

Security Code

Tokyo 5020

# Supplementary Information

【Full Report】

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May 12, 2011



The Future of Energy, Resources and Materials

**JX Holdings, Inc.**

# Contents



## Refining & Marketing

Historical Dubai Crude Oil Price	2
Demand for Petroleum Products (Japan)	3
Domestic Market Margin (Gasoline)	4
Domestic Market Margin (Kerosene)	5
Domestic Market Margin (Diesel Fuel)	6
Domestic Market Margin (Heavy Fuel Oil A)	7
Demand for Petrochemicals in Asia (Paraxylene)	8
Paraxylene Price and Margin (vs. Crude Oil, vs. Naphtha)	9
Benzene Price and Margin (vs. Crude Oil, vs. Naphtha)	10
Propylene Price and Margin (vs. Crude Oil, vs. Naphtha)	11
Sales Volume of FY2009, FY2010 3Q & Forecast of FY2010	12
Number of Service Stations (Fixed type)	13
JX Group's Market Share and Demand in Japan, Historical CDU Utilization Rate	14
New Energy (Residential-Use Fuel Cell)	15

## E&P of Oil & Natural Gas

JX Group's Reserve Standards	16
Outline of Principal E&P of Oil and Natural Gas Projects	17
Principal E&P Project Overview ①~⑭	18
Production Schedule of Principal E&P Projects	32

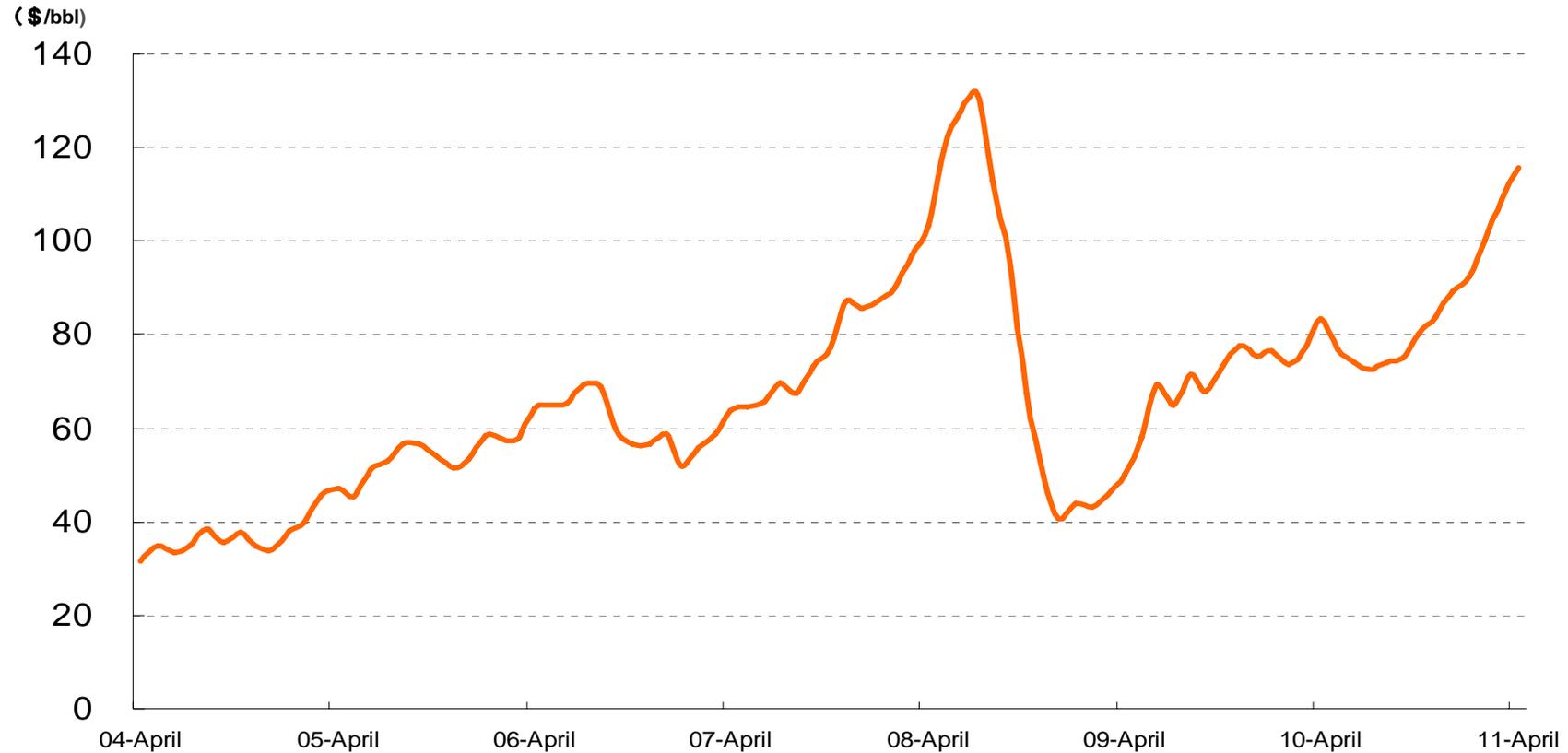
## Metals

Copper Price and Inventory Level	33
World Copper Cathodes Supply & Demand	34
Copper Smelting & Refining	35
Overseas Copper Mine Development	36
Nikko-Chloride Process (N-Chlo Process)	37
Earnings Structure of Copper Smelter & Refinery / Trends of Base TC/RC	38
Metal's Recycling	39
Electronic Materials	40

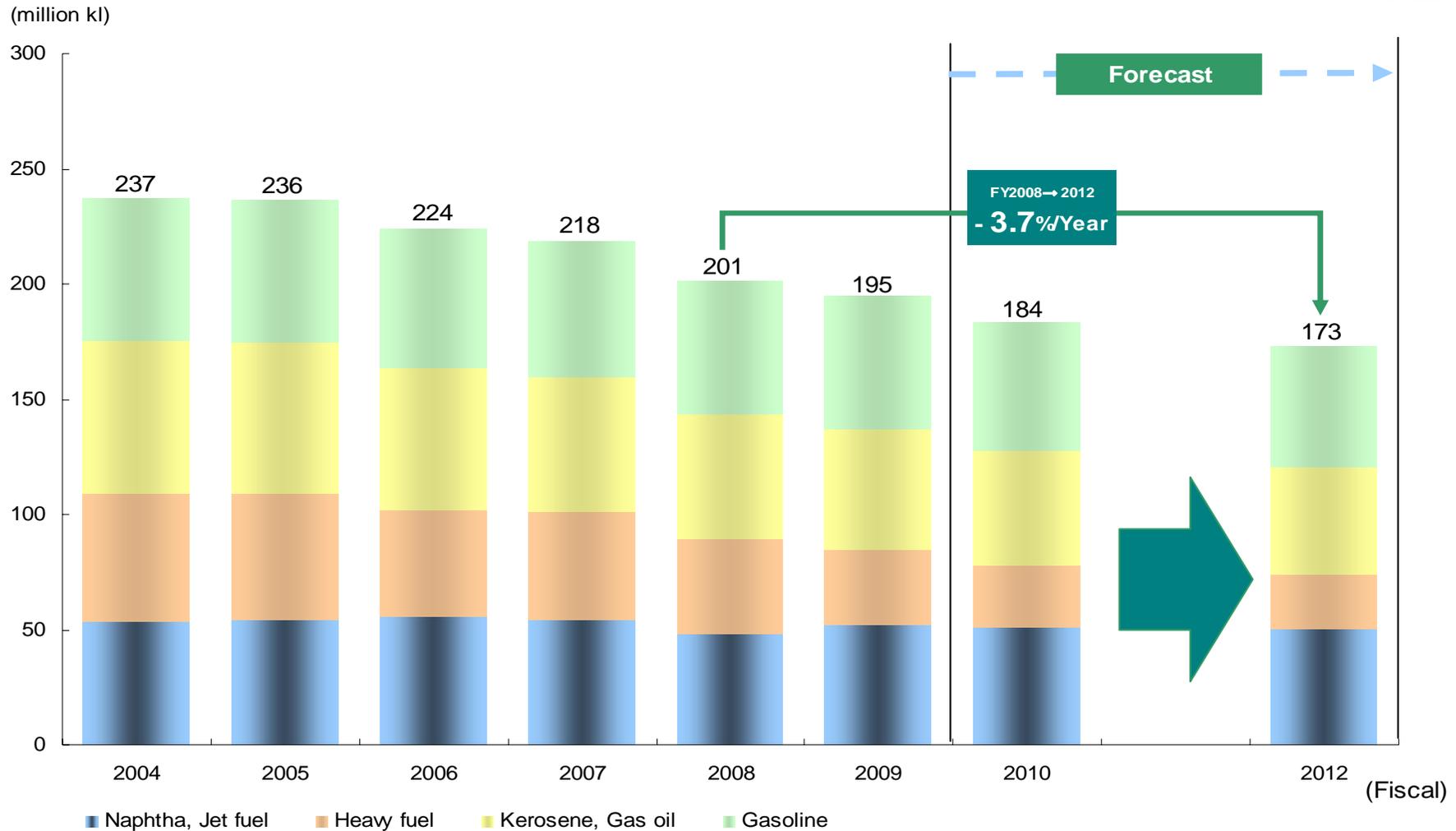


# Historical Dubai Crude Oil Price

Average Price	FY04	FY05	FY06	FY07	FY08	FY09	FY10				(\$/bbl)
							1Q	2Q	3Q	4Q	
Dubai Crude Oil	37	54	61	77	82	70	78	74	84	100	84



