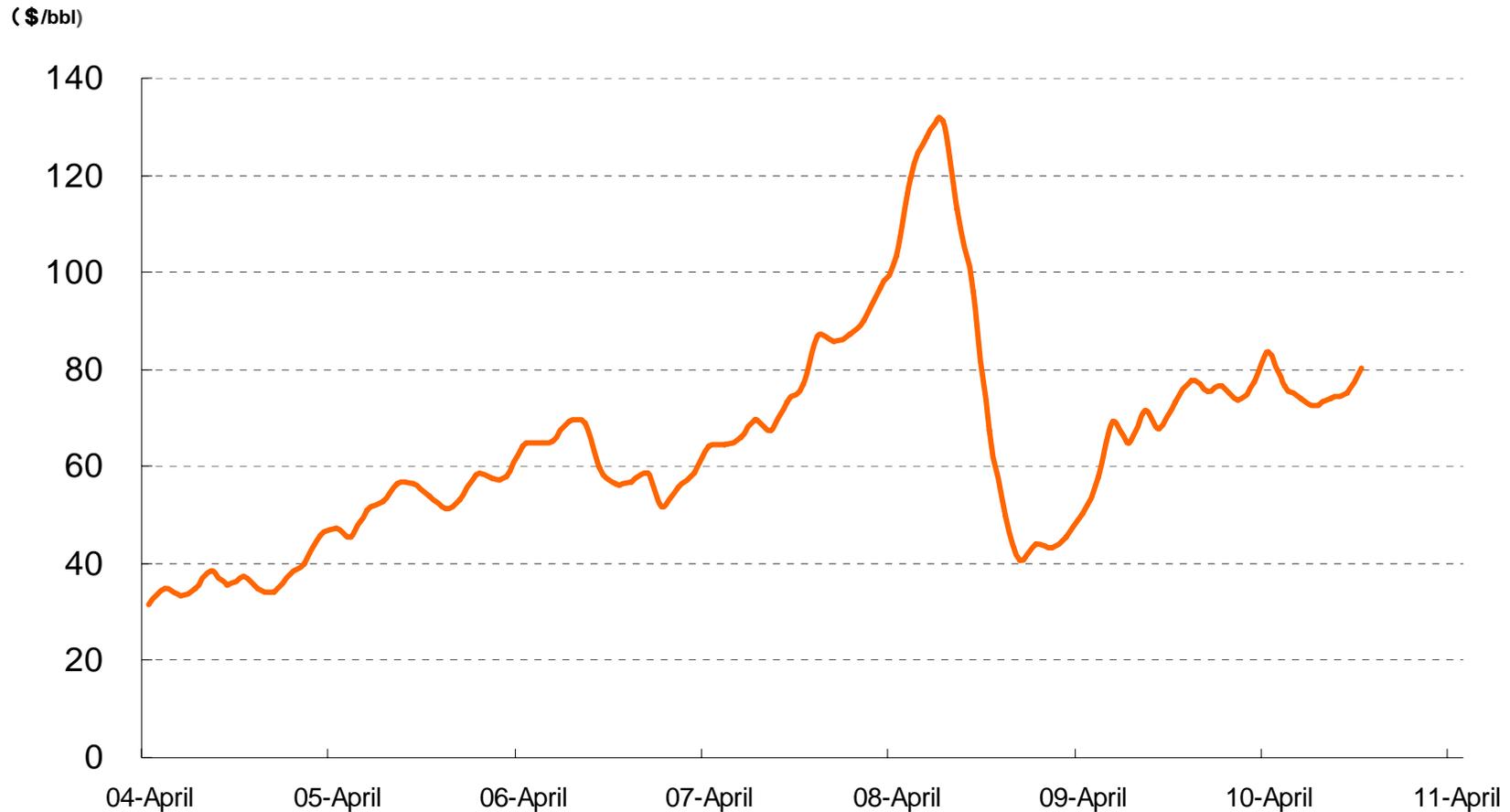
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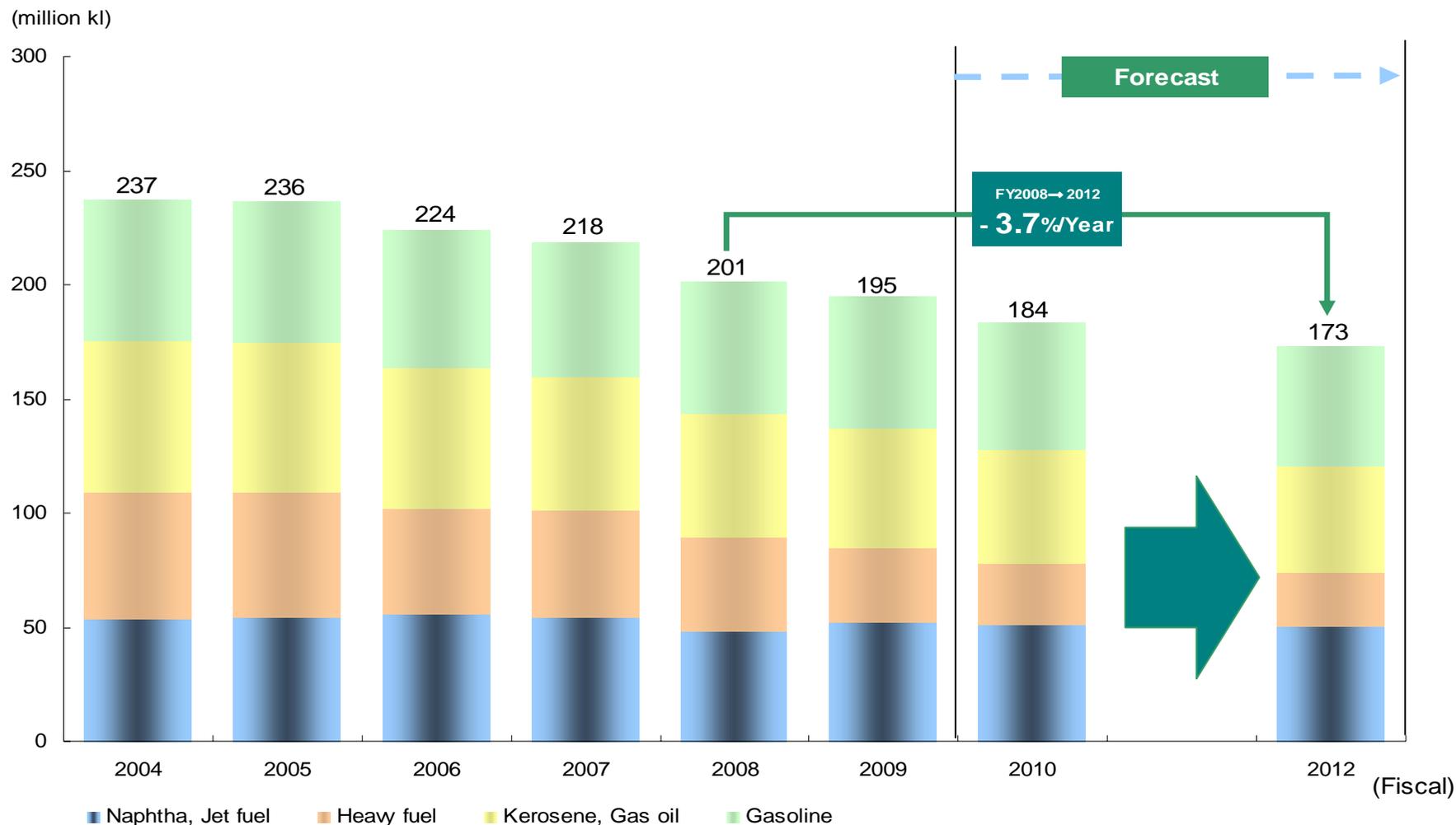
Historical Dubai Crude Oil Price



Average Price	(\$/bbl)										
	FY04	FY05	FY06	FY07	FY08	FY09				FY10	
						1Q	2Q	3Q	4Q	1Q	2Q
Dubai Crude Oil	37	54	61	77	82	59	68	75	76	78	74



Demand for Petroleum Products (Japan)



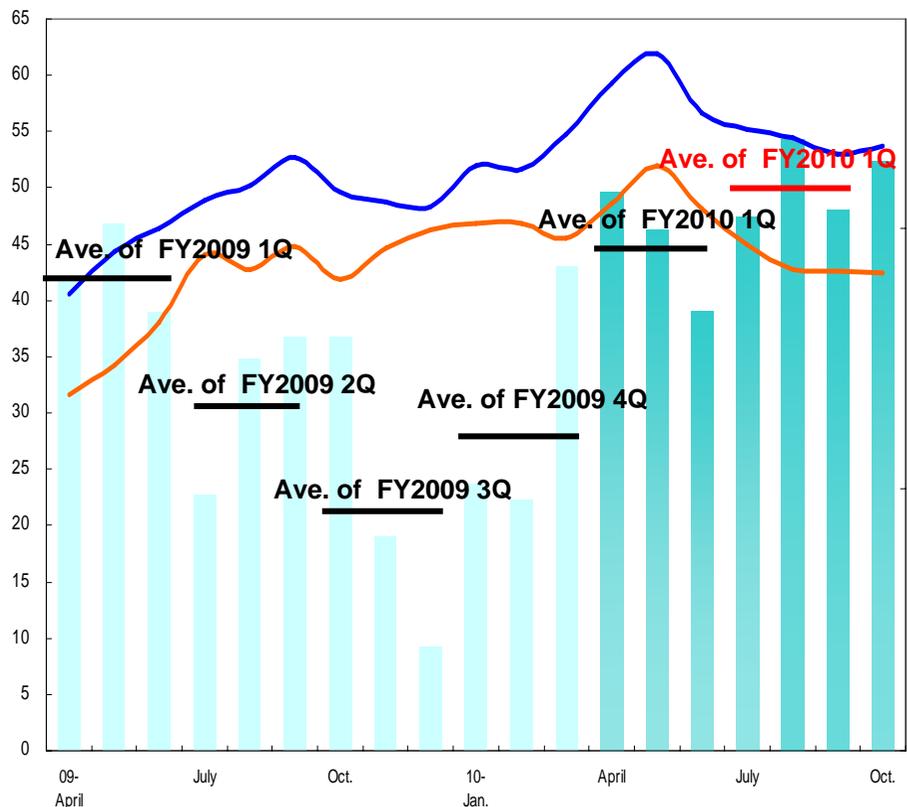
Source: Ministry of Economy, Trade and Industry, Japan

Domestic Market Margin (Gasoline and Kerosene)



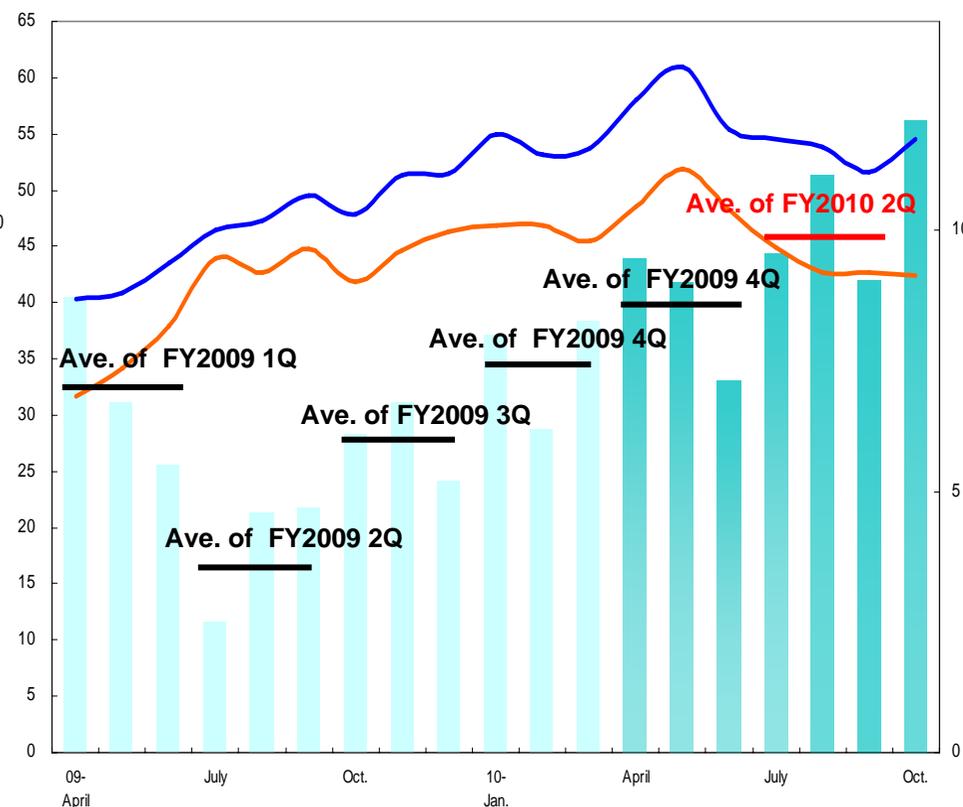
Gasoline

(Yen/L)



Kerosene

(Yen/L)



Margin (Right axis) Spot price (Left axis) Clude oil CIF Price (Left axis)

Margin (Right axis) Spot price (Left axis) Clude oil CIF Price (Left axis)

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

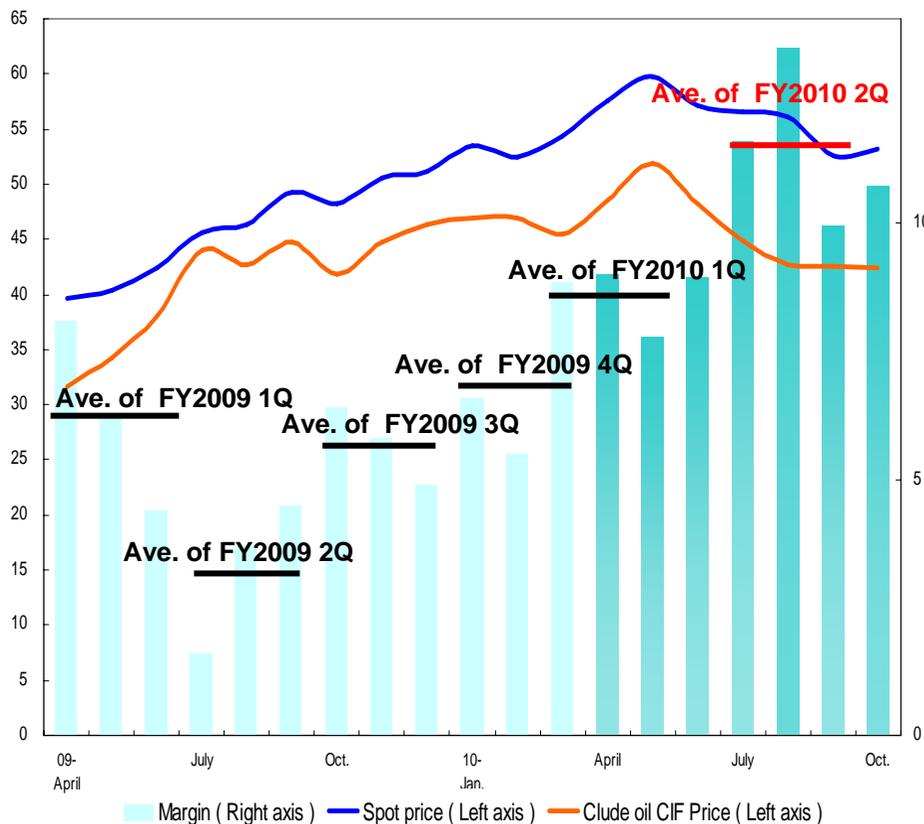
Source : Trade statistics (Ministry of Finance, Japan)

Domestic Market Margin (Diesel Fuel and Heavy Fuel Oil A)



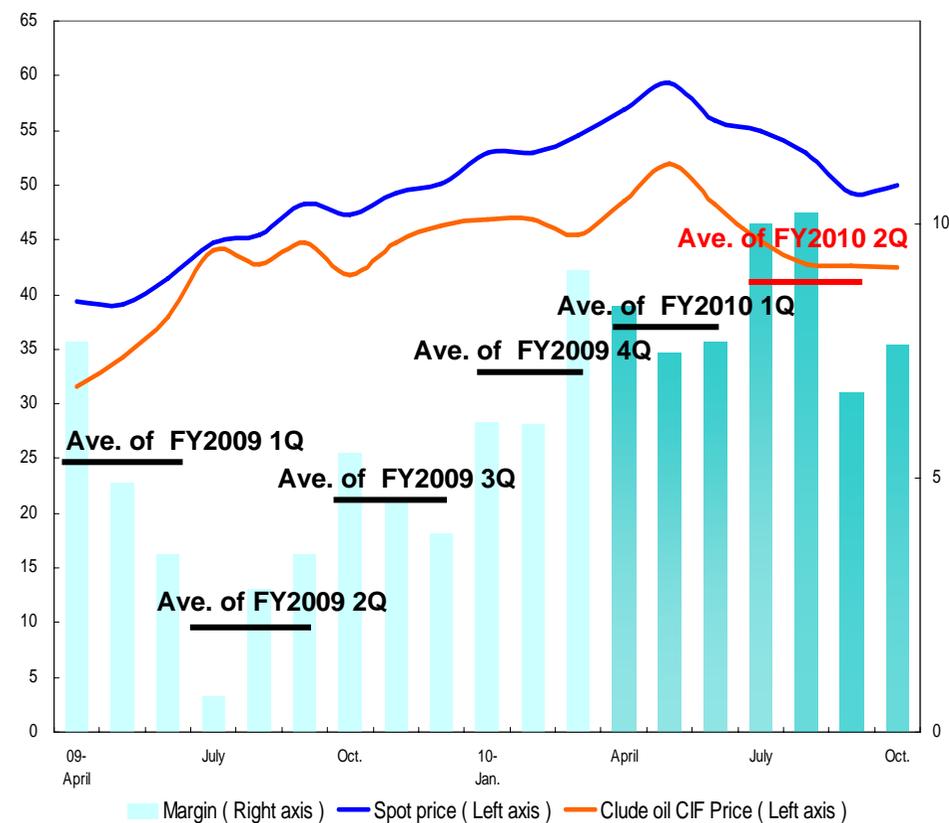
Diesel Fuel Oil

(Yen/L)



Heavy Fuel Oil A

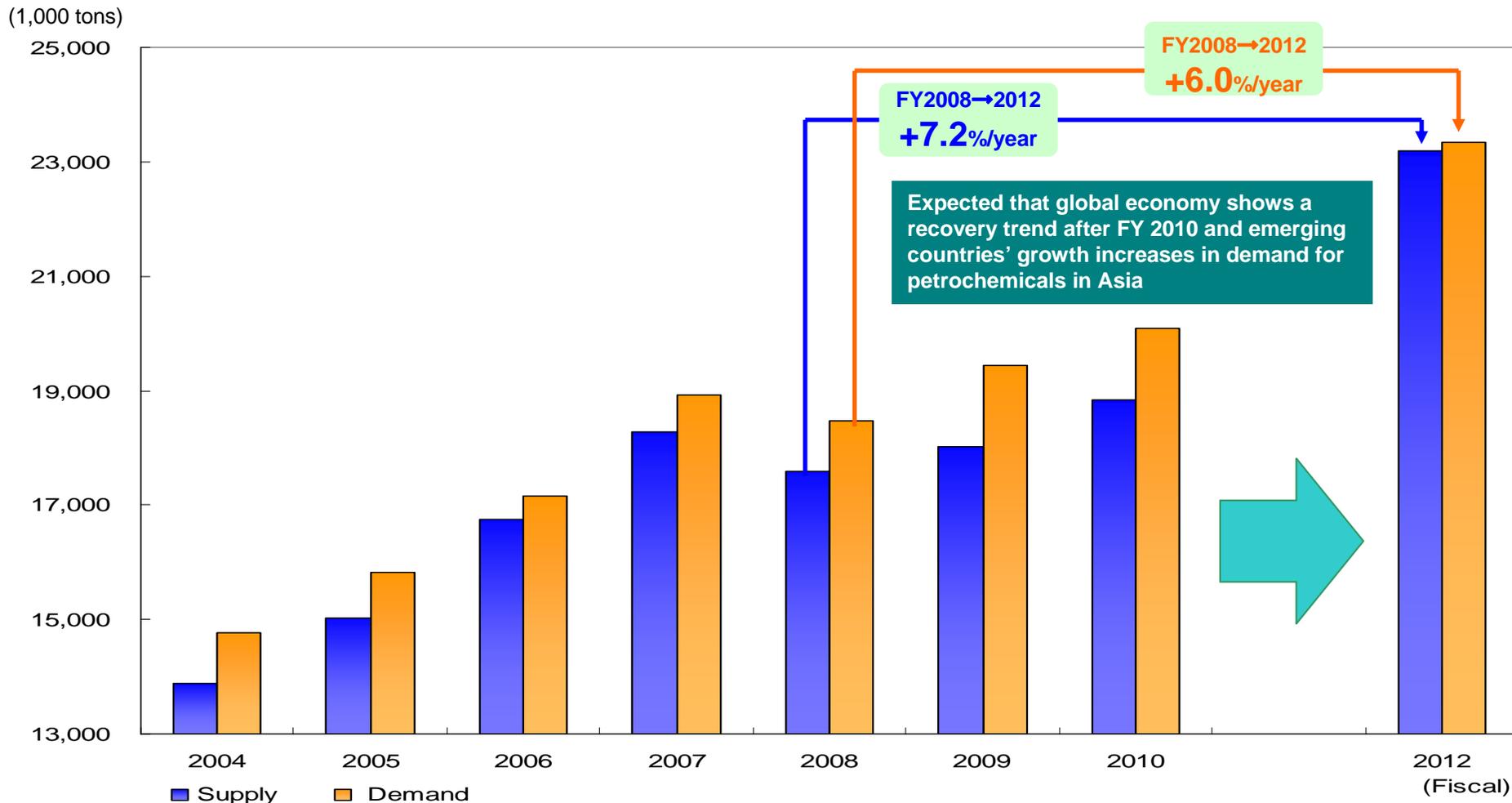
(Yen/L)



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

Source : Trade statistics (Ministry of Finance, Japan)

Demand for Petrochemicals in Asia (Paraxylene)

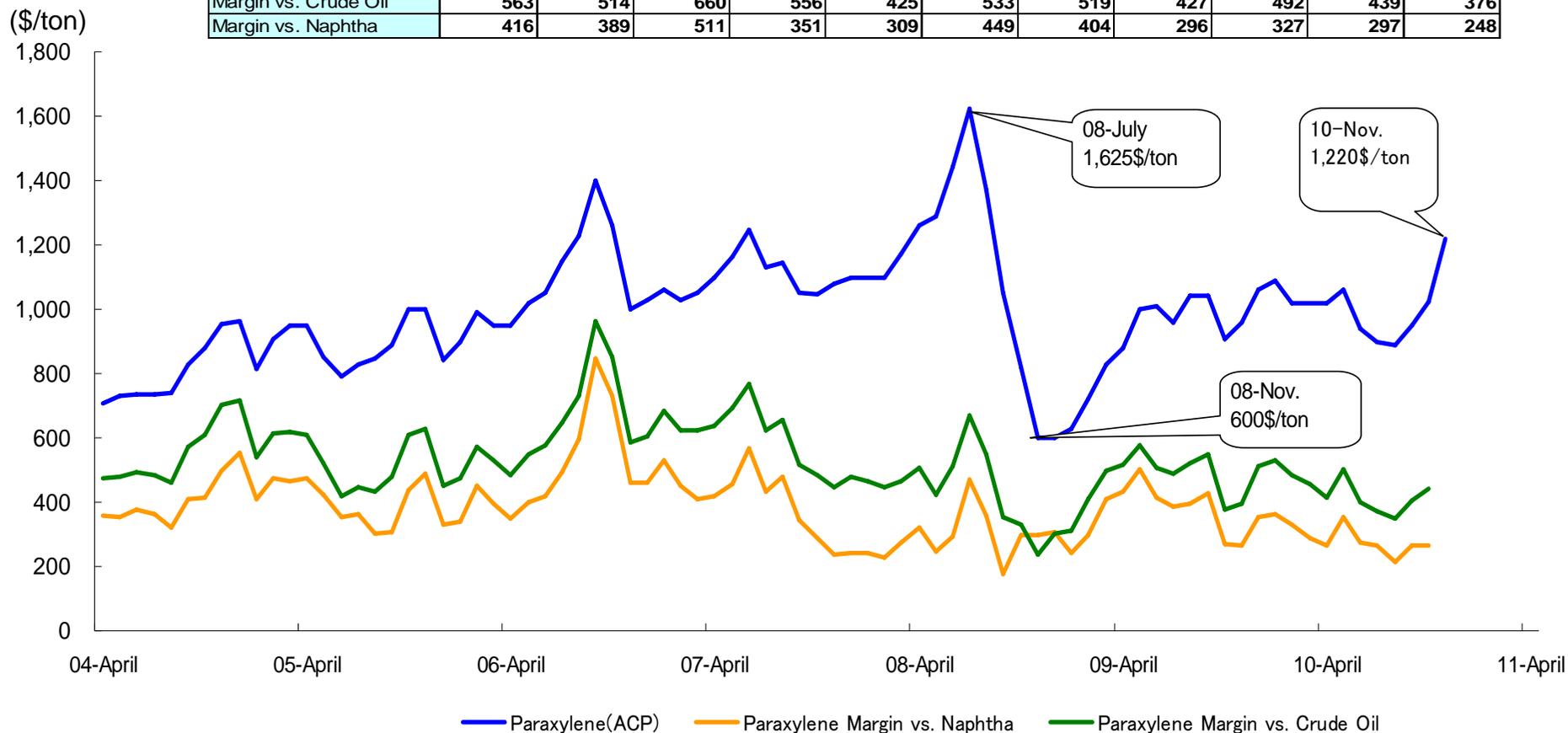


Source: Company Data



Paraxylene Price and Margin (vs. Crude Oil, vs. Naphtha)

Average Price	FY04	FY05	FY06	FY07	FY08	FY09				FY10	
						1Q	2Q	3Q	4Q	1Q	2Q
Asian Contract Price	829	903	1,103	1,119	1,020	964	1,013	976	1,043	1,007	913
Margin vs. Crude Oil	563	514	660	556	425	533	519	427	492	439	376
Margin vs. Naphtha	416	389	511	351	309	449	404	296	327	297	248



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

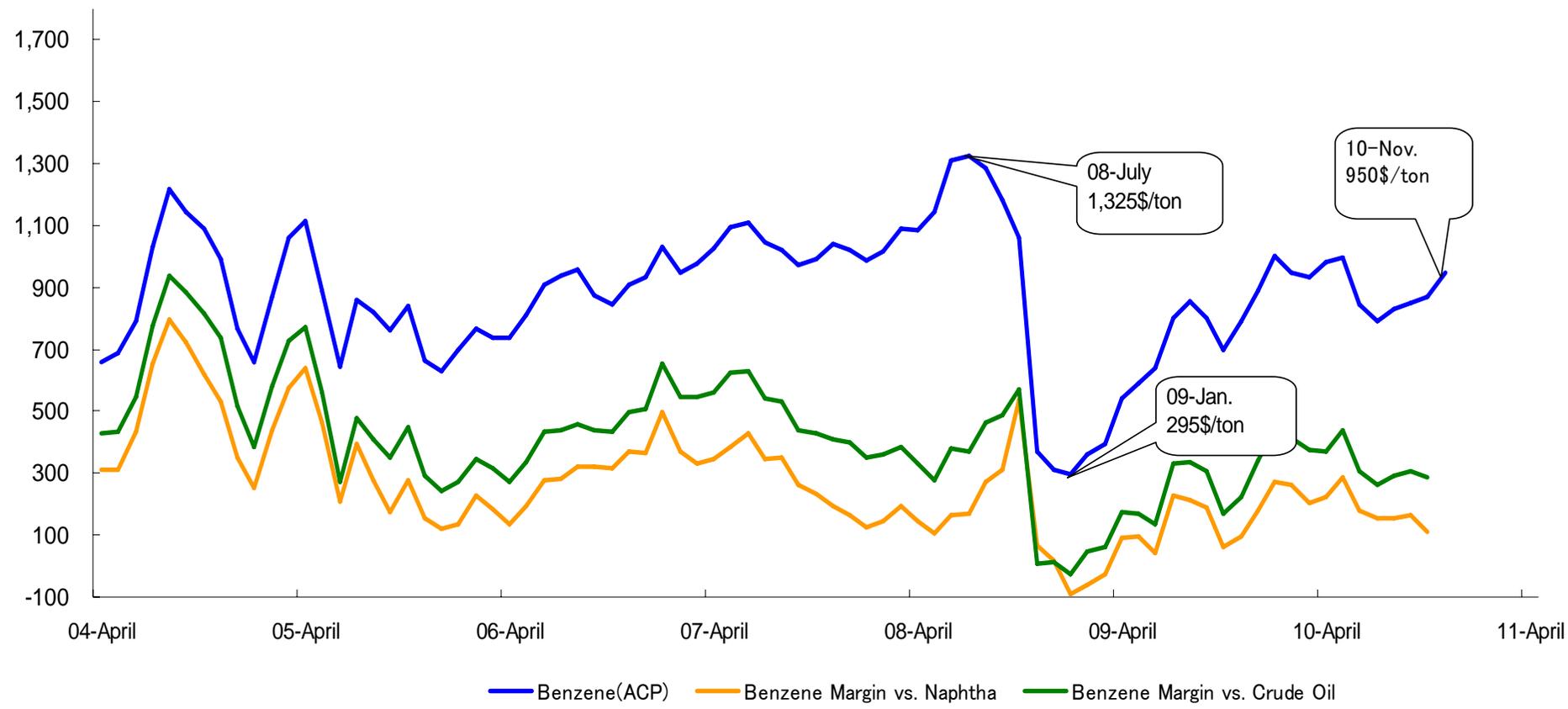


Benzene Price and Margin (vs. Crude Oil, vs. Naphtha)