# Demand for Petroleum Products ( Japan )

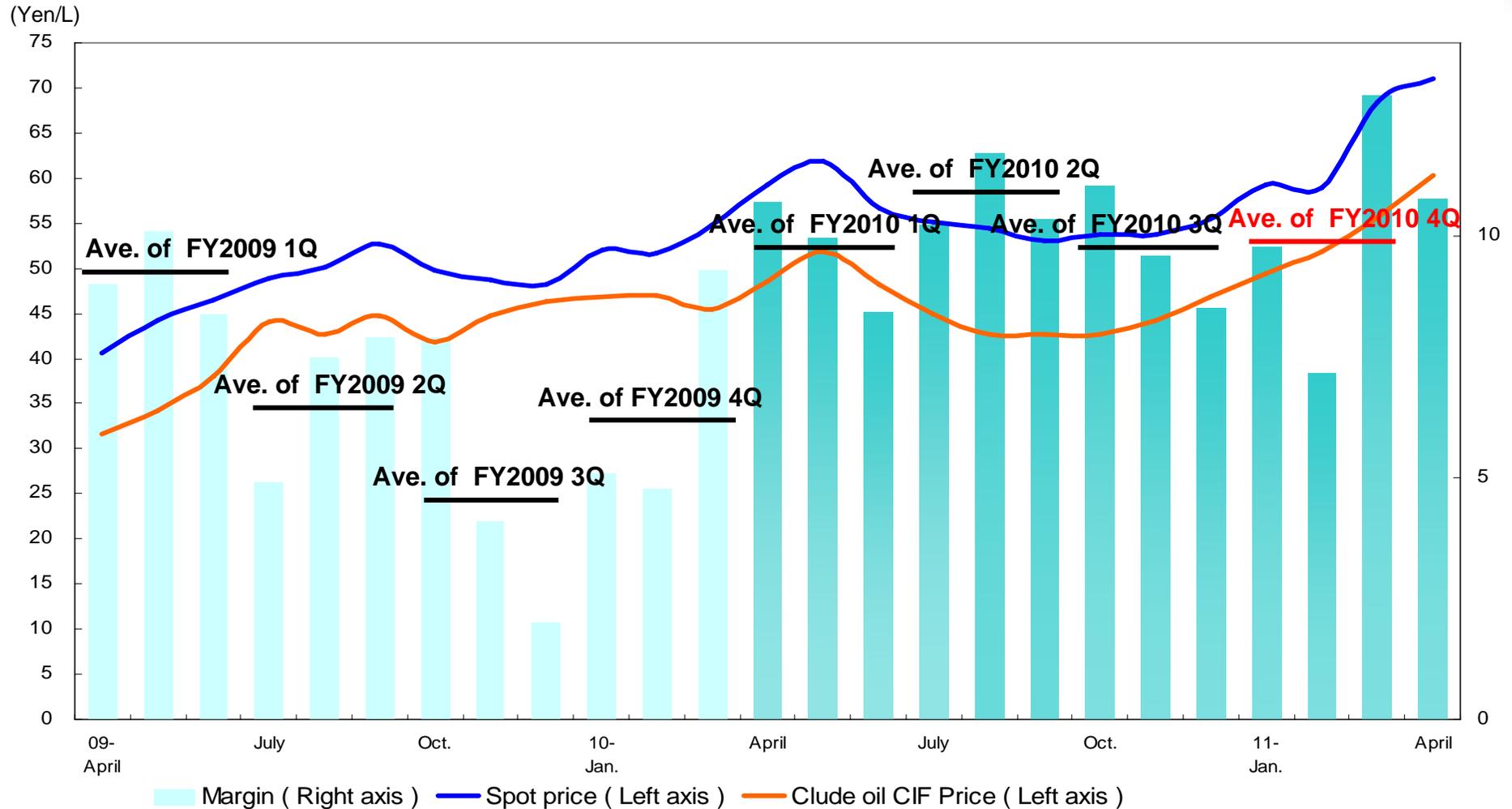


Source: Ministry of Economy, Trade and Industry, Japan

\* This data based on the report of METI, April, 2010. So, the influence of earthquake of east Japan are excluded.



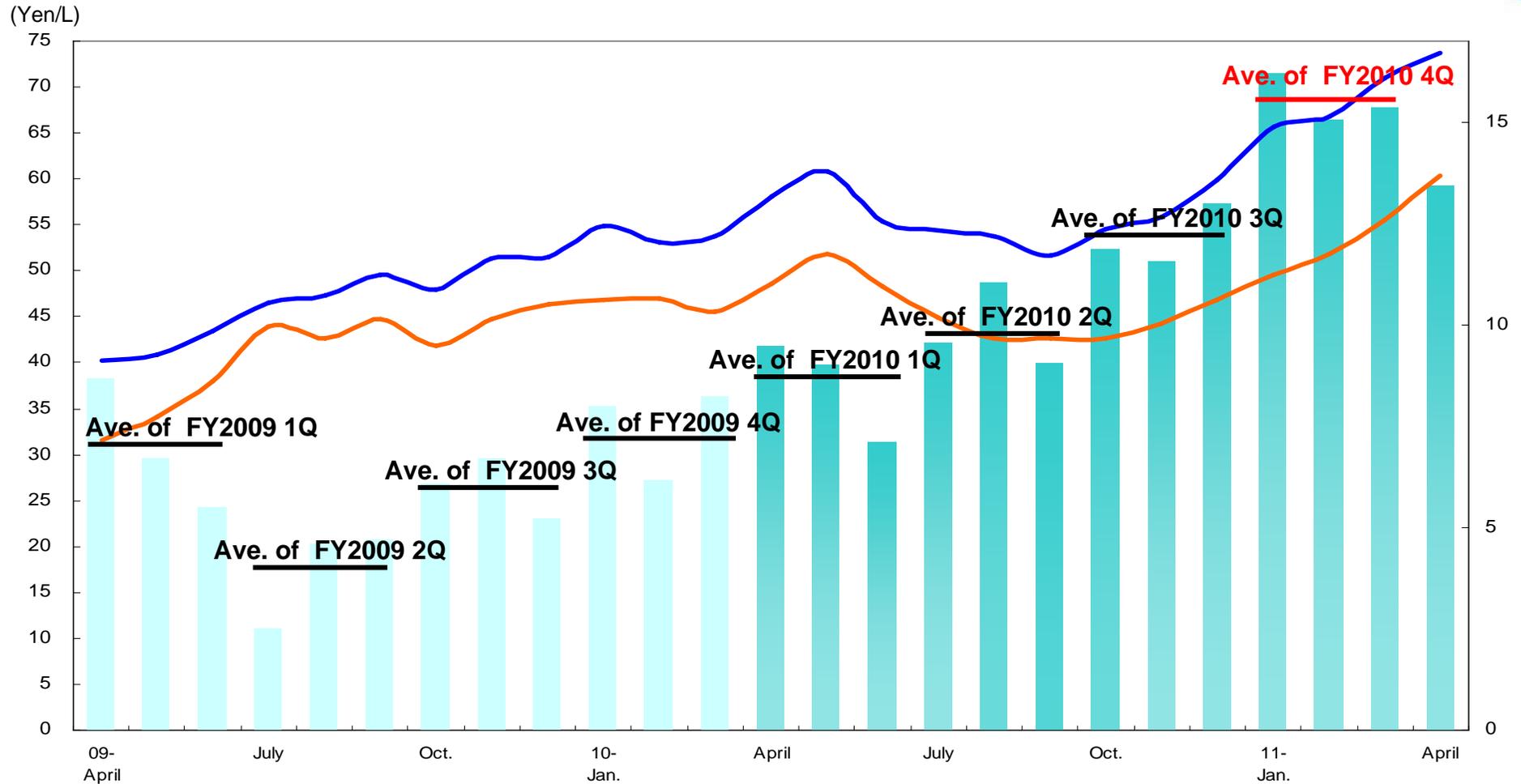
# Domestic Market Margin\* (Gasoline)



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

Source : Trade statistics (Ministry of Finance, Japan)

# Domestic Market Margin\* (Kerosene)



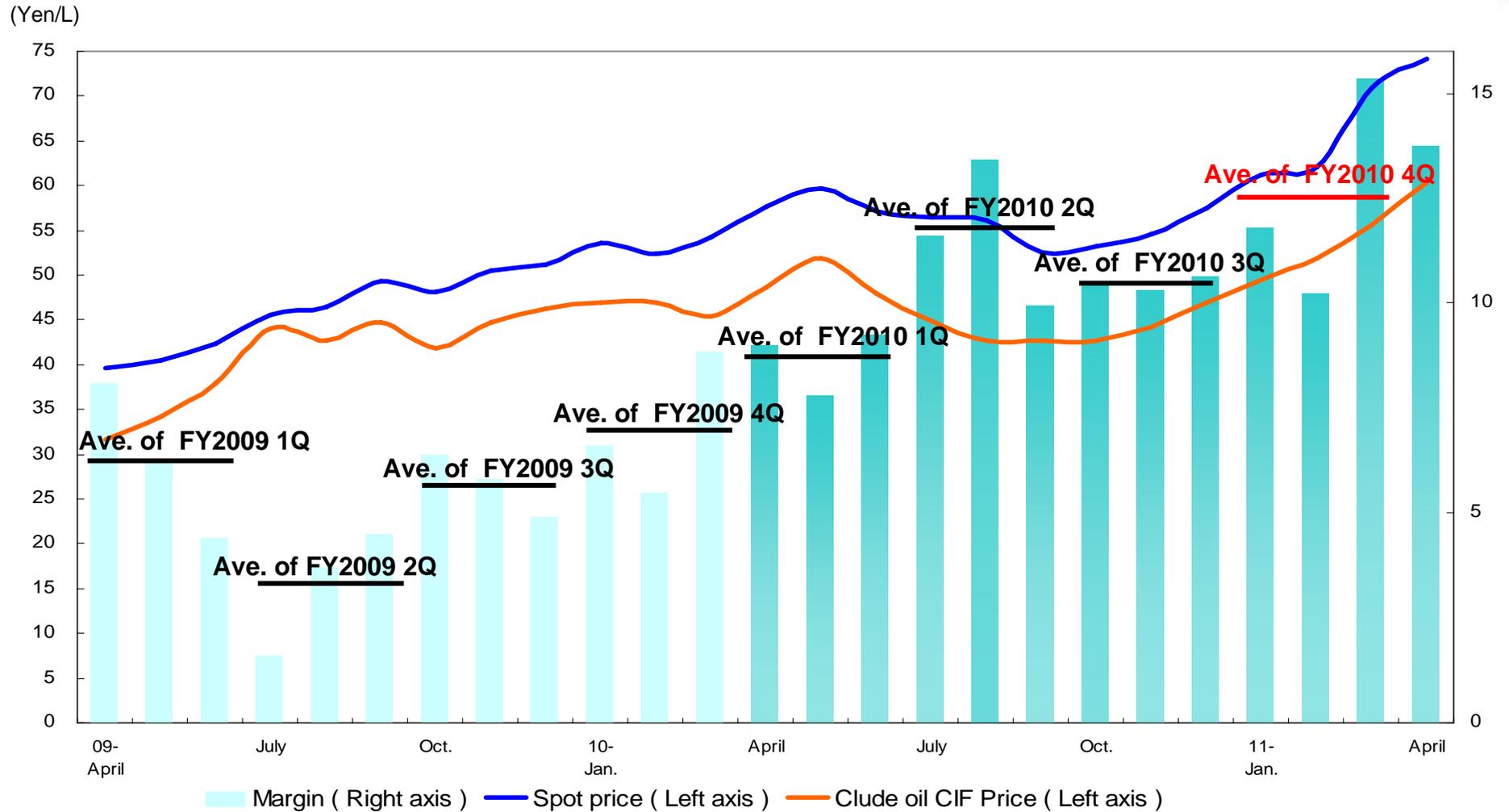
Margin ( Right axis )   Spot price ( Left axis )   Clude oil CIF Price ( Left axis )

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

Source : Trade statistics (Ministry of Finance, Japan)