Average Price	FY04	FY05	FY06	FY07	FY08	FY09				FY10	
						1Q	2Q	3Q	4Q	1Q	2Q
Asian Contract Price	914	786	907	1,034	844	590	818	793	962	940	823
Margin vs. Crude Oil	648	397	464	471	249	160	324	245	410	372	286
Margin vs. Naphtha	501	271	315	265	133	76	209	113	245	230	158

(\$/ton)

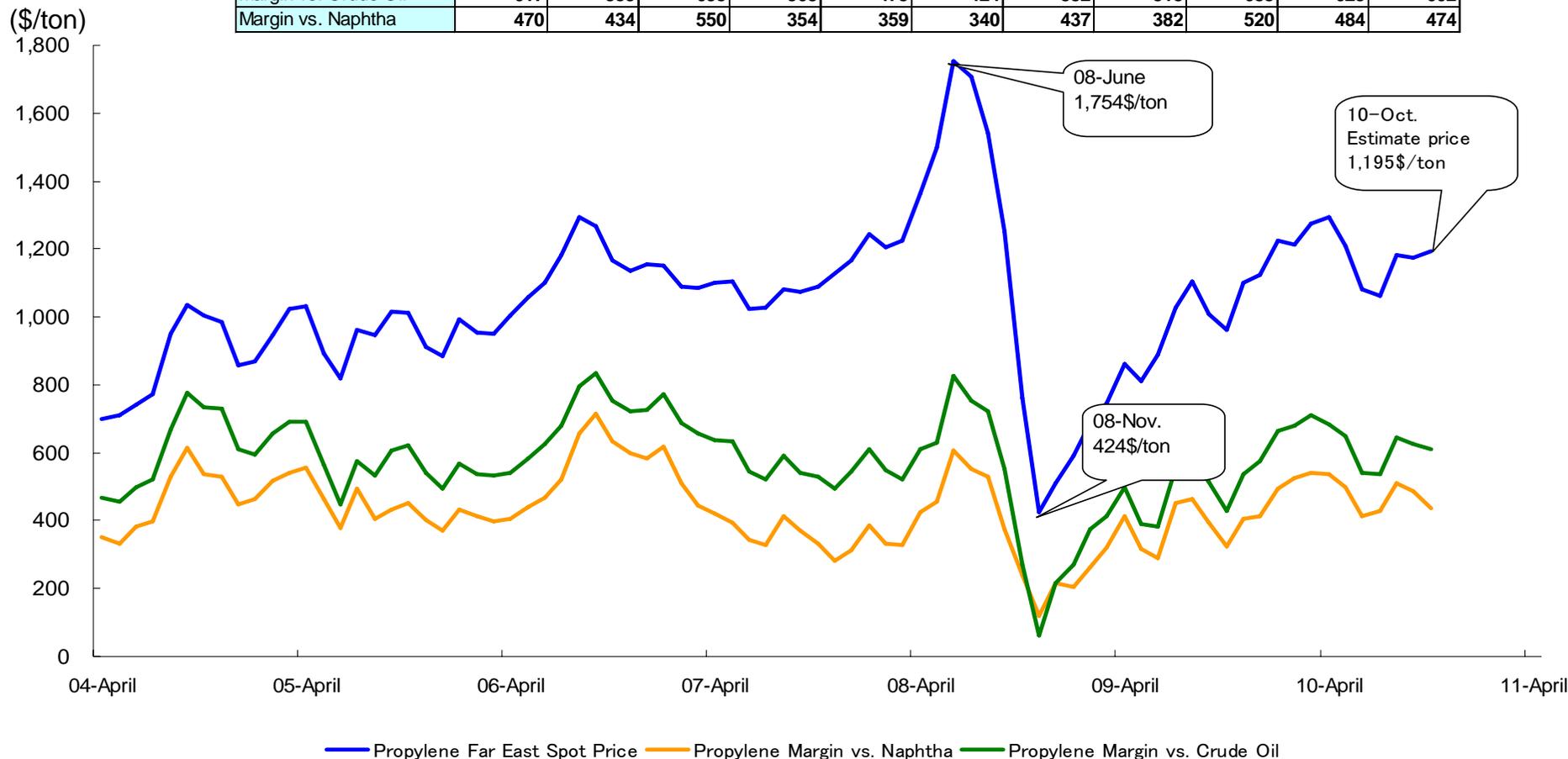
(\$/ton)





Propylene Price and Margin (vs. Crude Oil, vs. Naphtha)

Average Price	FY04	FY05	FY06	FY07	FY08	FY09				FY10	
						1Q	2Q	3Q	4Q	1Q	2Q
Far East Spot Price	883	948	1,138	1,123	1,070	854	1,046	1,062	1,237	1,193	1,140
Margin vs. Crude Oil	617	559	695	563	475	424	552	513	685	625	602
Margin vs. Naphtha	470	434	550	354	359	340	437	382	520	484	474



Sales Volume of FY 2009, FY2010 1H & Forecast of FY 2010



	FY 2009 1H JX Group *	FY 2009 JX Group *
	million KL	million KL
Gasoline	10.10	20.02
Premium	1.53	2.95
Regular	8.52	16.96
Naphtha	2.12	4.27
JET	0.77	1.56
Kerosene	1.95	7.99
Diesel Fuel	5.91	12.06
Heavy Fuel Oil A	2.94	6.82
Heavy Fuel Oil C	3.27	6.31
For Electric Power	1.74	3.25
For General Use	1.53	3.06
Total Domestic Fuel	27.06	59.03
Crude Oil	0.50	1.14
Lubricants & Specialities	1.51	3.32
Petrochemicals (million ton)	2.84	5.82
Exported Fuel	5.76	10.30
LPG (million ton)	0.91	2.01
Coal (million ton)	1.81	4.44
Total Excluding Barter Trade & Others	40.39	86.06
Barter Trade & Others	12.76	27.05
Total	53.15	113.11

FY 2010 1H JX Group *	FY 2010(Forecast as of Nov 5) JX Group	Changes vs. FY 2009 1H	Changes vs. FY 2009
million KL	million KL		
10.28	19.85	1.8%	-0.8%
1.47	2.86	-3.6%	-3.1%
8.76	16.87	2.7%	-0.5%
1.86	4.19	-12.3%	-1.9%
0.73	1.48	-5.6%	-5.1%
1.94	7.27	-0.8%	-9.0%
5.95	11.97	0.9%	-0.7%
2.80	6.38	-4.9%	-6.5%
3.26	5.76	-0.2%	-8.7%
1.94	3.05	11.5%	-6.2%
1.32	2.71	-13.7%	-11.4%
26.82	56.90	-0.9%	-3.6%
0.77	1.26	52.4%	10.5%
1.63	3.53	8.4%	6.3%
2.78	5.99	-1.8%	2.9%
5.38	11.09	-6.4%	7.7%
0.89	2.00	-3.0%	-0.5%
2.74	5.13	51.3%	15.5%
41.01	85.90	1.6%	-0.2%
11.04	22.16	-13.5%	-18.1%
52.05	108.06	-2.1%	-4.5%

* Figures for FY 2009 and FY 2010 1Q are pro forma summations of Nippon Oil and Japan Energy.



Number of Service Stations (Fixed-Type)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10 1H
JX Group	15,082	14,640	14,076	13,474	13,318	12,687	12,460
EMGK *1	6,701	6,464	6,044	5,635	5,064	4,761	4,630
Idemitsu Kosan	5,358	5,249	5,059	4,913	4,598	4,338	4,237
Showa Shell Sekiyu	4,808	4,689	4,560	4,481	4,256	4,102	3,984
Cosmo Oil	4,709	4,552	4,359	4,188	3,913	3,768	3,692
Others *2	1,500	1,439	1,388	1,383	687	683	665
Oil Companies	38,158 (79.5%)	37,033 (78.8%)	35,486 (78.9%)	34,074 (79.2%)	31,836 (77.5%)	30,339 (75.8%)	29,668 (75.7%)
Private Brands and Others *3	9,842 (20.5%)	9,967 (21.2%)	9,514 (21.1%)	8,926 (20.8%)	9,264 (22.5%)	9,661 (24.2%)	9,532 (24.3%)
Total *3	48,000	47,000	45,000	43,000	41,100	40,000	39,200

<Number of Company-Owned Service Stations>

	FY09	FY10 1H
JX Group	2,893	2,817

<Number of Self-Service Stations>

	FY09	FY10 1H
JX Group	2,378	2,386
Total for Japan *4	6,906	6,915

Notes: *1. Figures are total of Esso, Mobil, Tonen General Sekiyu and Kygnus Sekiyu.

*2. Figures are total of Kyushu Oil, Taiyo Petroleum and Mitsui Oil & Gas. (until FY 2007)

*3. Estimated by JX Holdings.

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

JX Group's Market Share and Demand in Japan

Historical CDU^{*1} Utilization Rate



Domestic Share of Sales

	FY09 (%)	FY10 1H (%)
Gasoline	34.8	34.4
Kerosene	41.9	39.4
Diesel Fuel	37.6	37.3
Heavy Fuel Oil A	42.5	41.7
Four Light Oil	37.6	36.5
Total Domestic Fuel	34.0	33.0

Demand in Japan

	FY09 1H (1,000 KL)	FY10 1H (1,000 KL)	Changes against FY09 1H (%)
Gasoline	29,100	29,892	102.7
Kerosene	4,964	5,494	110.7
Diesel Fuel	15,624	16,059	102.8
Heavy Fuel Oil A	6,944	6,708	96.6
Four Light Oil	56,633	58,154	102.7
Total Domestic Fuel	89,875	91,755	102.1

CDU Utilization Rate (Excluding the impact of periodic repair)

(Unit : million BD)

	FY04	FY05	FY06	FY07	FY08	FY09	FY10 1H
	('04/4-'05/3)	('05/4-'06/3)	('06/4-'07/3)	('07/4-'08/3)	('08/4-'09/3)	('09/4-'10/3)	('10/4-'10/9)
JX Group	94%	93%	91%	89%	85%	78%	81%
Total for Japan	84% (4.78)	87% (4.77)	83% (4.39)	83% (4.49)	84% (4.59)	82% (4.41)	—

- * 1. Crude Distillation Unit
- * 2. Utilization Rate (JX) excluding Condensate splitter of Mizushima and Kashima.
- * 3. All Japan Refining Capacity excluding Condensate splitter of Mizushima and Kashima.
- * 4. Considering the impact of long-shut down of 2nd CDU of Mizushima(former NOC),
a Utilization Rate(JX) of FY10 1H rises to about 84%.

Source: Petroleum Association of Japan and Company data

JX Group Refineries

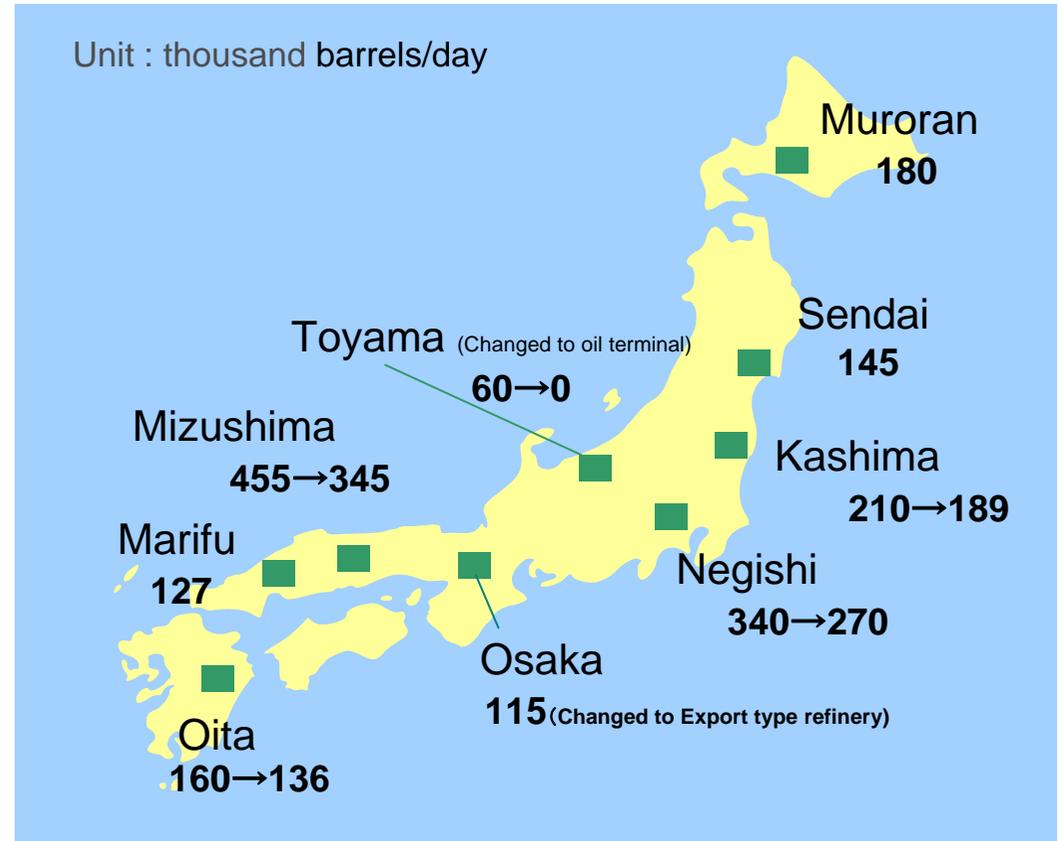


Refining Capacity Reduction Schedule

Completed In Oct, 2010

- Capacity reduction -
400 thousand barrels/day

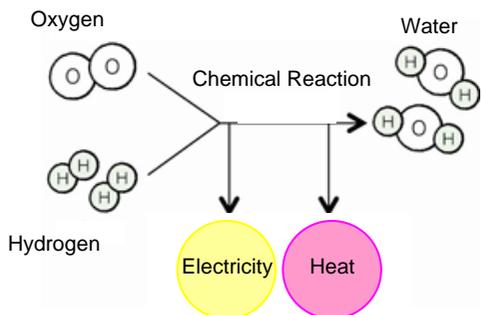
Refinery	Refining Capacity (thousand barrels/day)	Time Schedule	Notes
Negishi	70	Oct. 2010	Already reduced
Osaka	115	Oct. 2010	Be redirected and operated by a joint venture with China National Petroleum Corporation
Mizushima	110	Jun. 2010	Already reduced
Oita	24	May 2010	Already reduced
Kashima	21	May 2010	Already reduced
Toyama	60	Mar. 2009	Already reduced
Total	400		



New Energy (Residential-Use Fuel Cell : ENE·FARM)

Merit of ENE·FARM

Environment Friendly



The case using ENE·FARM for a year

Reduce about 30% of CO2 emission

CO2 amount that 80 Japan cedar absorb in a year

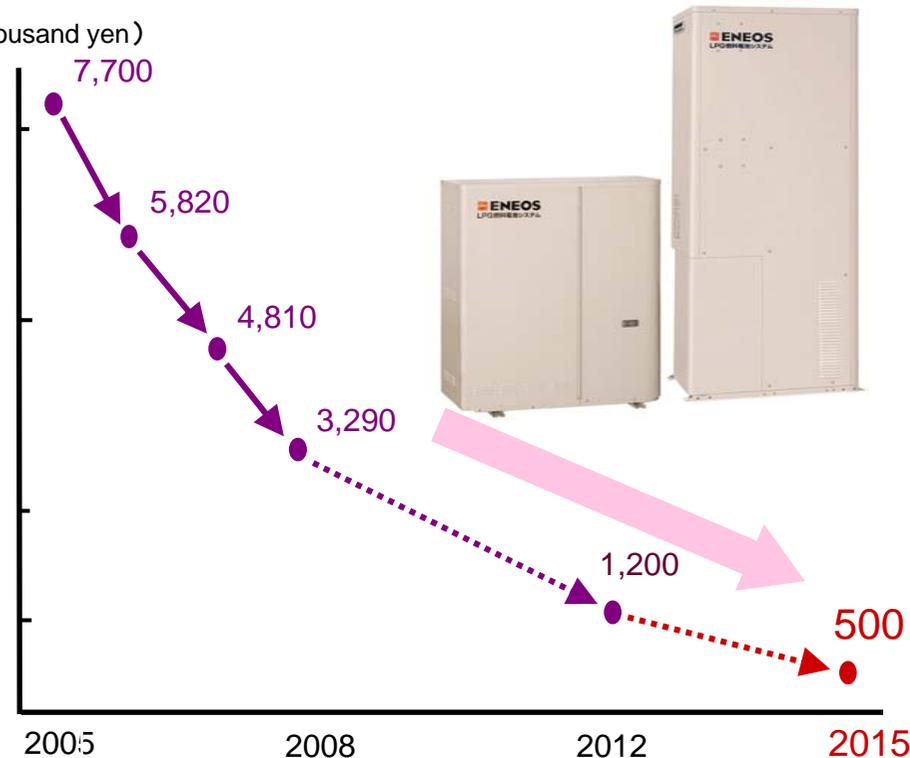
Conservation of Energy

Conventional System *1	
• Power Transmission Loss 5%	Energy Efficiency 35-40%
• Rejection Heat Loss 55~60%	

ENE·FARM	
• Power Transmission Loss 0%	Energy Efficiency 80-85%
• Rejection Heat Loss 15~20%	

Cost Down Target of ENE·FARM

(thousand yen)



*1 Using energy of thermal power generation and boiler



JX Group's Reserve Standards

JX Group's criteria for evaluating reserves conforms to the SPE 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) and announced in March 2007.

JX Group's reported reserves are in line with reserves as defined by the SPE 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.



Outline of E&P of Oil and Natural Gas Projects

Project Name/Company	Sales Volume(Jan.–Jun. 2010) (1,000BOED) *1	Reserves (1million BOE) *2
[Gulf of Mexico(U.S.A.)] Nippon Oil Exploration U.S.A. Limited	11	48
[Canada] Japan Canada Oil Company Limited	15	280
[North Sea, U.K.] Nippon Oil Exploration and Production U.K. Limited	13	21
[Vietnam] Japan Vietnam Petroleum Co., Ltd.	11	
[Myanmar] Nippon Oil Exploration (Myanmar) Limited	9	
[Malaysia] Nippon Oil Exploration (Malaysia) Ltd. Nippon Oil Exploration (Sarawak) Ltd.	20 33	
[Indonesia] Nippon Oil Exploration (Berau) Ltd.	11	<Subtotal> 352
[Papua New Guinea] Japan Papua New Guinea Petroleum Company Ltd. Southern Highlands Petroleum Co., Ltd.	7	
[Australia] Nippon Oil Exploration (Australia) Pty Ltd.	1	<Subtotal> 88
[United Arab Emirates, Qatar and others] Nippon Oil Exploration (Myanmar) Ltd. Abudhabi Oil Co., Ltd., United Petroleum Development Co., Ltd. and others *3	14	24
Total	145	813

+113
(Compared to Dec., 2008)

*1 Project company basis .

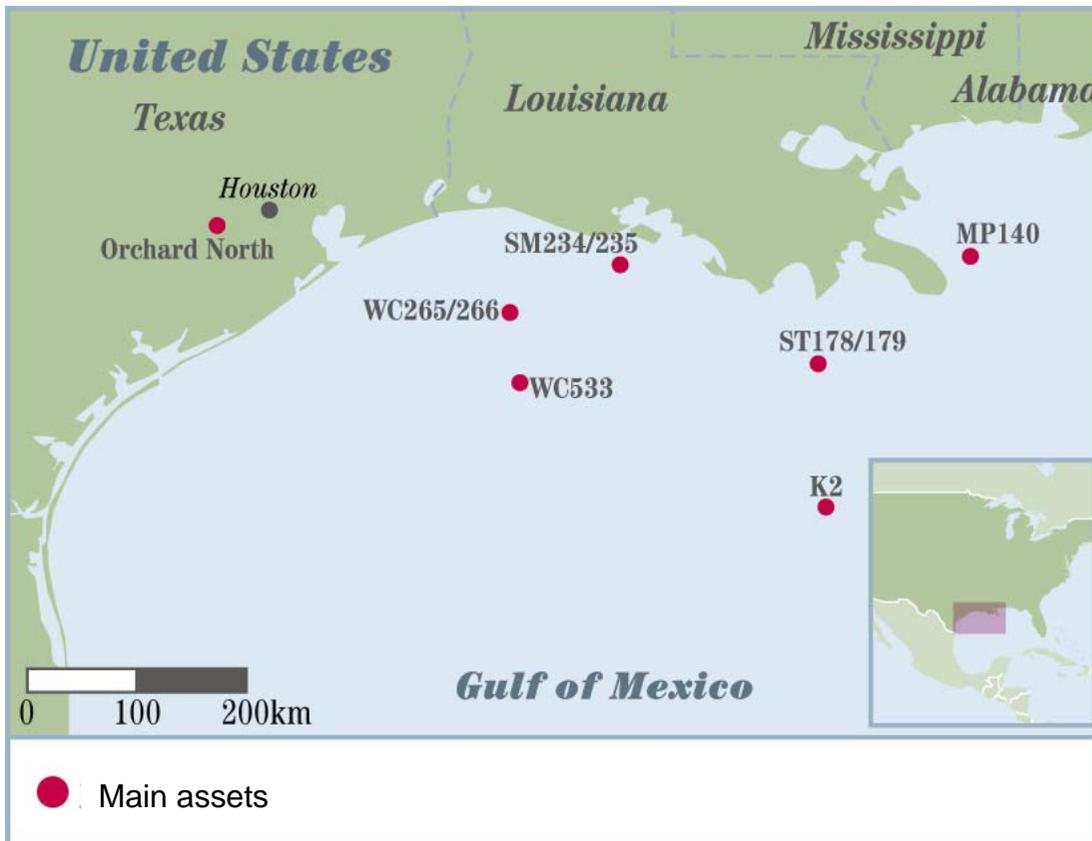
*2 Proved reserves and probable reserves as of end of Dec., 2009, including reserves from projects currently under development.

*3 JX Group's equity basis

Principal Individual E&P Project Overview ①



Gulf of Mexico



'10 Jan - Jun Sales Volume

10,700 boed

(oil: 4,200 b/d, gas: 39mmcf/d)

Project Company

Nippon Oil Exploration U.S.A. Ltd. (NOEX USA)
(100%)

(%) = JX Group Shareholding

Range Of Interests in Individual Fields

11.6% to 100%

Operators

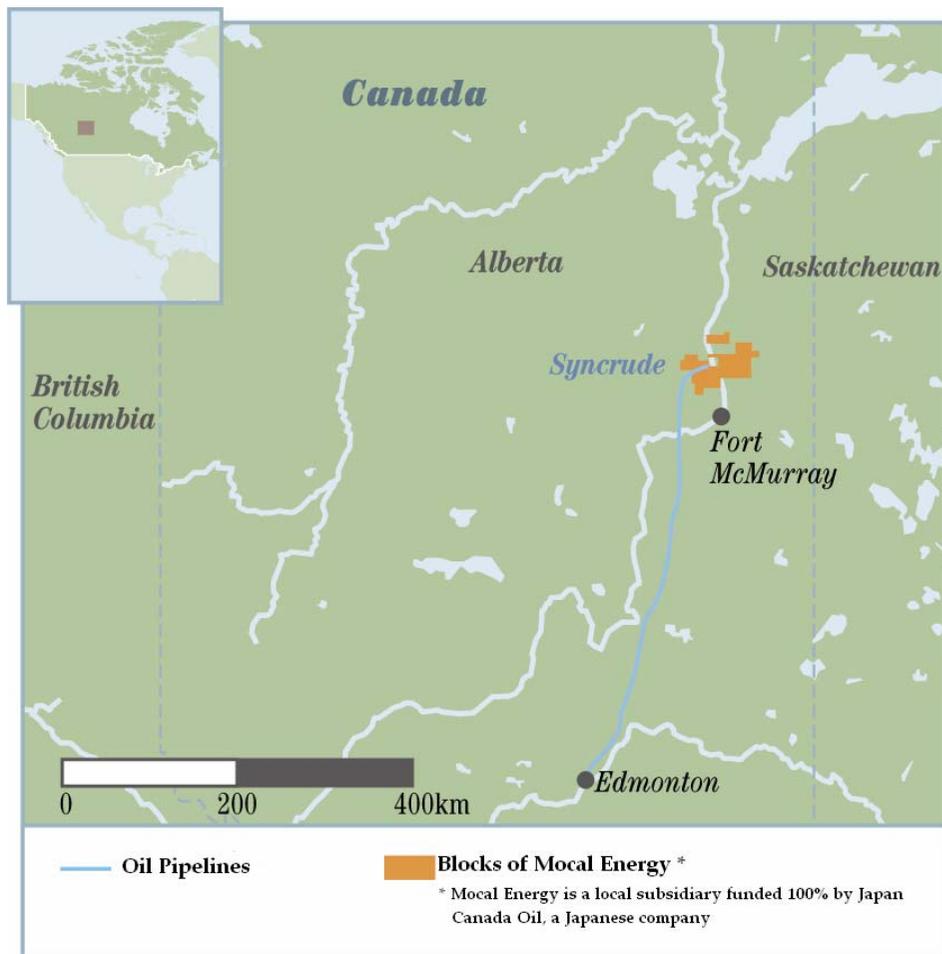
NOEX USA, Anadarko, ConocoPhillips, others

- In 1990, NOEX USA 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 addition to continuing such existing operations as those in the Orchard North Gas Field, Aconcagua Gas Field, and Virgo Gas Field, NOEX USA purchased interests in certain producing assets in the Gulf of Mexico from Devon in 2005 and from Anadarko in 2007.
- In January 2010, NOEX USA made a gas discovery on the Davy Jones prospect.
- In September 2010, NOEX USA sold some assets of shallow water and deep water area.

Principal Individual E&P Project Overview ②



Canada



'10 Jan - Jun Sales Volume
14,800BOED
 (Oil 14,800b/d)

Project Company
 Japan Canada Oil Co., Ltd. (100%)
 (%) = JX Group Shareholding

Interest in Individual Fields
 5%

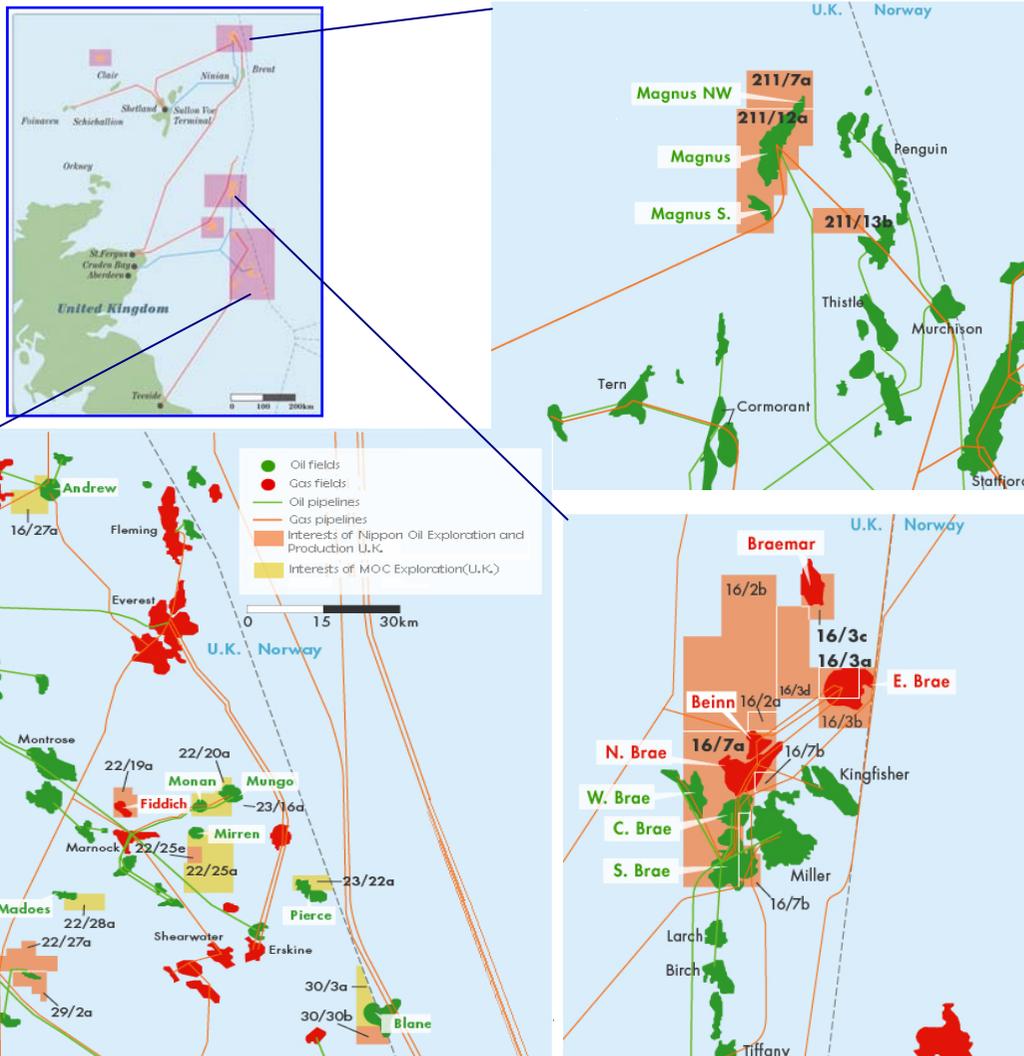
Operator
 Syncrude Canada

● In 1992, NOEX acquired a 5% stake in the Syncrude project from PetroCanada. Subsequently, this stake was transferred to Mocal Energy Limited (a wholly owned subsidiary of NOEX).