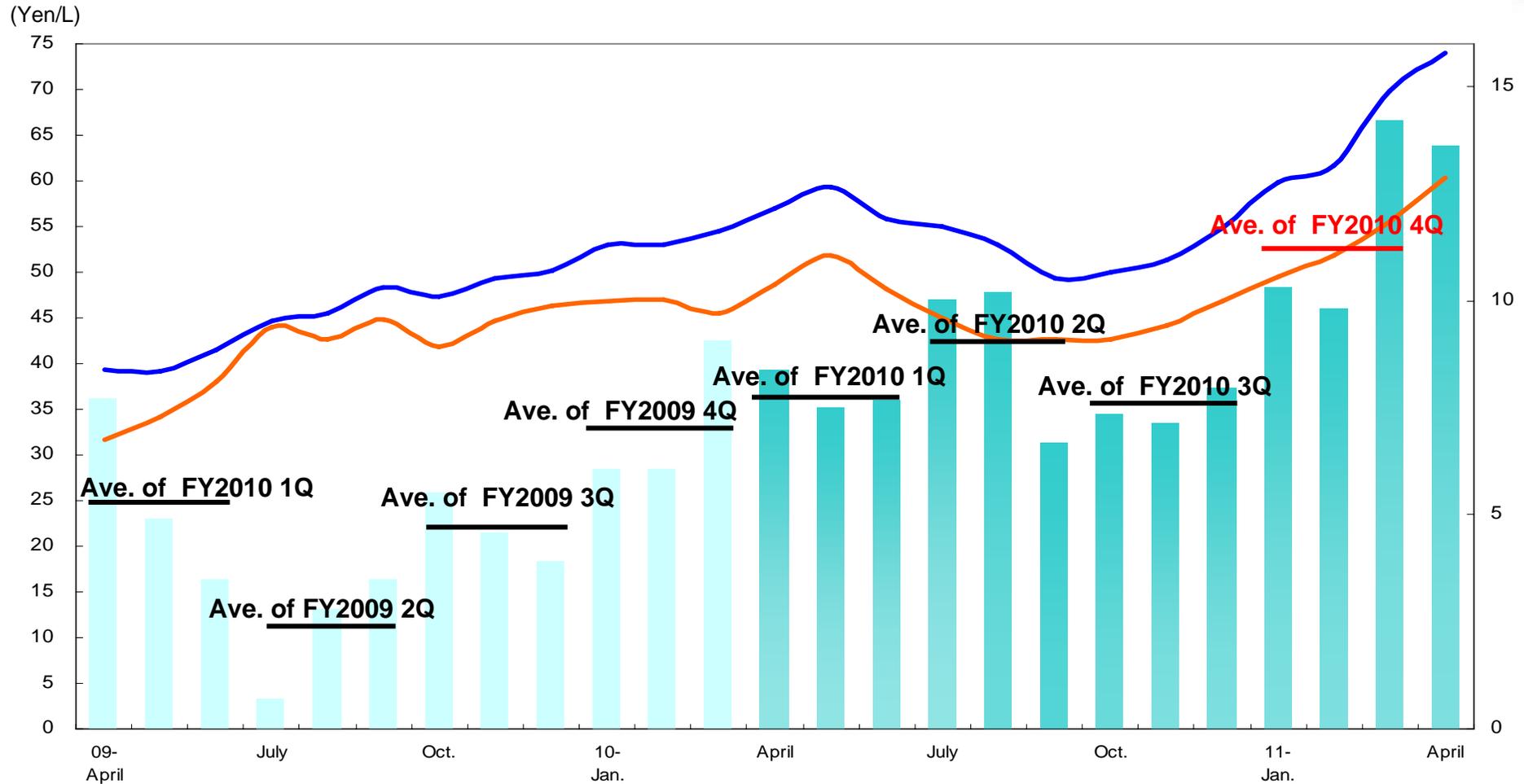
# Domestic Market Margin\* (Diesel Fuel)



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

Source : Trade statistics (Ministry of Finance, Japan)

# Domestic Market Margin\* (Heavy Fuel Oil A)

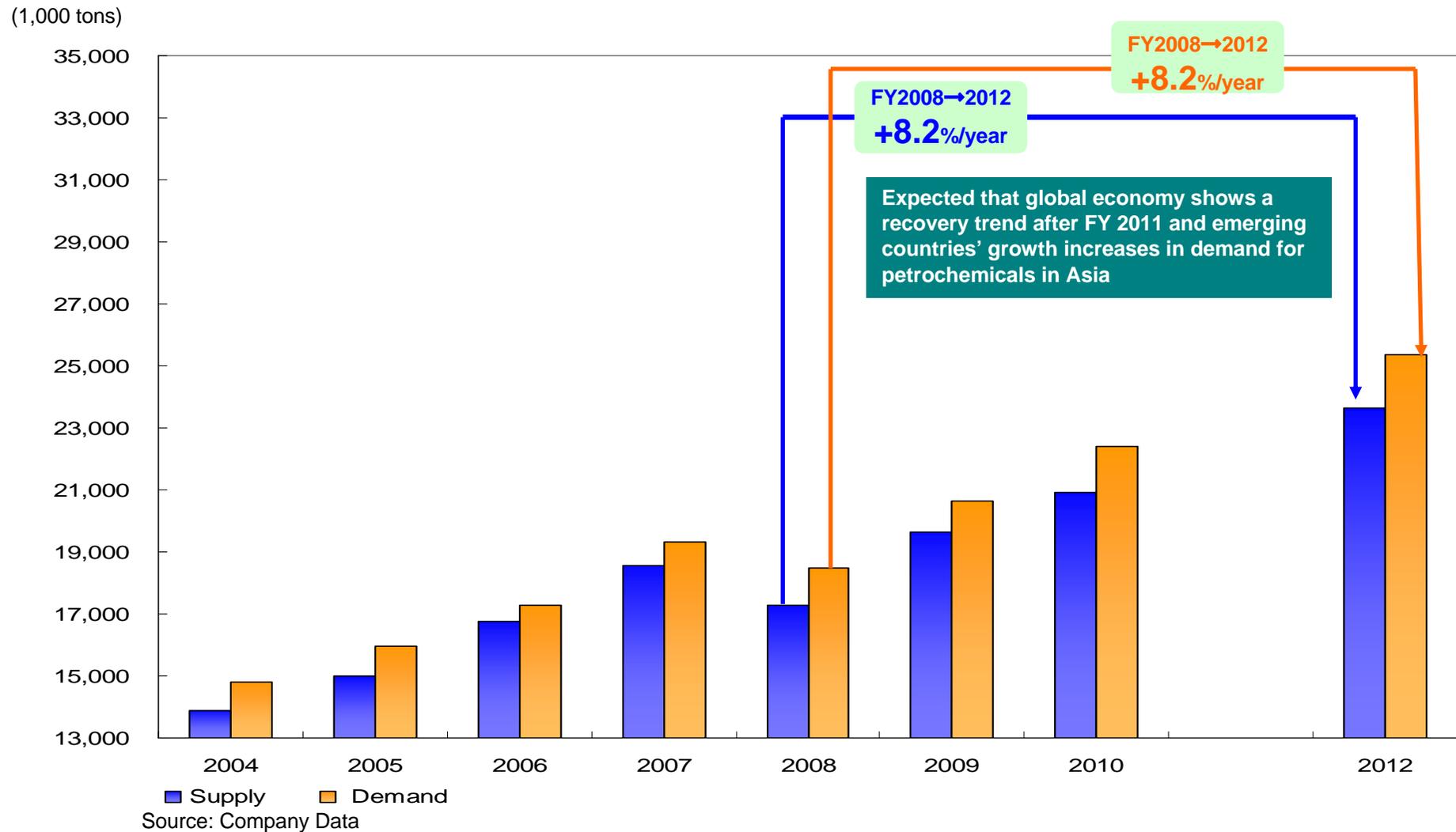


\* : Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)



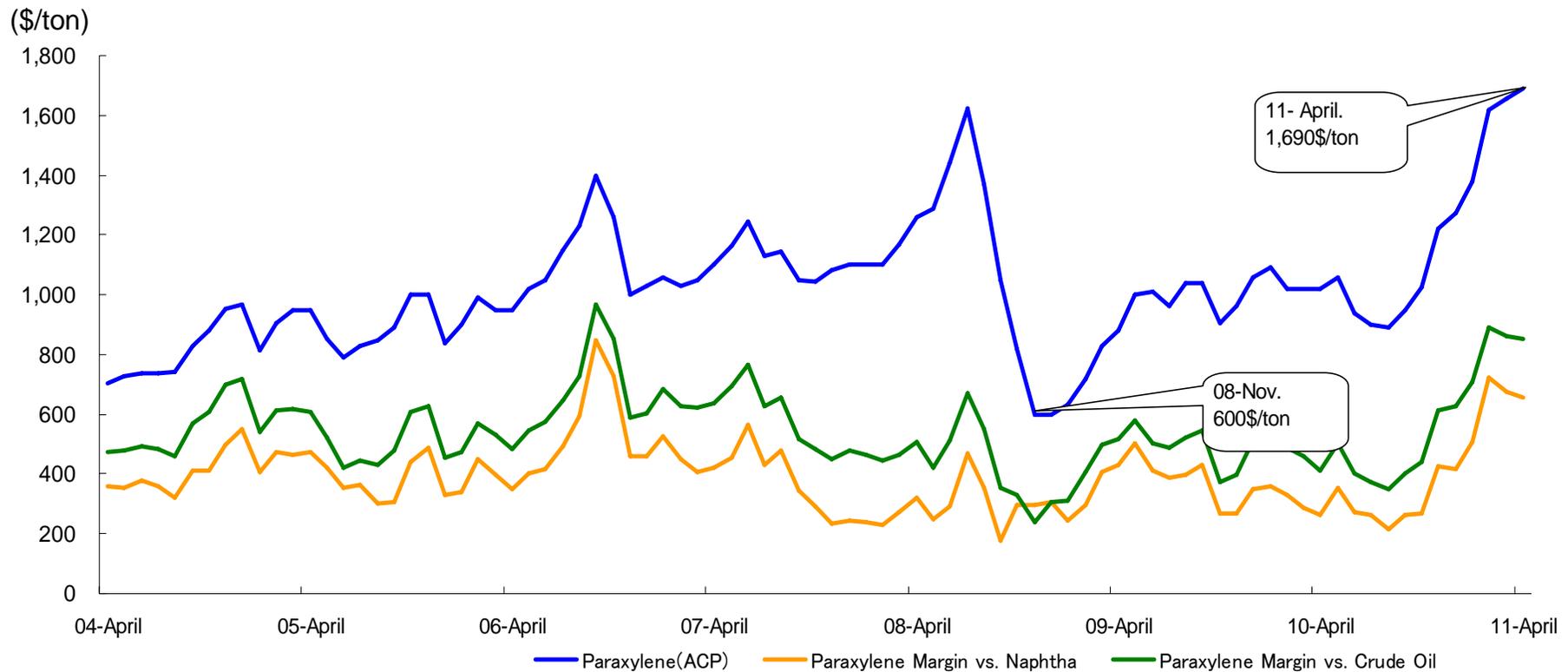
# Demand for Petrochemicals in Asia (Paraxylene)



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



Average Price	FY04	FY05	FY06	FY07	FY08	FY09	FY10				(\$/ton)
							1Q	2Q	3Q	4Q	
Asian Contract Price	829	903	1,103	1,119	1,020	999	1,007	913	1,173	1,552	1,162
Margin vs. Crude Oil	563	514	660	556	425	493	439	376	560	821	550
Margin vs. Naphtha	416	389	511	351	309	369	297	248	370	636	388