Principal Individual E&P Project Overview ③



U.K. North Sea ①



'10 Jan - Jun Sales Volume

12,700BOED

(oil: 7,700b/d, gas: 30mmcf/d)

Project Company

Nippon Oil Exploration and Production U.K. Ltd.
(NOEP UK) (100%)

(%) = JX Group Shareholding

Range of Interests in Individual Fields

2.1% to 45%

Operators

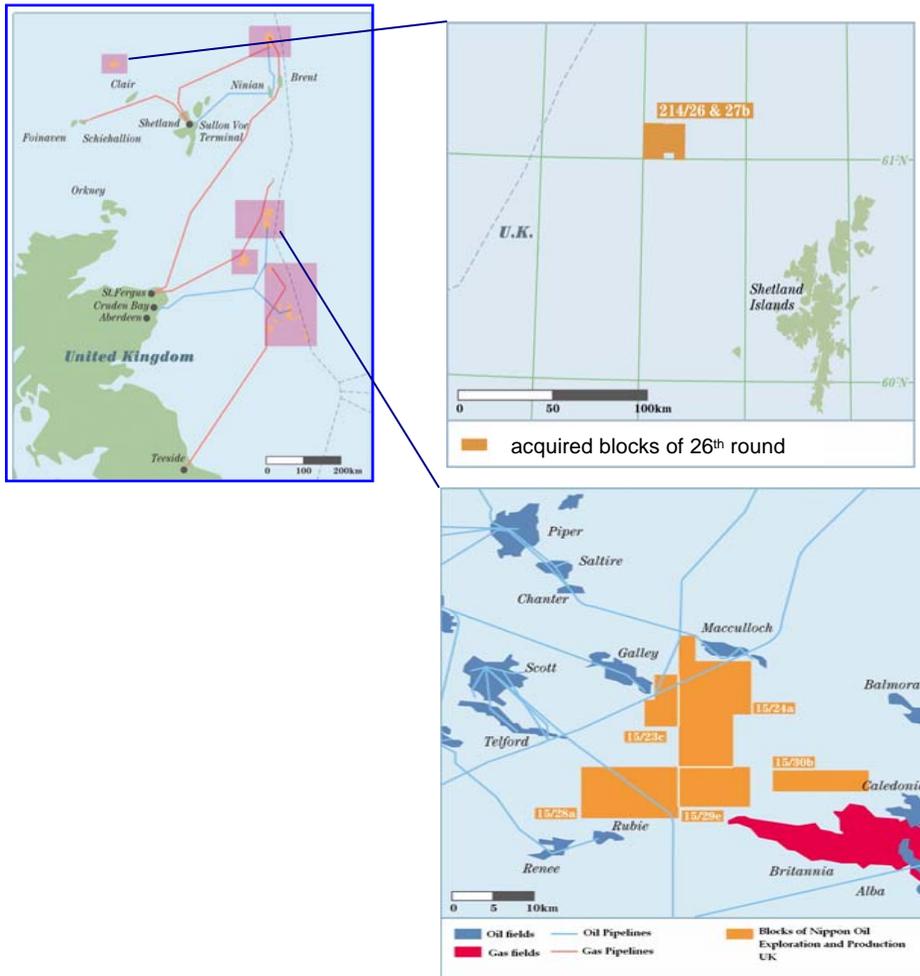
BP, Shell, Marathon, others

- In 1994, acquired a working interest in blocks, including those in the Andrew Oil Field, the Mungo/Monan Oil Fields, the Pierce Oil Field, the Mirren/Madoes Oil Fields, and the Blane Oil Field. It is currently expanding its exploration, development, and production operations.
- In 1996, acquired an interest in the Magnus Oil Field, in 2002, it acquired interests in the Brae Gas Fields and the Fiddich Oil Field, and in 2004, it acquired an interest in the West Don oil field. Exploration, development and production activities are progressing.

Principal Individual E&P Project Overview ④



U.K. North Sea ②

**Project Company**

Nippon Oil Exploration and Production U.K. Ltd
(100%)

Range of Interests in Individual Fields

33.3% to 45%

Operators

Nippon Oil Exploration and Production U.K. Ltd

Nippon Oil Exploration and Production U.K. Ltd acquired exploration blocks in 2007~2010 as an operator through a competitive tender process were held by the British Government

In middle North Sea

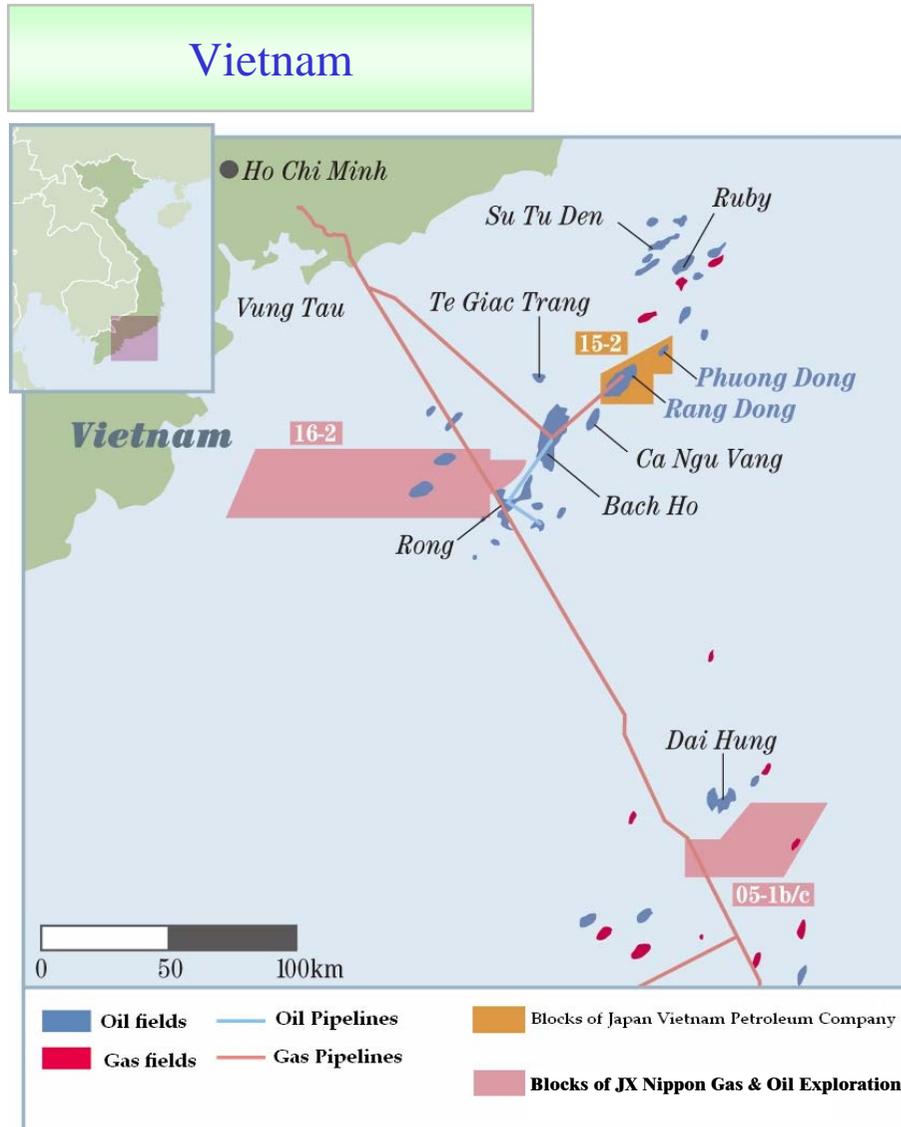
2007 15/23c,15/24a,15/28a,15/29e

2009 15/30b

In the west of Shetland Islands

2010 214/26, 214/27b

Principal Individual E&P Project Overview ⑤

**‘10Jan - Jun Sales Volume**

11,300BOED

(oil: 7,900b/d, gas: 21mmcf/d)

Project Company

Japan Vietnam Petroleum Co., Ltd. (JVPC)

(97.1%)

(% = JX Group Shareholding)

Interest in Individual Fields

Rang Dong : 46.5%

Phuong Dong : 64.5%

Operator

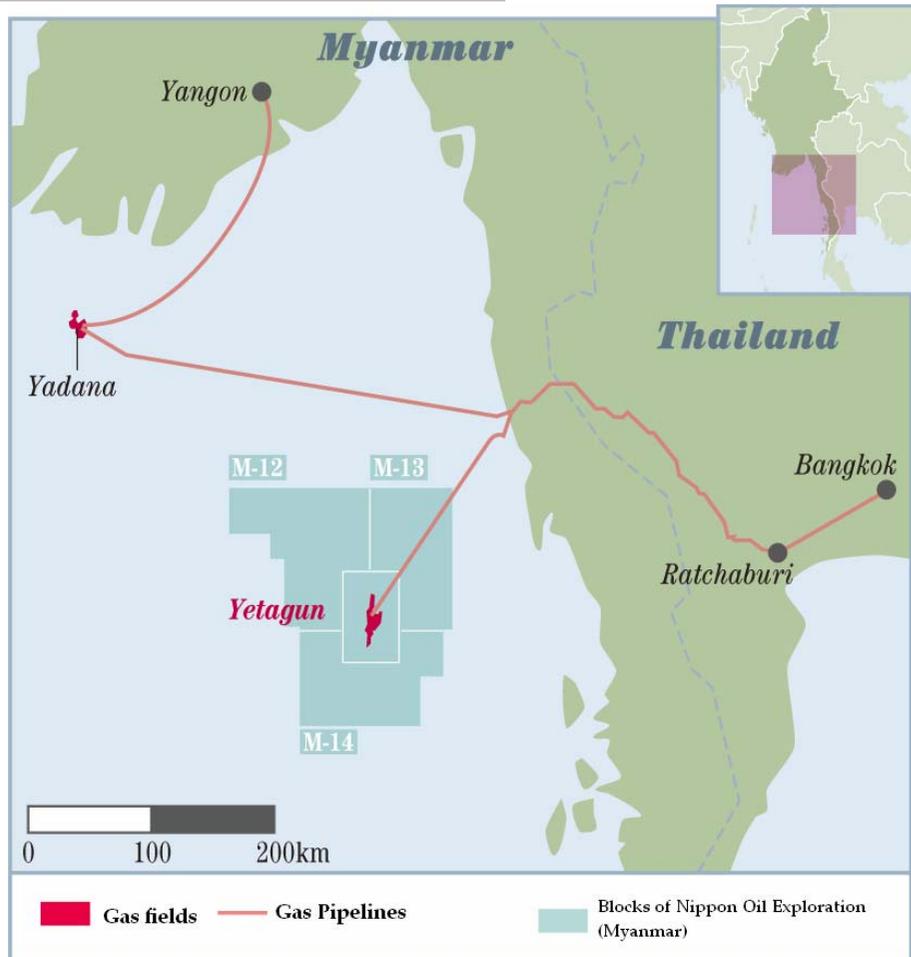
JVPC

- In 1992, JVPC acquired a working interest in block 15-2 offshore Vietnam.
- In 1994, JVPC discovered the Rang Dong Oil Field within block 15-2, and it began production in that field from 1998.
- In February 2008, Rang Dong CDM Project received CER (Certified Emission Reductions) issuance approval under the Kyoto Protocol.
- 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 Field.

Principal Individual E&P Project Overview ⑥



Myanmar



‘10Jan - Jun Sales Volume

9,100BOED

(oil: 800b/d, gas: 50mmcf/d)

Project Company

Nippon Oil Exploration (Myanmar), Limited
(NOEX Myanmar) (50%)

(% = JX Group Shareholding)

Interest in Individual Fields

19.3%

Operator

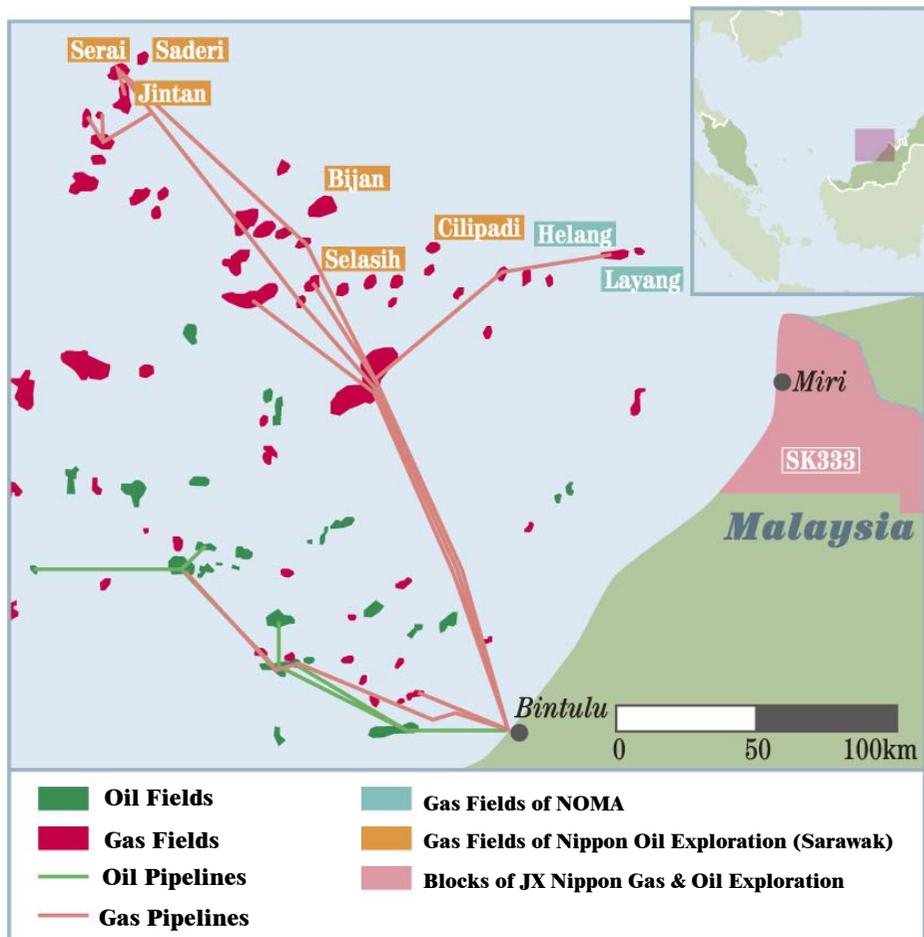
PETRONAS Carigali

- In 1991, NOEX Myanmar acquired a working interest in blocks M-13/14 offshore Myanmar.
- The following year, it 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.