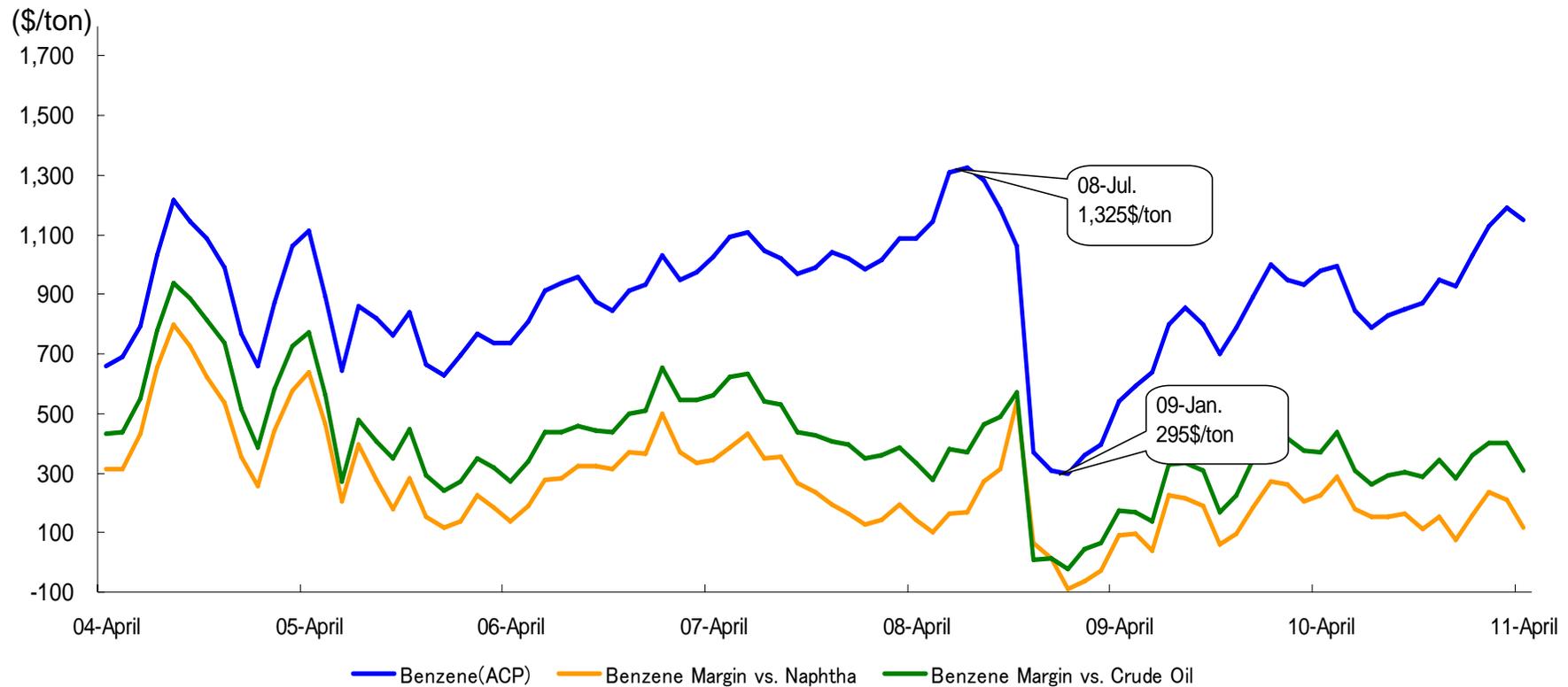


Note\*1. In case of ACP undecided, average price of spot market is adopted.



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

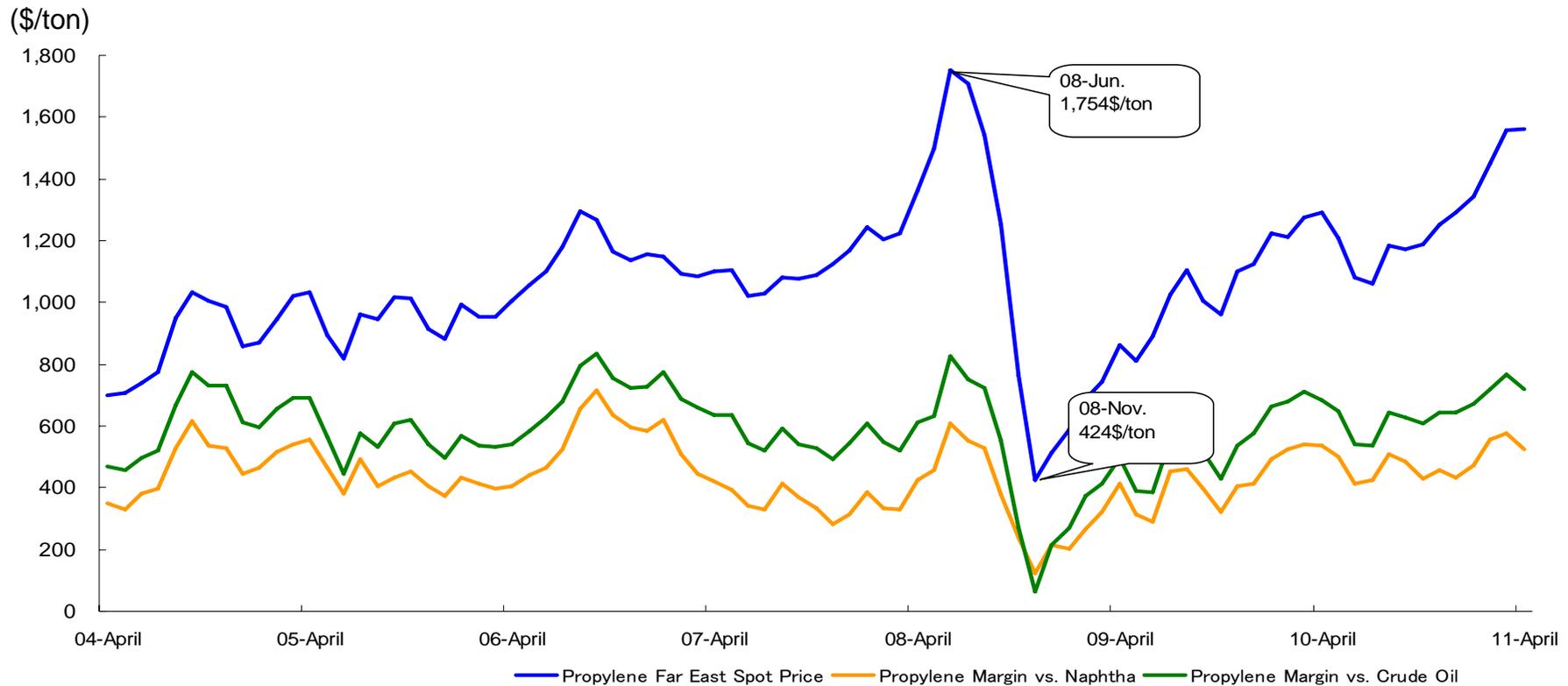
Average Price	FY04	FY05	FY06	FY07	FY08	FY09	FY10				(\$/ton)
							1Q	2Q	3Q	4Q	
Asian Contract Price	914	786	907	1,034	844	791	940	823	917	1,117	948
Margin vs. Crude Oil	648	397	464	471	249	285	372	286	304	386	336
Margin vs. Naphtha	501	271	315	265	133	161	230	158	113	201	174





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

Average Price	FY04	FY05	FY06	FY07	FY08	FY09	FY10				(\$/ton)
							1Q	2Q	3Q	4Q	
Far East Spot Price	883	948	1,138	1,123	1,070	1,050	1,193	1,140	1,244	1,451	1,258
Margin vs. Crude Oil	617	559	695	563	475	544	625	602	631	720	646
Margin vs. Naphtha	470	434	550	354	359	420	484	474	441	535	484



## Sales Volume of FY 2009, FY2010



	FY2009 VS. FY2010		Changes vs. FY 2009
	FY2009	FY2010	
	million KL	million KL	
Gasoline	20.02	19.90	-0.6%
Premium	2.95	2.79	-5.6%
Regular	16.96	17.00	0.2%
Naphtha	4.27	3.76	-12.0%
JET	1.56	1.45	-6.9%
Kerosene	7.99	7.55	-5.5%
Diesel Fuel	12.06	11.98	-0.8%
Heavy Fuel Oil A	6.82	6.41	-6.0%
Heavy Fuel Oil C	6.31	6.45	2.2%
For Electric Power	3.25	3.66	12.6%
For General Use	3.06	2.79	-8.8%
<b>Total Domestic Fuel</b>	<b>59.03</b>	<b>57.50</b>	<b>-2.6%</b>
Crude Oil	1.14	1.49	31.3%
Lubricants & Specialities	3.32	3.58	7.5%
Petrochemicals (million ton)	5.82	5.63	-3.2%
Exported Fuel	10.30	10.20	-0.9%
LPG (million ton)	2.01	1.88	-6.4%
Coal (million ton)	4.44	5.66	27.7%
<b>Total Excluding Barter Trade &amp; Others</b>	<b>86.06</b>	<b>85.94</b>	<b>-0.1%</b>
Barter Trade & Others	27.05	23.48	-13.3%
<b>Total</b>	<b>113.11</b>	<b>109.42</b>	<b>-3.3%</b>

Notes: 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
<b>JX Group</b>	<b>15,082</b>	<b>14,640</b>	<b>14,076</b>	<b>13,474</b>	<b>13,318</b>	<b>12,687</b>	<b>12,149</b>
EMGK *1	6,701	6,464	6,044	5,635	5,064	4,761	4,519
Idemitsu Kosan	5,358	5,249	5,059	4,913	4,598	4,338	4,148
Showa Shell Sekiyu	4,808	4,689	4,560	4,481	4,256	4,102	3,922
Cosmo Oil	4,709	4,552	4,359	4,188	3,913	3,768	3,609
Others *2	1,500	1,439	1,388	1,383	687	683	654
<b>Oil Companies</b>	<b>38,158</b> (79.5%)	<b>37,033</b> (78.8%)	<b>35,486</b> (79.4%)	<b>34,074</b> (79.2%)	<b>31,836</b> (77.5%)	<b>30,339</b> (76.8%)	<b>29,001</b> (76.7%)
<b>Private Brands and Others *3</b>	<b>9,842</b> (20.5%)	<b>9,967</b> (21.2%)	<b>9,214</b> (20.6%)	<b>8,926</b> (20.8%)	<b>9,264</b> (22.5%)	<b>9,161</b> (23.2%)	<b>8,799</b> (23.3%)
<b>Total *3</b>	<b>48,000</b>	<b>47,000</b>	<b>44,700</b>	<b>43,000</b>	<b>41,100</b>	<b>39,500</b>	<b>37,800</b>

## <Number of Company-Owned Service Stations>

	FY09	FY10
JX Group	2,893	2,701

## <Number of Self-Service Stations>

	FY09	FY10
JX Group	2,378	2,385
Total for Japan *4	6,906	6,945

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

\*2. Figures are total of Kyushu Oil, Taiyu 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<sup>\*1</sup> Utilization Rate



### Domestic Share of Sales

	FY09 (%)	FY10 (%)
Gasoline	34.8	34.2
Kerosene	41.9	39.2
Diesel Fuel	37.6	36.8
Heavy Fuel Oil A	42.5	41.6
Four Light Oil	37.6	36.6
Total Domestic Fuel	33.9	32.7

### Demand in Japan

	FY09 (1,000 KL)	FY10 (1,000 KL)	Changes against FY09 (%)
Gasoline	57,597	58,202	101.1
Kerosene	20,056	20,340	101.4
Diesel Fuel	32,388	32,867	101.5
Heavy Fuel Oil A	16,043	15,412	96.1
Four Light Oil	126,084	126,821	100.6
Total Domestic Fuel	195,122	195,973	100.4

### CDU Utilization Rate (Excluding the impact of periodic repair)

	(Unit : million BD)							
	FY04	FY05	FY06	FY07	FY08	FY09	FY10 2H	FY10
	('04/4-'05/3)	('05/4-'06/3)	('06/4-'07/3)	('07/4-'08/3)	('08/4-'09/3)	('09/4-'10/3)	('10/10-'11/3)	('10/4-'11/3)
<b>JX Group</b>	<b>94%</b>	<b>93%</b>	<b>91%</b>	<b>89%</b>	<b>85%</b>	<b>78%</b>	<b>91%</b>	<b>86%</b>

\* 1.Crude Distillation Unit

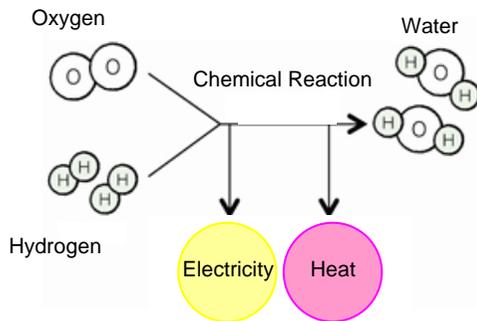
\* 2.Excluding Condensate splitter of Mizushima and Kashima.

Source: Petroleum Association of Japan and Company data

# 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%
- Rejection Heat Loss 55~60%

Energy Efficiency 35-40%

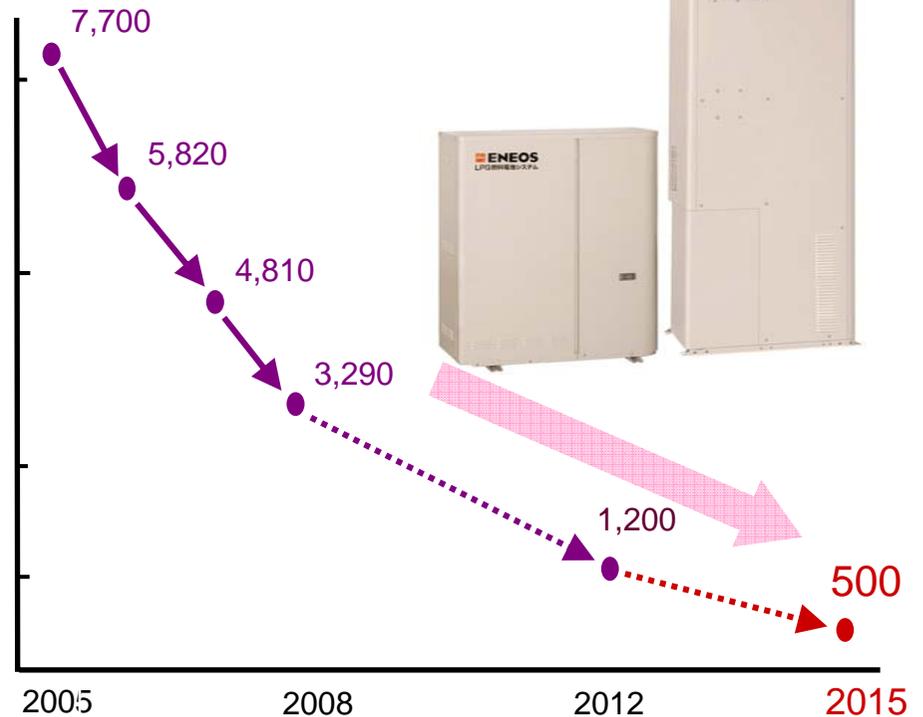
#### ENE·FARM

- Power Transmission Loss 0%
- Rejection Heat Loss 15~20%

Energy Efficiency 80-85%

## 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&amp;P of Oil and Natural Gas Projects



Project Name/Company	Sales Volume(Jan.-Dec. 2010) (1,000BOED) *1		Reserves *2 (million BOE)	
	OIL	Gas		
[Gulf of Mexico(U.S.A.)] JX Nippon Oil Exploration U.S.A. Limited	10	4	6	27
[Canada] Japan Canada Oil Company Limited	15	15	0	253
[North Sea, U.K.] JX Nippon Oil Exploration and Production U.K. Limited	11	7	4	20
[Vietnam] Japan Vietnam Petroleum Co., Ltd.	11	8	3	
[Myanmar] Nippon Oil Exploration (Myanmar) Ltd.	9	1	8	
[Malaysia] JX Nippon Oil Exploration (Malaysia) Ltd. JX Nippon Oil Exploration (Sarawak) Ltd.	18 32	3 2	15 30	
[Indonesia] Nippon Oil Exploration (Berau) Ltd.	13	1	12	<Sub Total> 319
[Papua New Guinea] Japan Papua New Guinea Petroleum Company Ltd. Southern Highlands Petroleum Co., Ltd.	6 1	6 1	0 0	
[Australia] Nippon Oil Exploration (Australia) Pty Ltd.	1	1	0	
[United Arab Emirates, Qatar and others] Abudhabi Oil Co., Ltd., United Petroleum Development Co., Ltd. and others *3	13	13	0	69
Total	140	62	79	775

\*1 Project company basis .

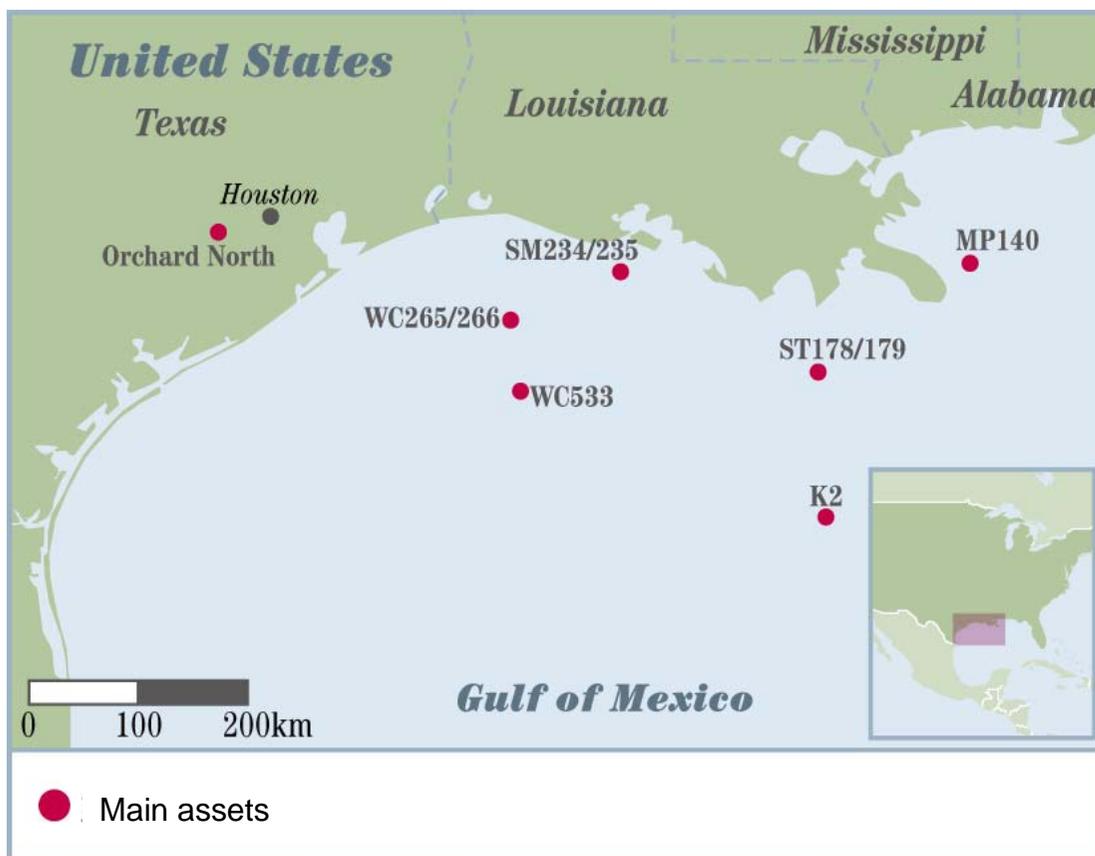
\*2 Proved reserves and probable reserves as of end of Dec., 2009, including reserves from projects currently under development.

\*3 JX Group's equity basis

# Principal Individual E&P Project Overview ①



## Gulf of Mexico



### '10 Jan - Dec Sales Volume

10,000 boed  
(oil: 4,300 b/d, gas: 34mmcf/d)

### Project Company

JX Nippon Oil Exploration U.S.A. Ltd.  
(JX NOEX USA)  
(100%)  
(%) = JX Group Shareholding

### Range Of Interests in Individual Fields

11.6% to 100%

### Operators

NOEX USA, Anadarko, ConocoPhillips, others

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

# Principal Individual E&P Project Overview ②



## Canada



### '10 Jan – Dec Sales Volume

14,700BOED  
(Oil 14,700b/d)

### Project Company

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

### Interest in Individual Fields

5%

### Operator

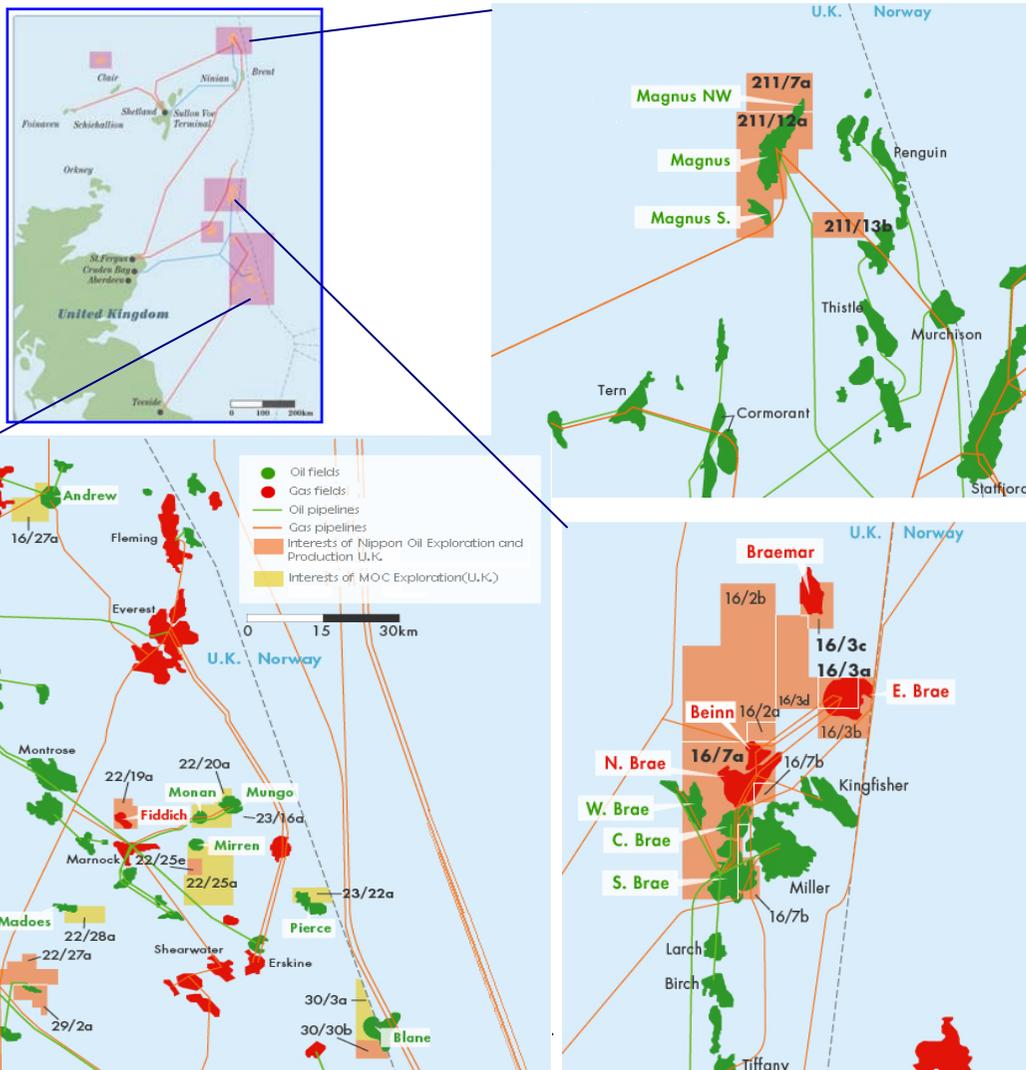
Syncrude Canada

● 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 Japan Canada Oil).