Principal Individual E&P Project Overview ⑦



Malaysia ①



'10 Jan - Jun Sales Volume

20,100BOED

(oil: 3,800b/d, gas: 98mmcf/d)

Project Company

Nippon Oil Exploration (Malaysia), Limited (NOMA)
(78.7%)

(%) = JX Group Shareholding

Range of Interest in Individual Fields

75%

Operator

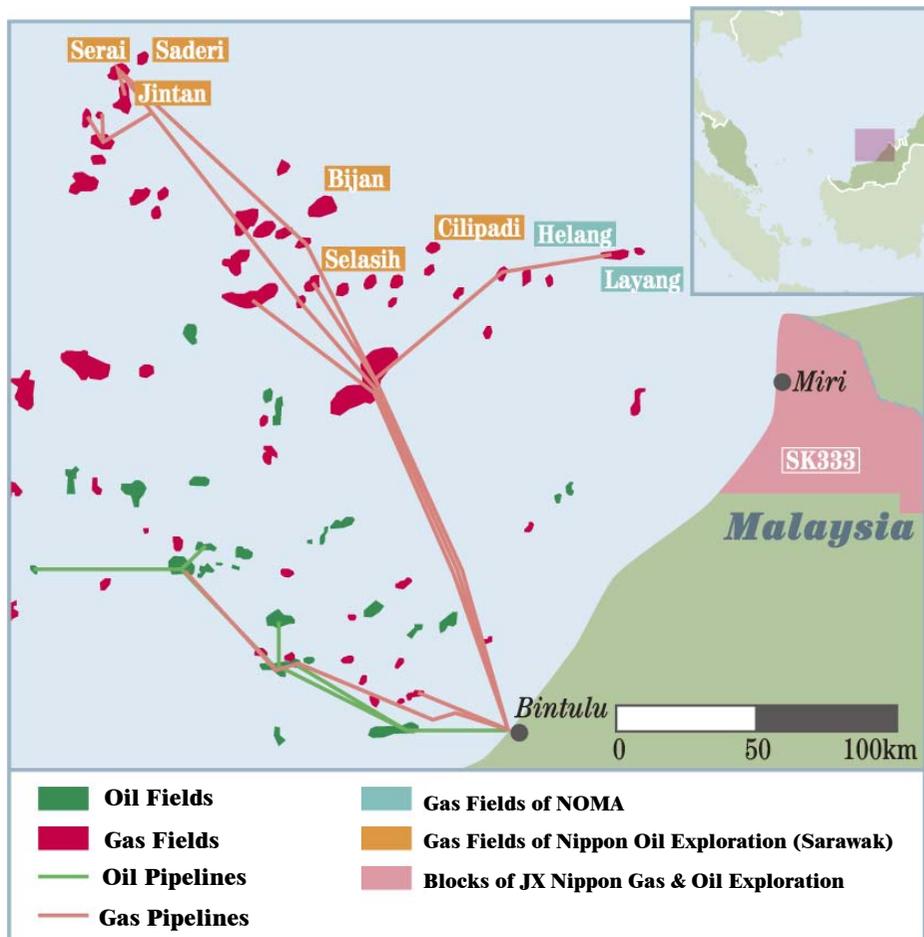
NOMA

- In 1987, NOMA acquired a working interest in Block SK-10 offshore Sarawak, Malaysia.
- In 1990, NOMA discovered the Helang Gas Field, where production commenced in 2003.
- In 1991, NOMA discovered the Layang Gas Field.

Principal Individual E&P Project Overview ⑧



Malaysia ②



'10 Jan - Jun Sales Volume

33,400BOED

(oil: 2,900b/d, gas: 183mmcf/d)

Project Company

Nippon Oil Exploration (Sarawak), Limited (NOSA)

(76.5%)

(% = JX Group Shareholding)

Interest in Individual Fields

37.5%

Operator

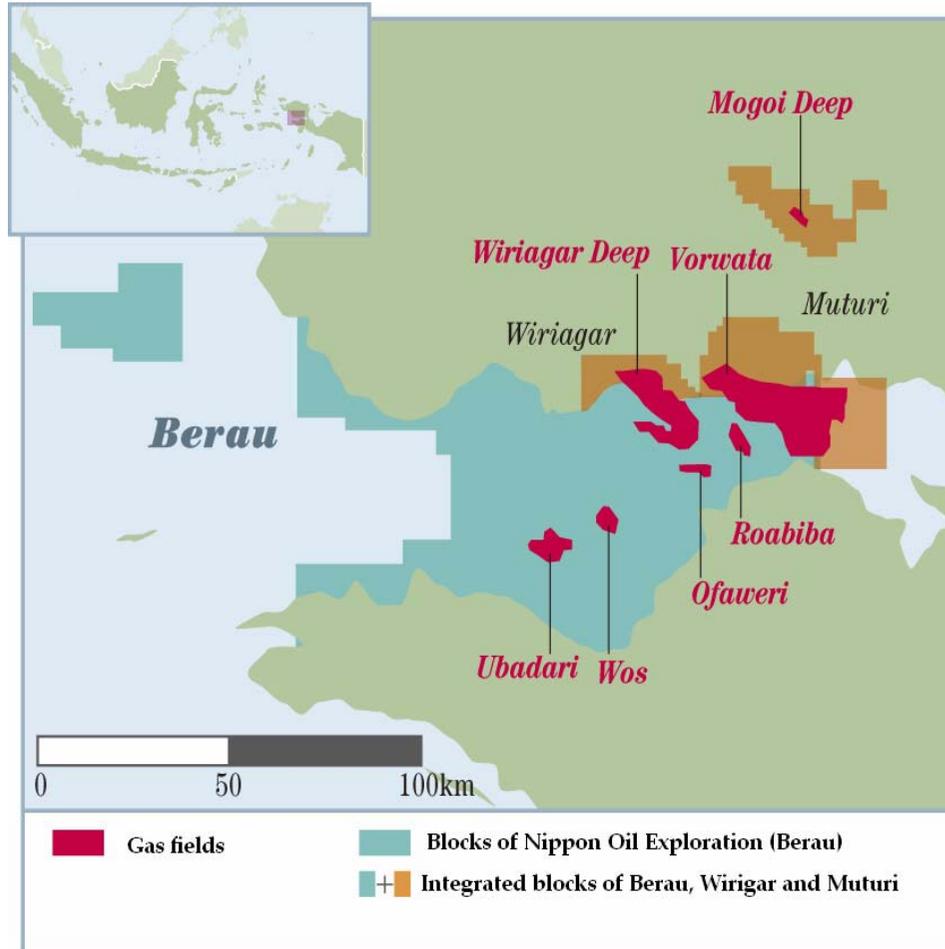
Shell

- In 1991, NOSA acquired a working interest in Block SK-8 offshore Sarawak, Malaysia.
- From 1992 through 1994, the Jintan and Serai Gas Fields were discovered in that block, and production there commenced in 2004.
- In 2008, the Sadari Gas field commenced production.

Principal Individual E&P Project Overview ⑨



Indonesia



'10 Jan - Jun Sales Volume

10,900BOED

(oil: 500b/d, gas: 62mmcf/d)

Project Company

Nippon Oil Exploration (Berau), Limited
(NOEX(Berau)) (51%)

(% = JX Group Shareholding)

Interest in Individual Fields

12.2% (after unitization)

Operator

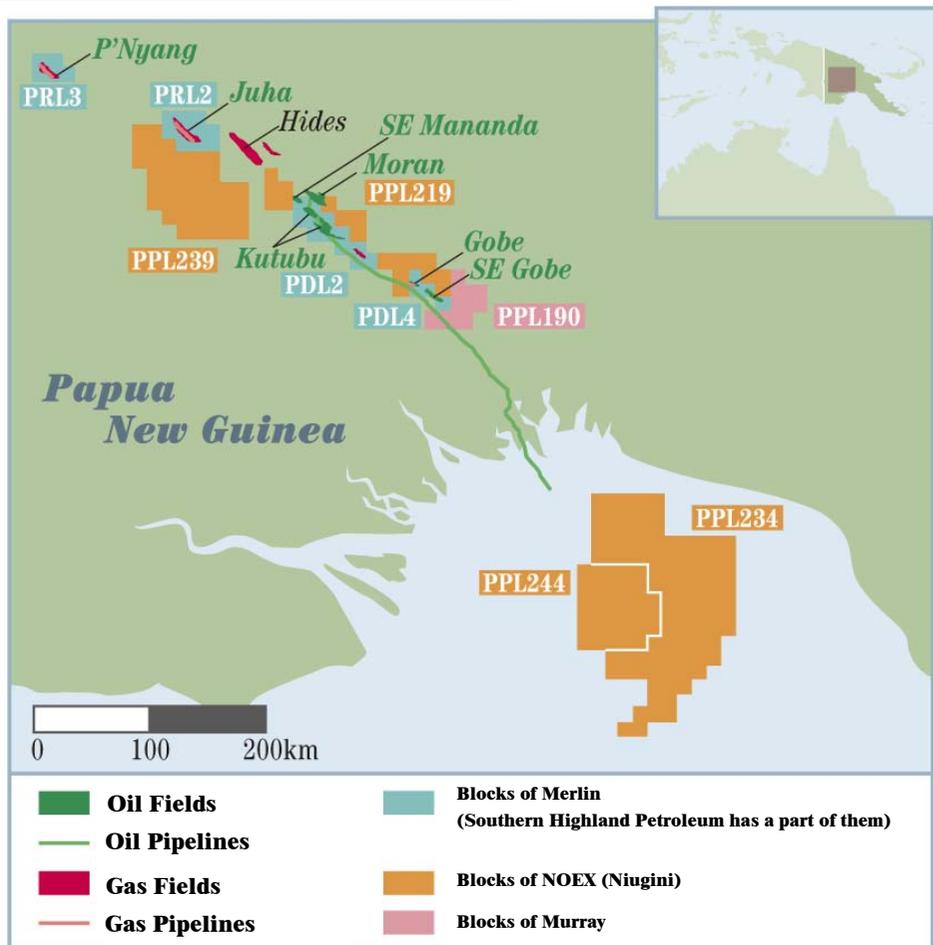
BP

- From 1990, using three test wells natural gas was discovered in the area. Subsequently, the Vorwata Gas Field, Wiriagar Deep Gas Field, and other gas structures were discovered.
- From 2003, those with interests in the Berau, Wiriagar, and Muturi blocks agreed to become partners in unitizing the blocks and undertake development work cooperatively.
- Production commenced in June 2009, and the first cargo of LNG has lifted in July 2009.

Principal Individual E&P Project Overview ⑩



Papua New Guinea



'10 Jan - Jun Sales Volume

6,800BOED
(Oil : 6,800b/d)

Project Company

Japan Papua New Guinea Petroleum Co., Ltd. (36.4%)
 Nippon Oil Exploration (PNG) Pty. Ltd. (100%)
 Nippon Oil Exploration (Niugini) Pty. Ltd. (25%)
 Southern Highland Petroleum Co. Ltd.(80%)
 Murray Petroleum Co., Ltd. (29.6%)
 (%) = JX Group Shareholding

Range of Interests in Individual Fields

8.3 to 73.5%

Operator

Oil Search, Exxon Mobil, others

- In 1990, Japan Papua New Guinea Petroleum acquired exploration rights in Papua New Guinea from Merlin. And, acquired original exploration rights. Subsequently, exploration, development, and production activities have been undertaken in the Kutubu, Moran, Gobe, and SE Gobe oil fields.
- In December 2008, Merlin, Japan Papua New Guinea Petroleum's 100% subsidiary, acquired the PNG LNG Project equity and oil field equity that AGL Energy owned.
- In January 2009, Nippon Oil Exploration (Niugini) acquired the four exploration licenses (both onshore and offshore) from Oil Search Limited.
- In December 2009, PNG LNG Project was made a final decision to proceed with the development.

Principal Individual E&P Project Overview ⑪



UAE, Qatar

Project Company

United Petroleum Development Co., Ltd (45%)

(% = JX Group Shareholding)

Interest in Individual Fields

97%

Operator

Bunduq Co., Ltd

- In 1970, United petroleum Development acquired a working interest of 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.