# Principal Individual E&P Project Overview ③



## U.K. North Sea ①



'10 Jan - Dec Sales Volume  
 11,300BOED  
 (oil: 6,900b/d, gas: 27mmcf/d)

### Project Company

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

(%) = JX Group Shareholding

### Range of Interests in Individual Fields

2.1% to 38.2%

### Operators

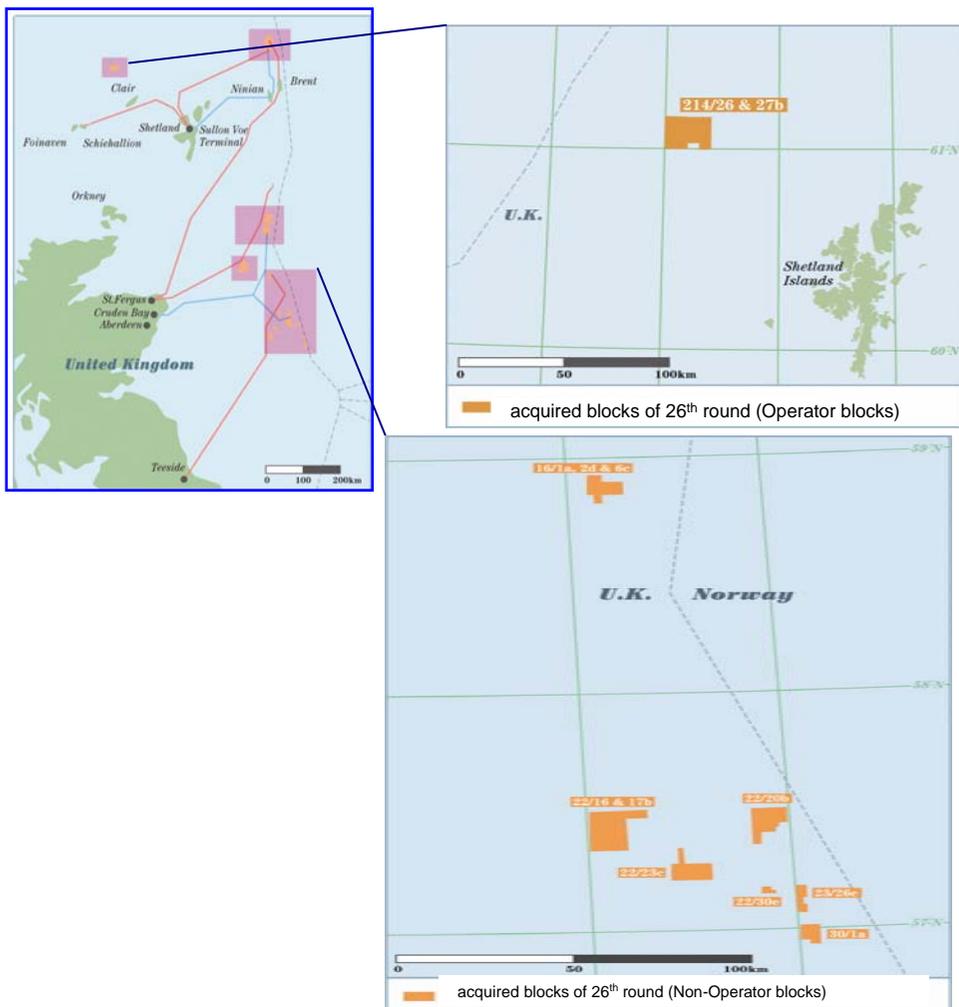
BP, Shell, Marathon, others

- 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 Gas 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



New blocks are acquired in 26<sup>th</sup> round in 2010.

**Project Company**

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

Operator blocks

Interests of individual Fields

40%

the west of Shetland Islands

214/26, 214/27b

Non-Operator blocks

Range of Interests of individual Fields

10-25%

**Operators**

GDF Suez, BP, Maersk, TAQA

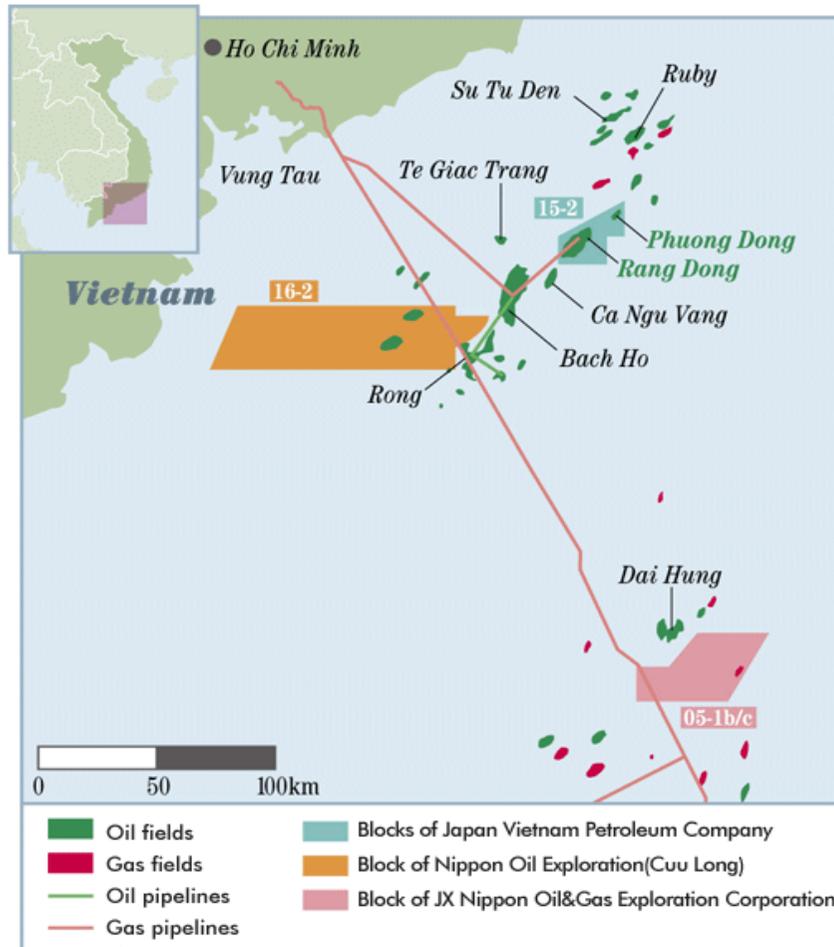
middle North Sea

22/16, 22/17b, 22/20b, 22/23c, 22/30e,  
23/26e, 30/1a, 16/1a, 16/2d, 16/6c

# Principal Individual E&P Project Overview ⑤



## Vietnam ① (Block 15-2)



**‘10Jan - Dec Sales Volume**  
**10,700BOED**  
 (oil: 7,600b/d, gas: 19mmcf/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%

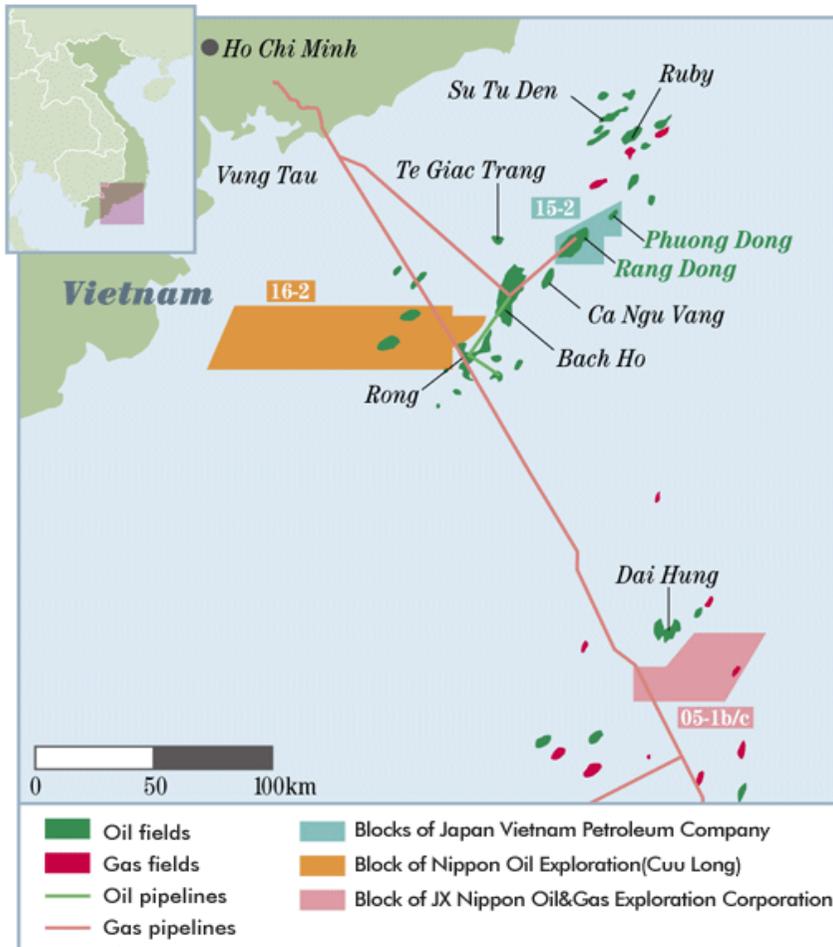
**Operator**  
 JVPC

- 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 and April 2011, 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



## Vietnam ② (Block 16-2)



### Project Company

Nippon Oil & Exploration (Cuu Long) Co., Ltd.

(35.0%)

(%) = JX Group Shareholding

**Interest** 40%

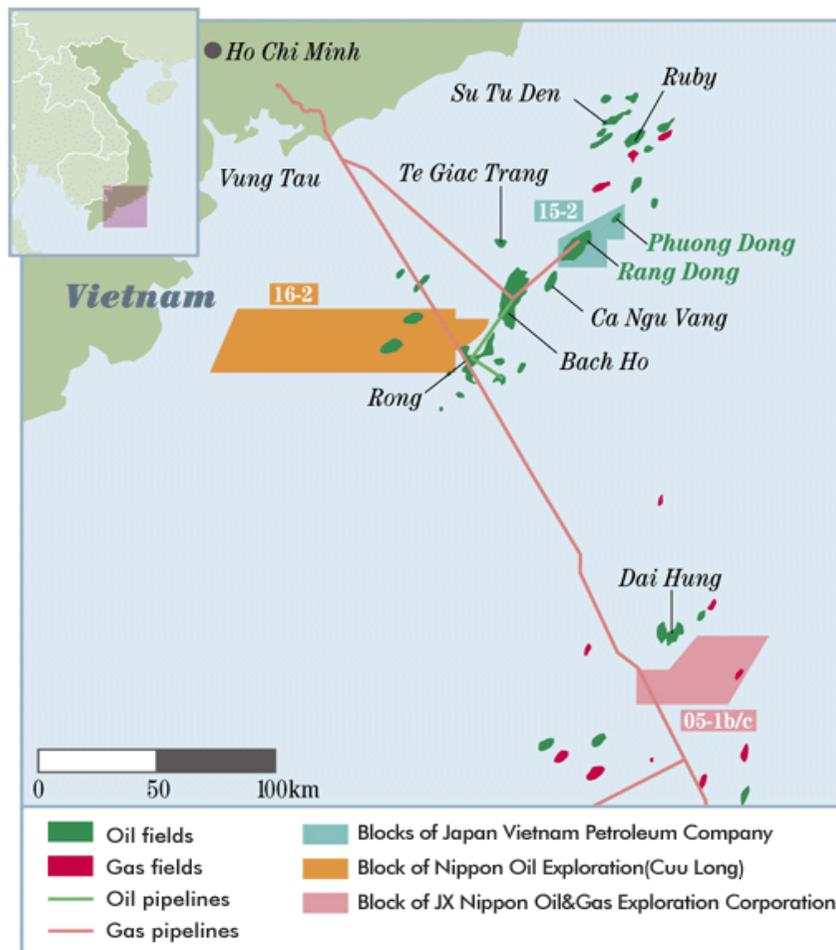
**Operator** PVEP

- In November 2007, acquired a working interest in block 16-2 offshore Vietnam.
- In November 2009, using test well No,1, made a gas and condensate discovery.
- In August 2010, using test well No,2, made a gas and condensate discovery.

# Principal Individual E&P Project Overview ⑦



## Vietnam ③ (Block 05-1b/c)



### Project Company

JX Nippon Oil & Gas Exploration Co., Ltd.

(100.0%)

(%) = JX Group Shareholding

Interest 35%

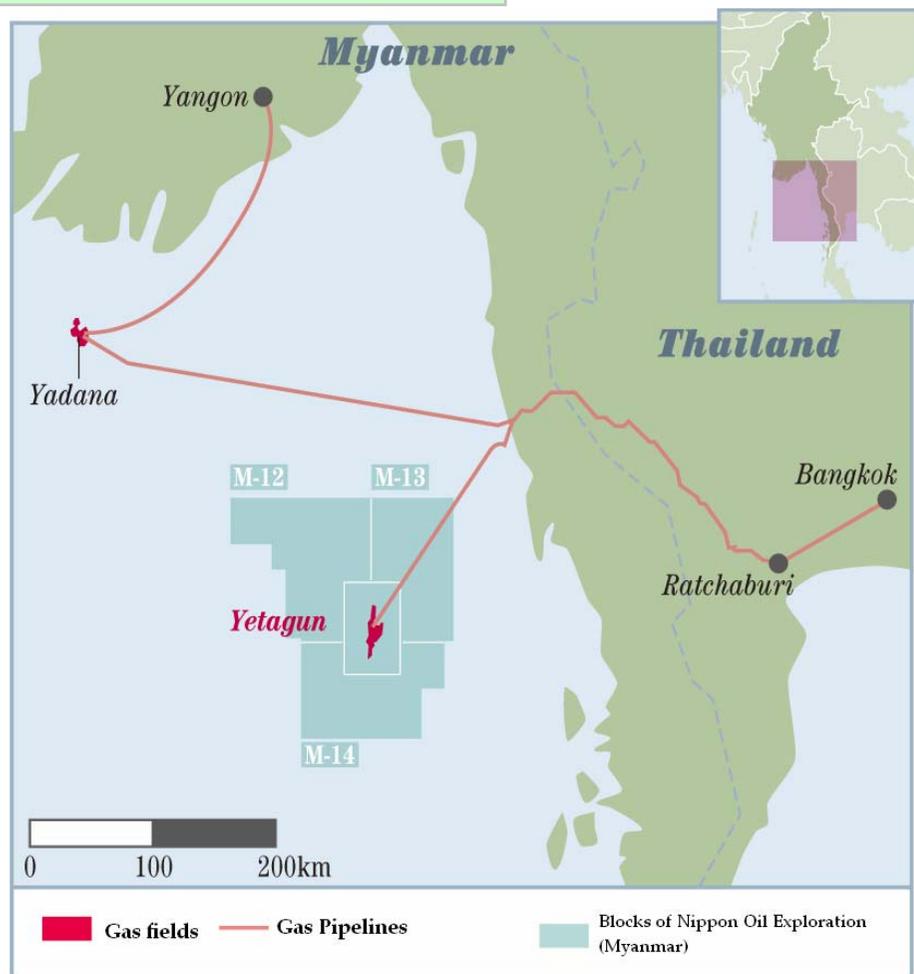
Operator Idemitsu Oil & Gas CO., Ltd.

- In October 2004, acquired a working interest in block 05-1b/c offshore Vietnam.
- In August 2010, using test well No,1, made a gas and condensate discovery.

# Principal Individual E&P Project Overview ⑧



## Myanmar



**‘10Jan - Dec Sales Volume**  
 8,900BOED  
 (oil: 900b/d, gas: 49mmcf/d)

**Project Company**  
 Nippon Oil Exploration (Myanmar), Limited  
 (NOEX Myanmar)(50%)  
 (%) = JX Group Shareholding

**Interest in Individual Fields**  
 19.3%

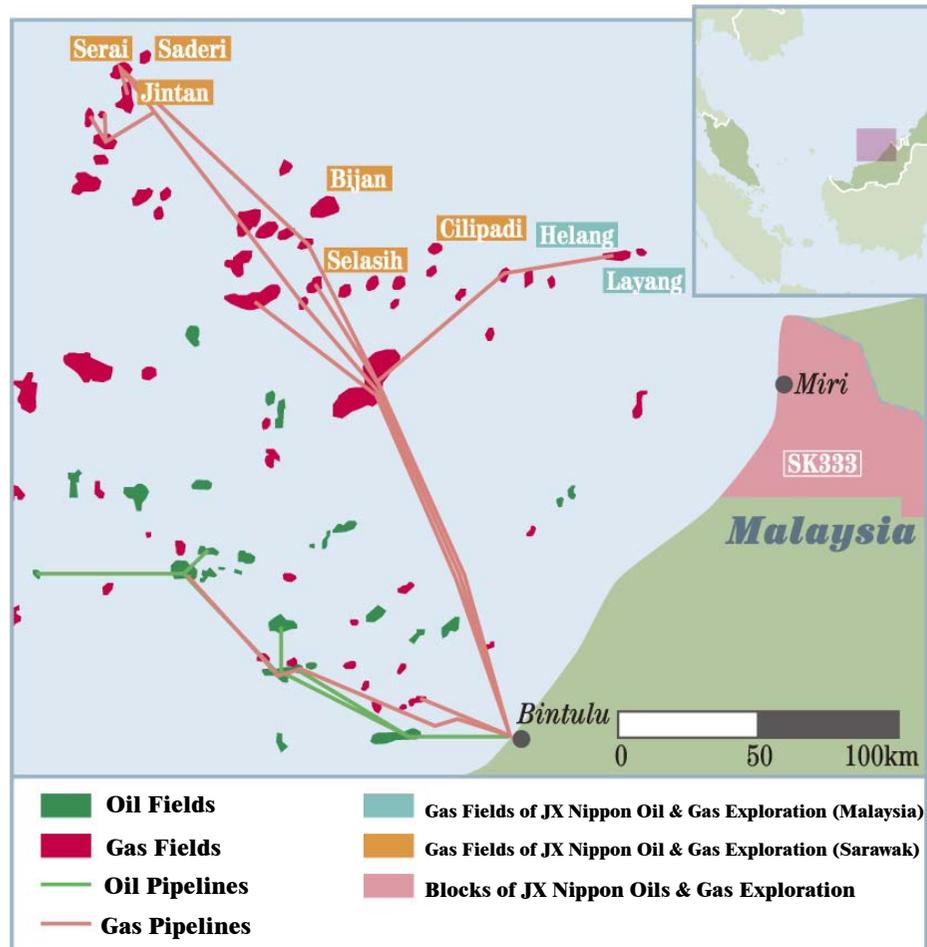
**Operator**  
 PETRONAS Carigali

- 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 ⑨



## Malaysia ① (Block SK-10)



### '10 Jan - Dec Sales Volume

18,100BOED  
(oil: 3,400b/d, gas: 89mmcf/d)

### Project Company

JX Nippon Oil & Gas Exploration (Malaysia), Limited  
(78.7%)  
(%) = JX Group Shareholding

### Range of Interest in Individual Fields

75%

### Operator

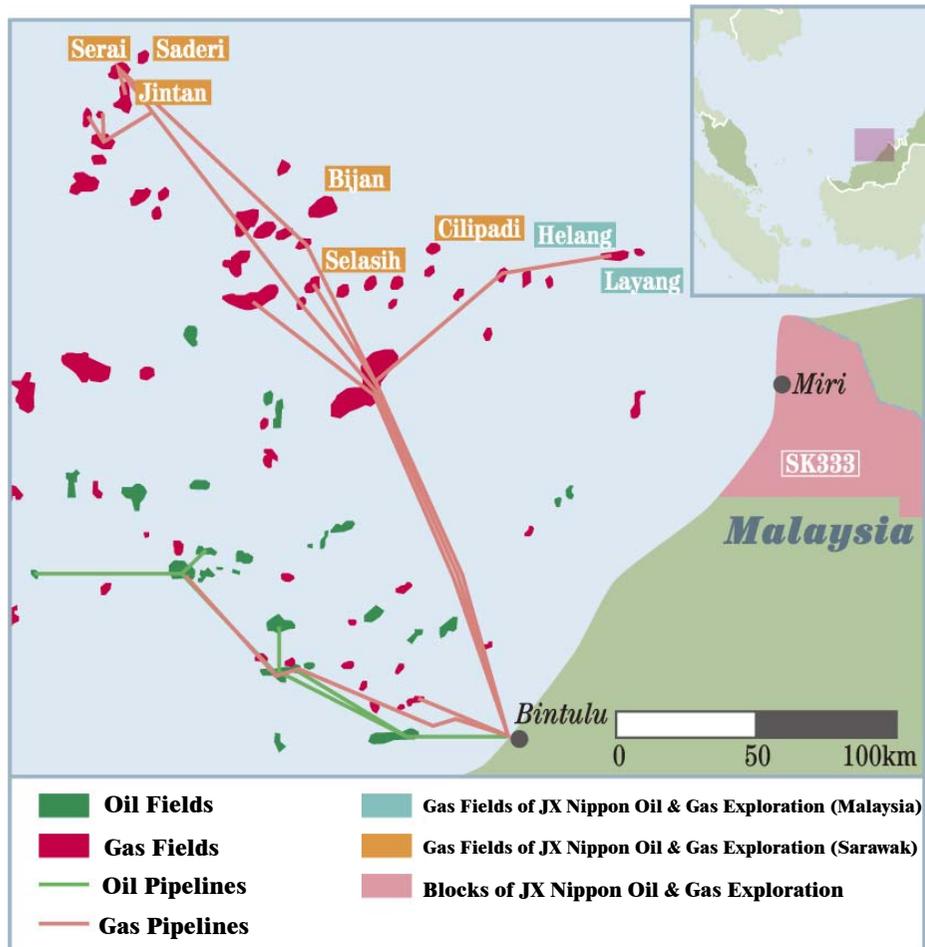
JX Nippon Oil & Gas Exploration (Malaysia), Limited

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

# Principal Individual E&P Project Overview ⑩



## Malaysia ② (Block SK-8)



'10 Jan - Dec Sales Volume  
32,200BOED  
(oil: 2,400b/d, gas: 179mmcf/d)

### Project Company

JX Nippon Oil & Gas Exploration (Sarawak), Limited  
(76.5%)  
(%) = JX Group Shareholding