Project Company

Abu Dhabi Oil Co., Ltd (31.5%)

(% = JX Group Shareholding)

Interest in Individual Fields

100%

Operator

Abu Dhabi Oil Co., Ltd

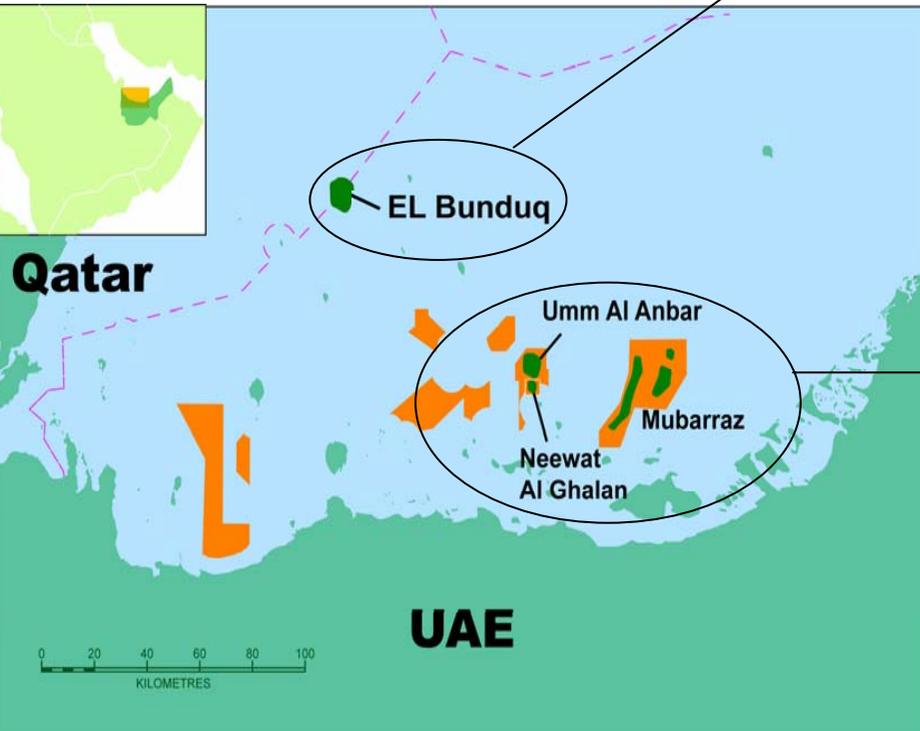
- In 1967, acquired working interest in block of Mubarraz.

- 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.

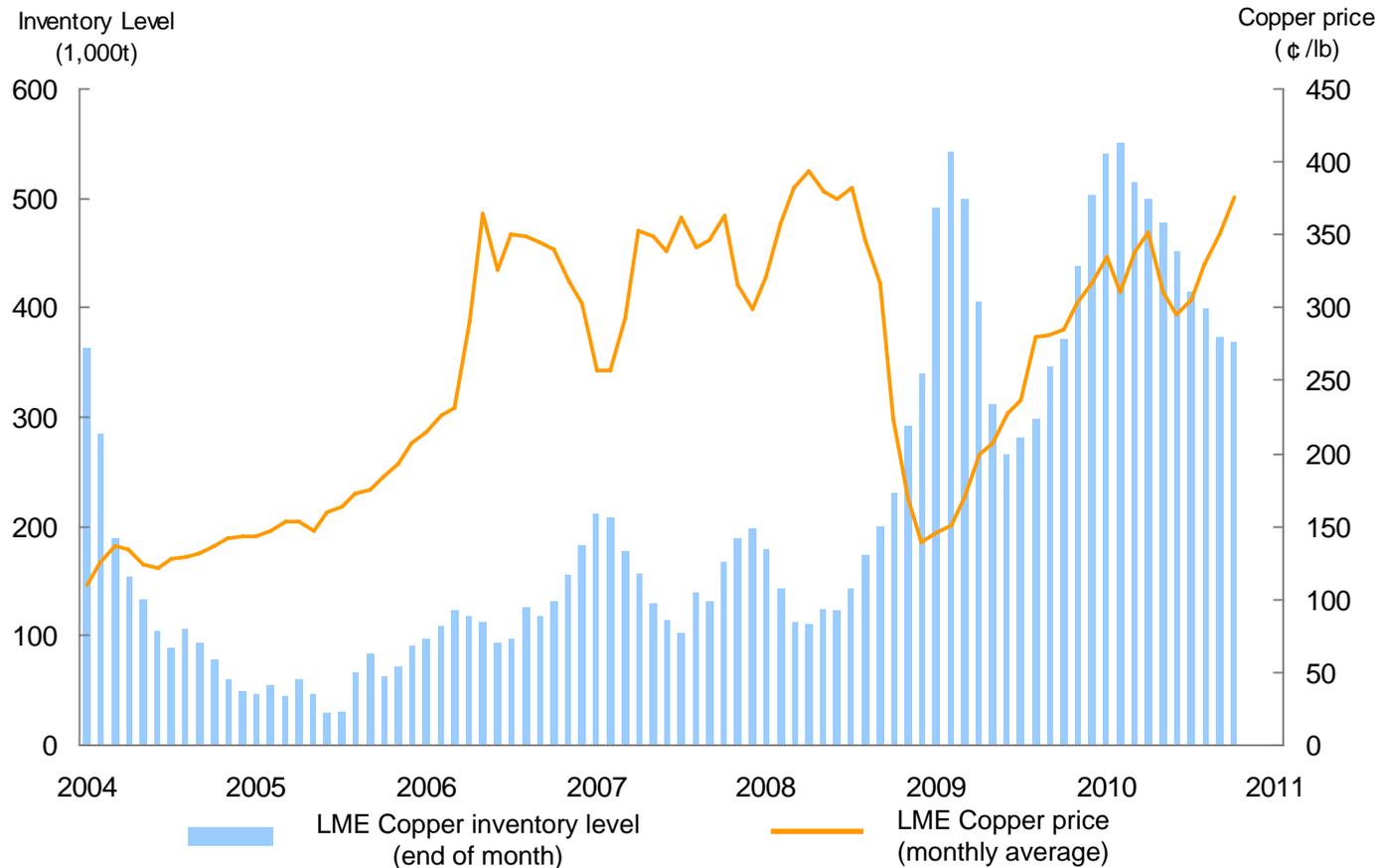
- In 2009, 3 fields achieved cumulative production volume of 300 million barrels



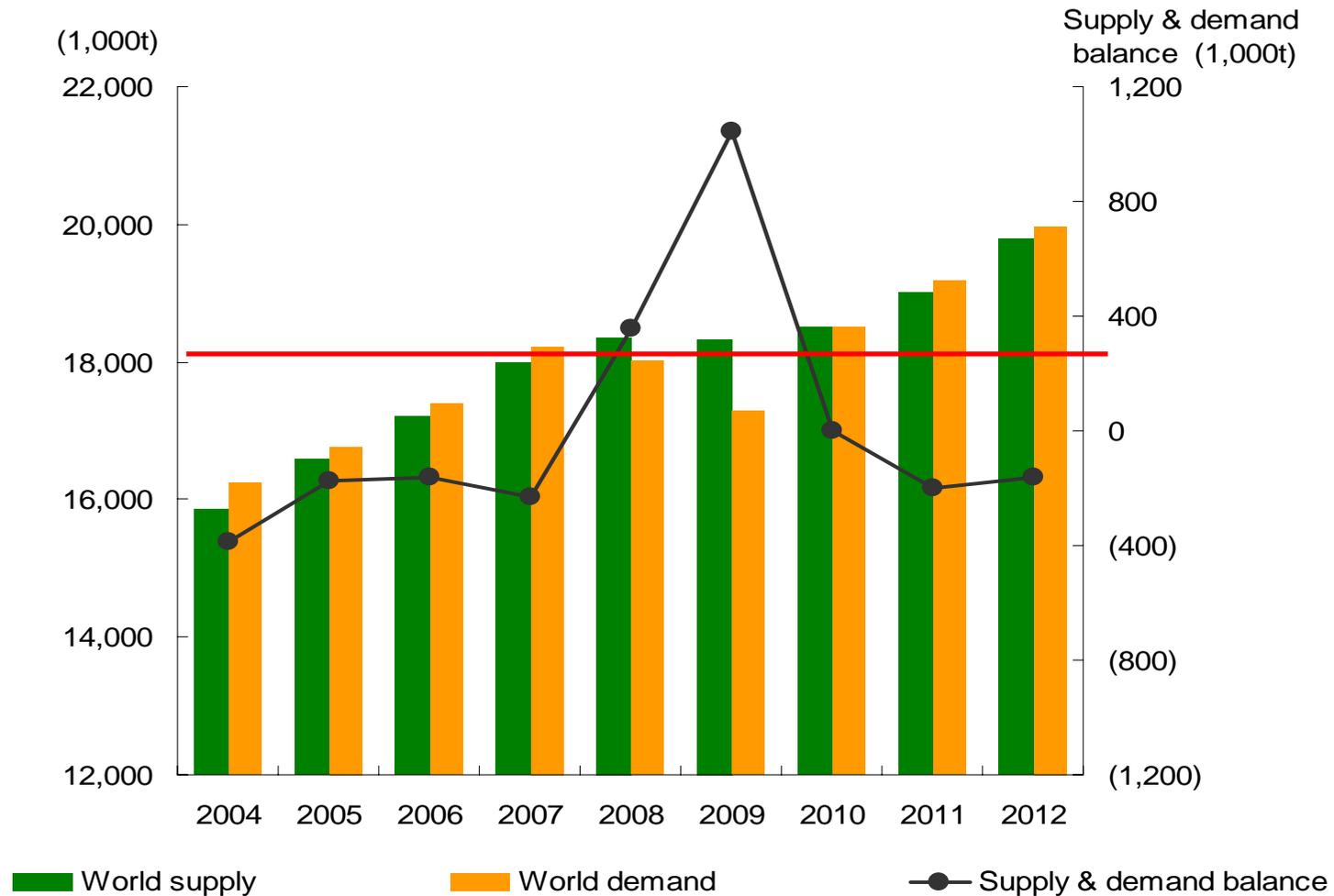
Copper Price and Inventory Level



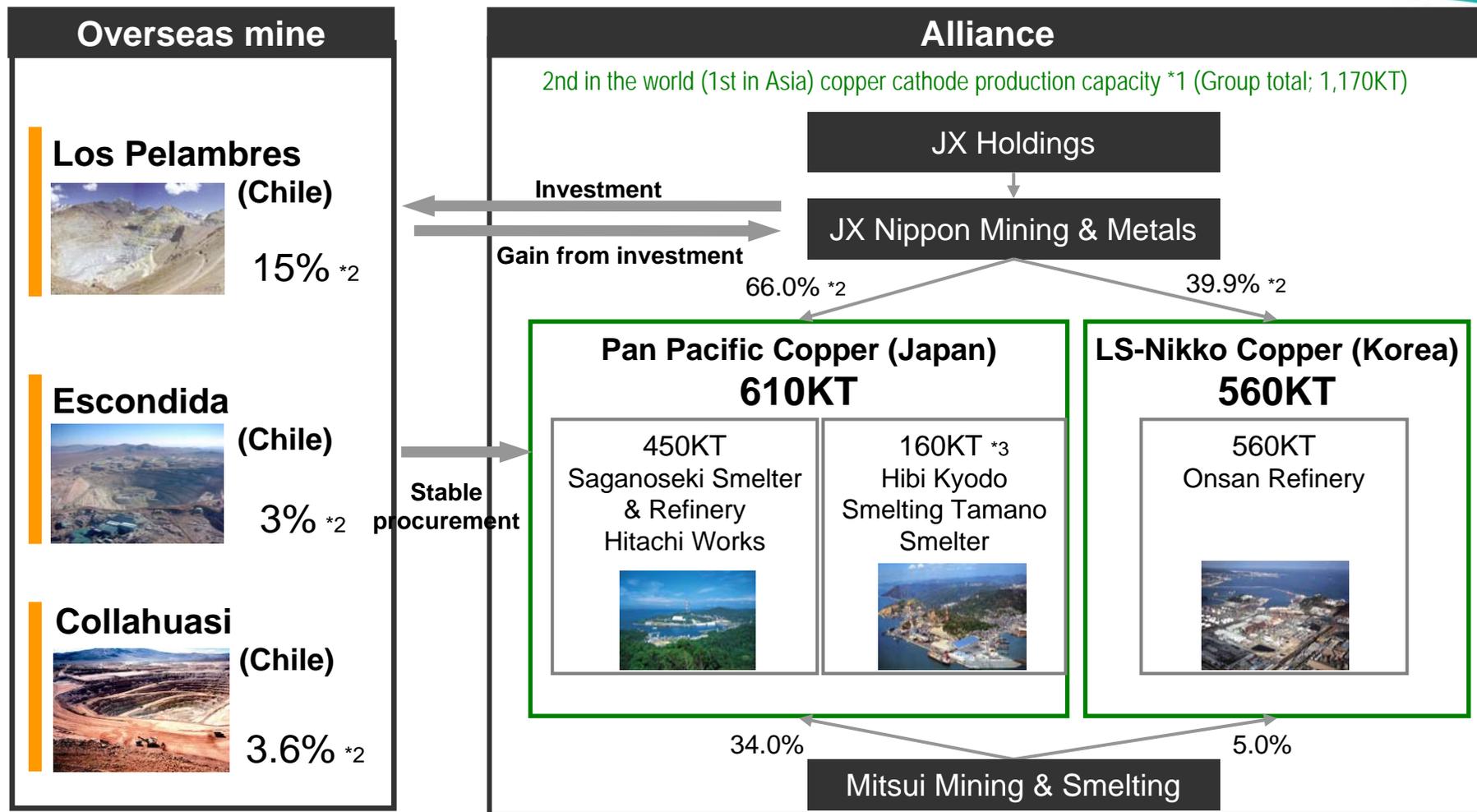
	(¢ /lb)										
	FY04	FY05	FY06	FY07	FY08	FY09				FY10	
						1 Q	2 Q	3 Q	4 Q	1 Q	2 Q
Copper Price	136	186	316	344	266	212	266	302	328	319	329



World Copper Cathodes Supply & Demand



Copper Smelting & Refining



Notes: *1 Source: Brook Hunt. *2 Shares held by JX Nippon Mining & Metals
*3 Total Capacity is 260KT. PPC has 63.51% equity.

Overseas Copper Mine Development

Caserones Copper Mine (Chile)

Full-Fledged Development
forward 2013

Acquisition date May. 2006

Acquisition price \$137 million

Mine life From 2013 to 2040 (28 years)

SX-EW From Jan.2013
Copper Concentrate From Sep.2013

Production life



		Initial 5 years	28 years average	28 years total
Copper	Copper content in copper concentrate	150kt/y	110kt/y	3,140kt
	Refined copper produced thorough SXEW process	30kt/y	10kt/y	410kt
	Total	180kt/y	120kt/y	3,550kt
Molybdenum		3kt/y	3kt/y	87kt

Initial investment \$ 2.00 billion (Estimated)

Ownership Pan Pacific Copper (PPC)*1 75%
Mitsui & Co., Ltd. 25%

Quechua Copper Deposit (Peru)

Feasibility study stage

Acquisition date Mar. 2008

Acquisition price \$40 million

Mine life

From 2014 to 2030 (17 years)

Production plan

Copper content in copper concentrate 76kt/y

Total production through mine life : 1.3 million tons

Initial investment \$ 0.85 billion (Estimated)

Ownership Pan Pacific Copper (PPC)*1 100%



*1 Jointly established by JX Nippon Mining & Metals (66%) and Mitsui Mining & Smelting (34%)

Nikko-Chloride Process (N-Chlo Process)

N-Chlo Process

The N-Chlo Process is a new hydro-metallurgical process that we have uniquely developed.

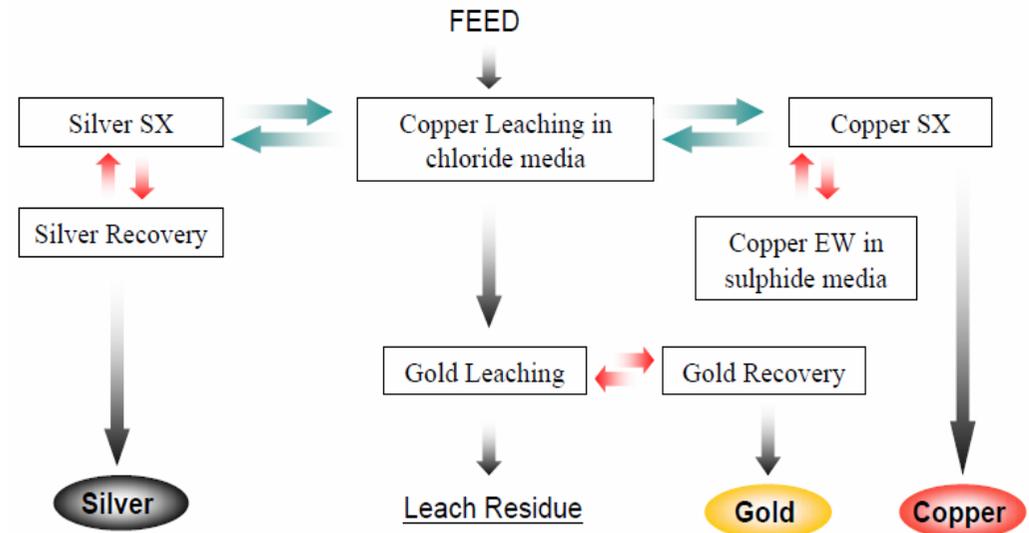
The process enables the effective recovery of not only copper from low-grade copper concentrate, but also such precious metals as gold and silver .

This process does not generate sulfur oxides (SOX), and it is possible to substantially reduce energy consumption and Co2 emissions, compared with pyro-metallurgical smelting which is the most commonly used method in the copper smelting industry .

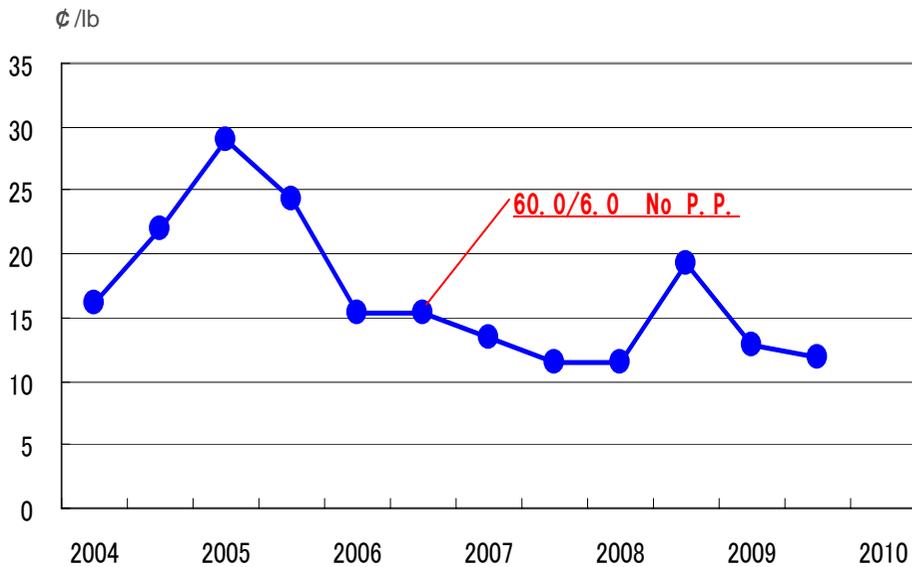
We constructed a pilot plant in Australia and have been conducting demonstration test since latter half of 2009. (Copper Content : about 100 ton/year)



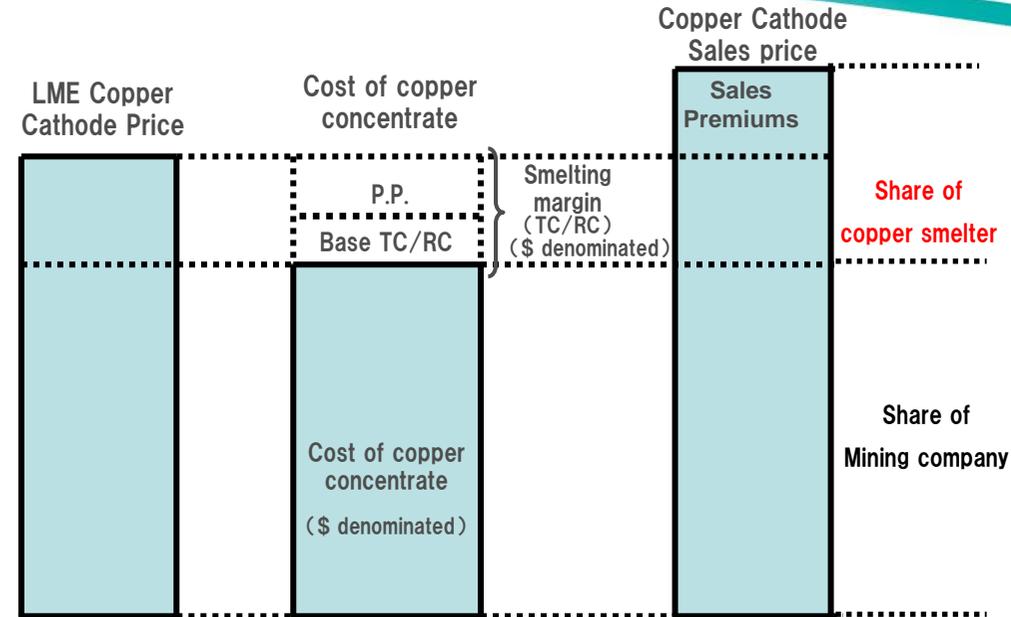
Structure of N-Chlo Process



Trends of TC/RC & Earnings Structure of Copper Smelter



*Source : Company data

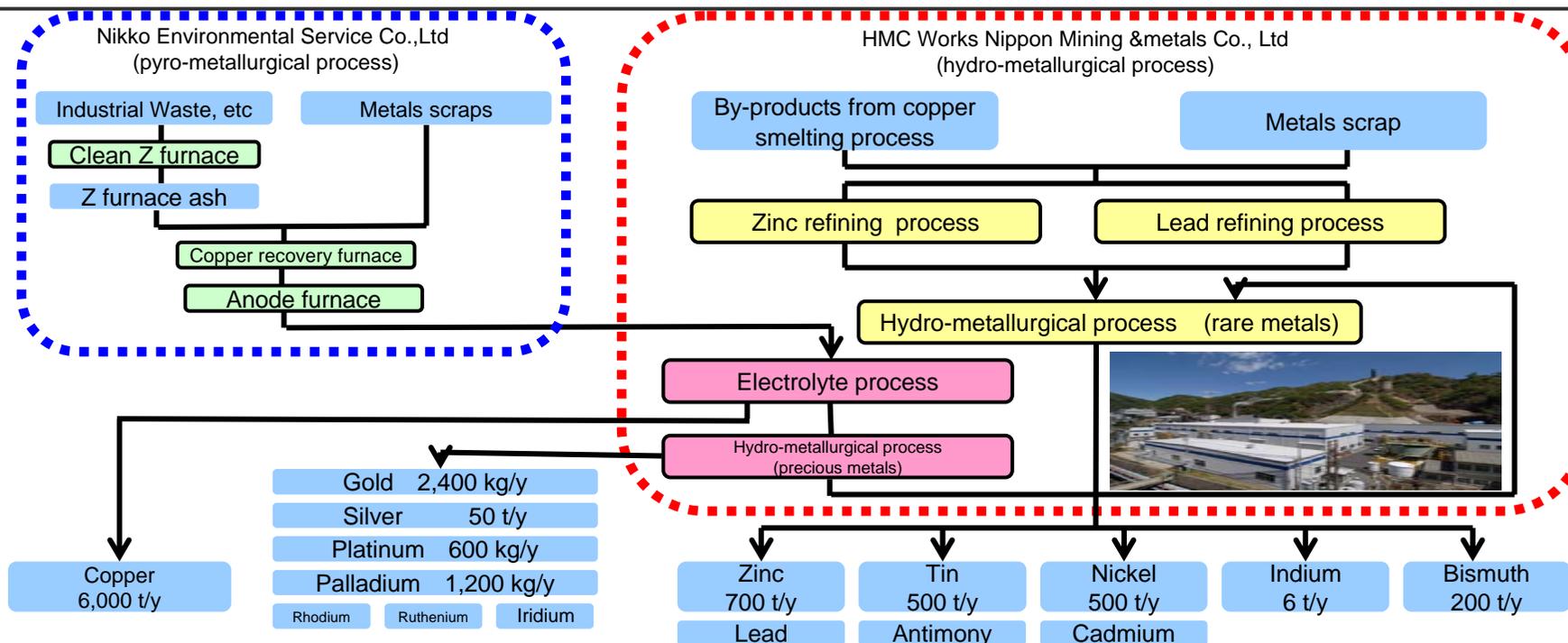


- Cost of copper concentrate :
The price of copper concentrate, which custom smelters pay to mining companies, is LME copper cathode price less TC/RC, which is smelting margin.
- TC (Treatment charge) + RC (Refining charge) :
Consisting of "Base TC/RC" and "P.P."
- P.P. (Price participation) :
The system under which mines and smelters share margins when LME copper price exceeds benchmark price
- Sales price :
LME price plus sales premiums, which is established by reference to various factors including importation costs, import tariffs, and others



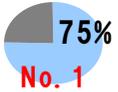
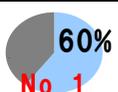
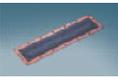
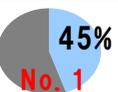
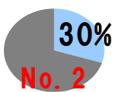
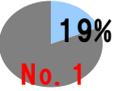
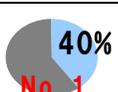
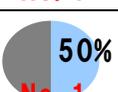
Metal's Recycling Complex in Hitachi

- Recovering 16 kinds of metals efficiently by hydrometallurgical process
- An original zero emission process that combines with pyro-metallurgical process of Nikko Environmental Services Co., Ltd at adjacent site.
- Favorable location adjacent to the metropolitan area – the biggest urban mine in Japan
- The role as a raw material (indium, nickel, etc) supplier to Electronic material business



Electronic Materials



Main IT-related products	Global market share	Primary applications	End-use applications				
			PCs	Mobile phones	Digital, Avs	Telecom infra	Auto mobiles
 Treated rolled copper foil	 75% No. 1	Flexible printed circuit boards	○	⊙	⊙		
 Electro-deposited copper foil	 12% No. 3	Rigid printed circuit boards	⊙	○	⊙	○	○
 Semiconductor targets	 60% No. 1	CPUs, memory chips, etc.	⊙	○	⊙	○	○
 ITO targets for FPDs *1	 45% No. 1	Transparent electrodes	⊙	○	○		
 HD media targets	 30% No. 2	HDD (Hard disk drives), etc.	⊙	○			
 Phosphor bronze	 19% No. 1	Connectors	⊙	○	○		○
 Corson alloy (C7025)	 40% No. 1	Lead frames, Connectors	⊙	○	○		○
 Titanium copper alloy	 60% No. 1	High-class connectors, etc.	○	⊙	○		
 In-P compound semiconductors	 50% No. 1	Optical communication devices High-speed IC			○	⊙	○

Polysilicon for Photovoltaic Power Generation



Overview of the joint venture

Company name:

Japan Solar Silicon Co.,Ltd. (JSS)

Ownership:

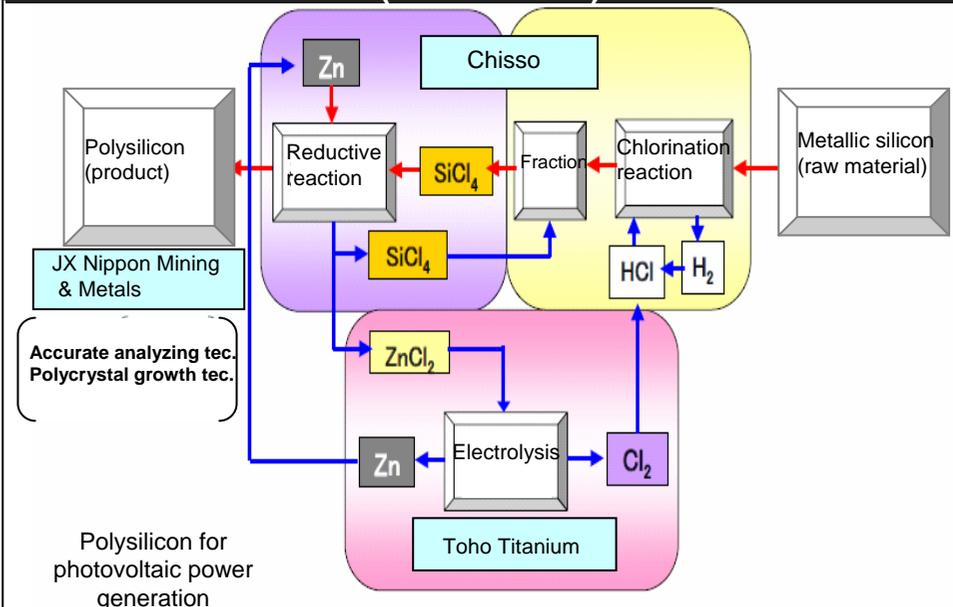
Chisso Corp.	50%
JX Group	50%
-JX Nippon Mining & Metals Co.	30%
-Toho Titanium Co., Ltd.	20%

Characteristics of the zinc-reduction process (JSS method)

	JSS Method	Siemens Method
Purity	8-9N	11N
Capex (1,000t-Si/y)	¥ 7~10 bn/	¥ 13-16 bn/
Electric power consumption for unit production	40KWh/kg-Si	110KWh/kg-Si

Source: Company data

Overview of the zinc-reduction process (JSS method)



Polysilicon for photovoltaic power generation



- Concentration of technology that Nikko Mining Co, Toho Titanium Co and Chisso Co.
- High response efficiency and low cost