### Interest in Individual Fields

37.5%

### Operator

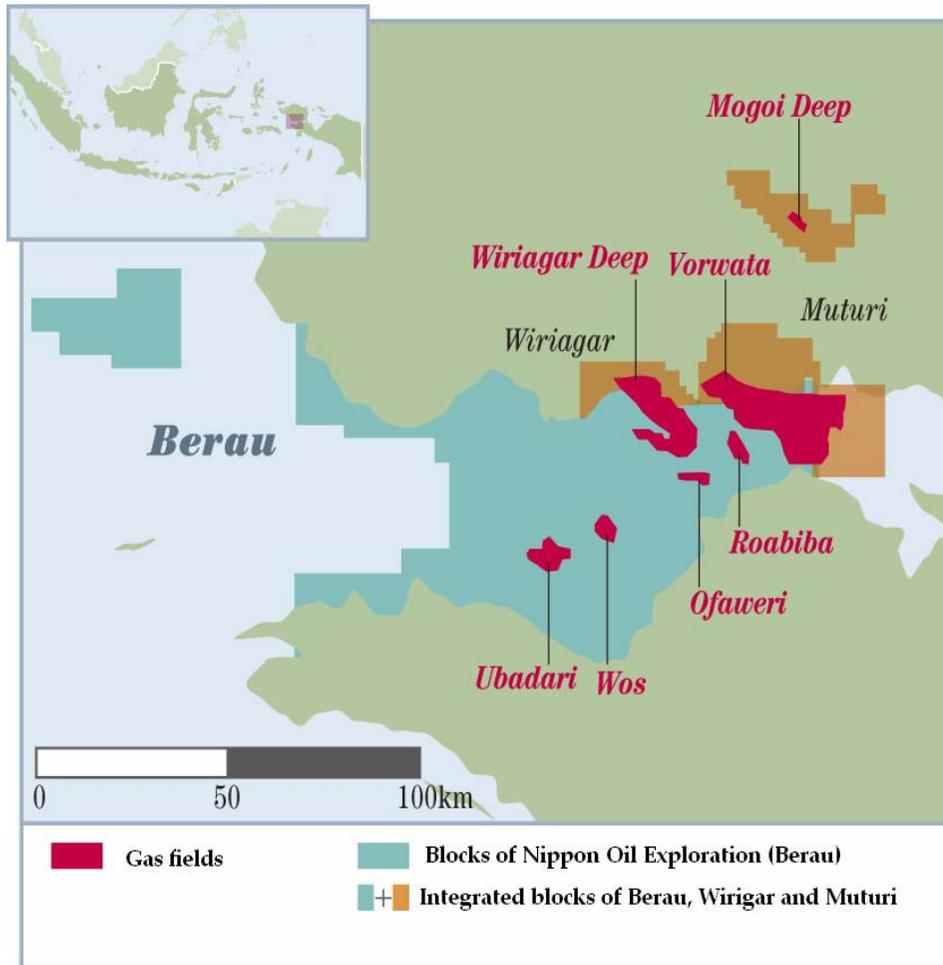
Shell

- In 1991, 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 Saderi Gas field commenced production.

# Principal Individual E&P Project Overview ⑪



## Indonesia



### '10 Jan - Dec Sales Volume

13,000BOED  
(oil: 600b/d, gas: 74mmcf/d)

### Project Company

Nippon Oil Exploration (Berau), Limited  
(NOEX(Berau)) (51%)  
(%) = JX Group Shareholding

### Interest in Individual Fields

12.2% (after unitization)

### Operator

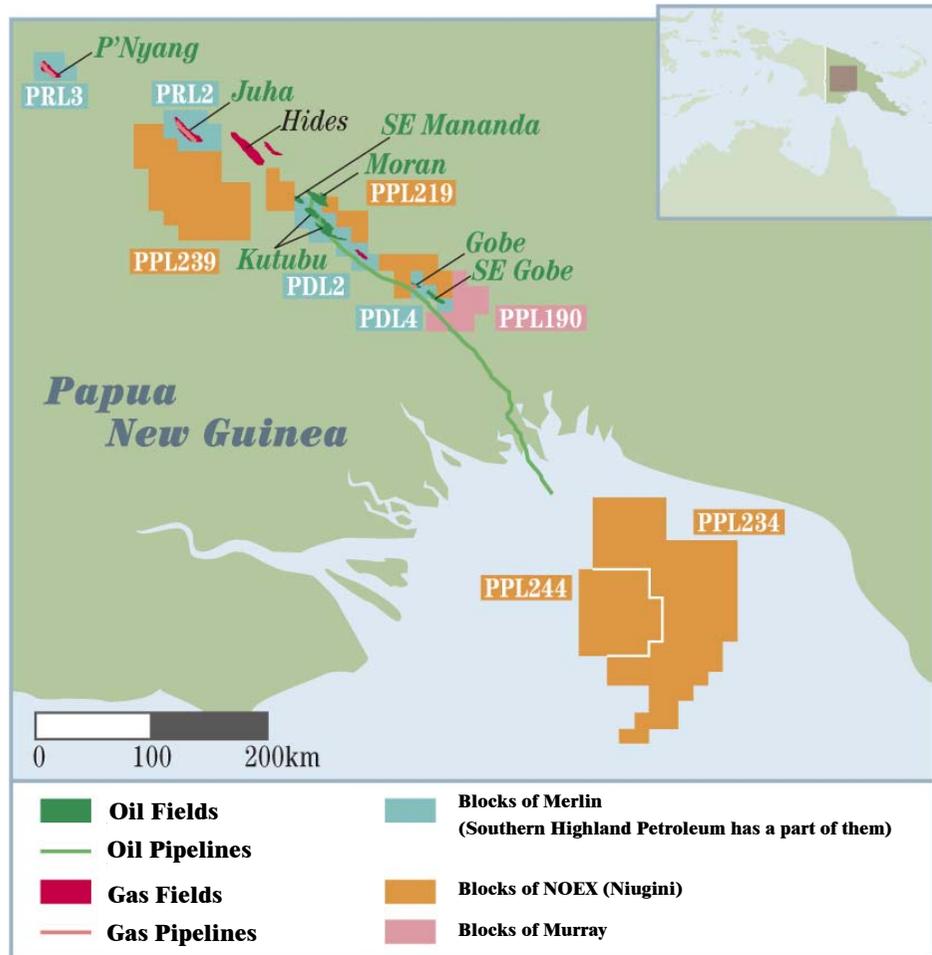
BP

- 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 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.
- Production commenced in June 2009, and the first cargo of LNG has lifted in July 2009.

# Principal Individual E&P Project Overview ⑫



## Papua New Guinea



### '10 Jan - Dec 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

4.7 to 73.5%

### Operator

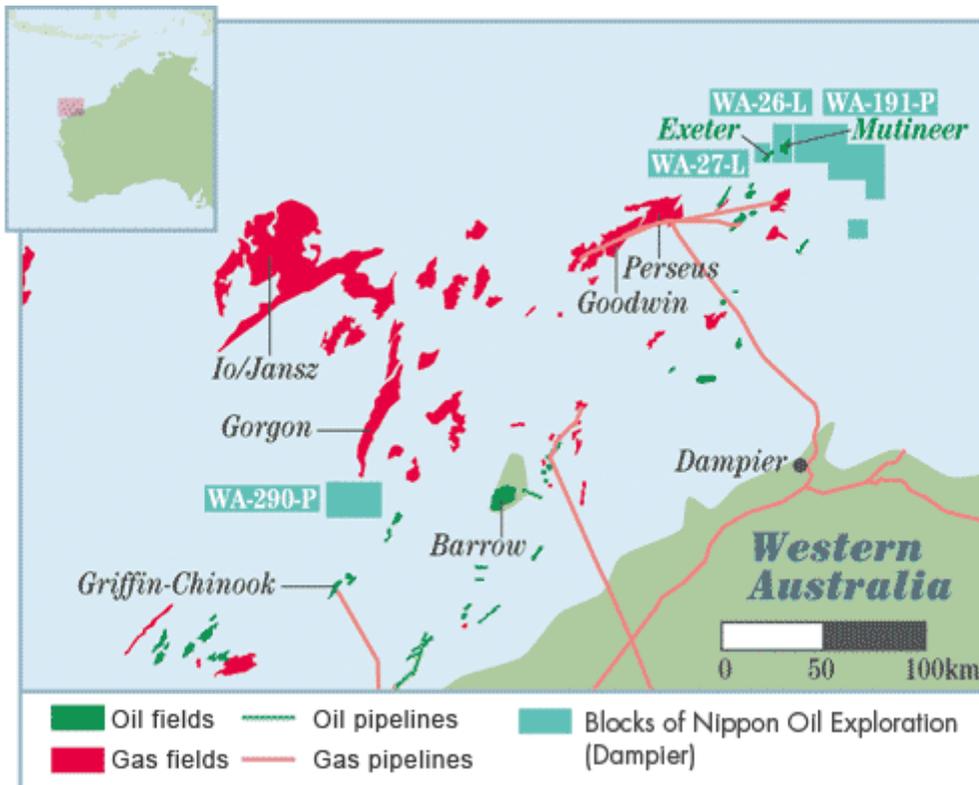
Oil Search, Exxon Mobil, others

- 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, SE Gobe, and SE Mananda 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 December 2009, PNG LNG Project was made a final decision to proceed with the development.
- In April 2011, using test well "Mananda-5", made a Oil discovery.

# Principal Individual E&P Project Overview ⑬



## Australia



### '10 Jan - Dec Sales Volume

1,200BOED  
(oil: 1,200b/d)

### Project Company

Nippon Oil Exploration (Dampier), Limited  
(100%)

(%) = JX Group Shareholding

### Interest in Individual Fields

15%-25%

### Operator

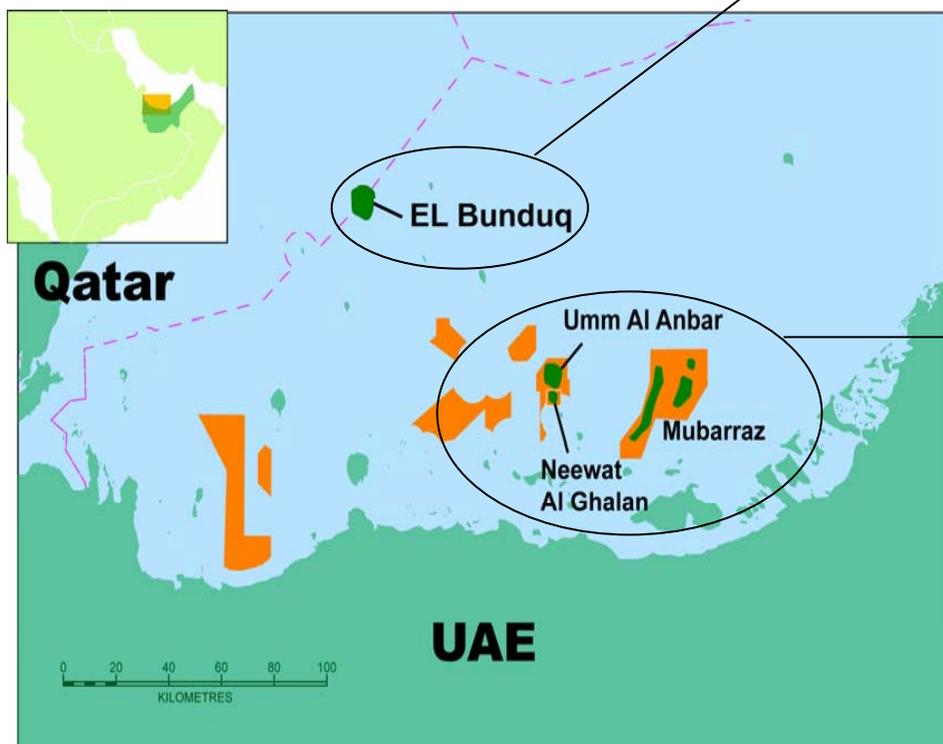
Santos (WA-26-L, WA27-L, WA-191-P)  
Apache (WA-290-P)

- In 2002, acquired a working interest in Block WA-191-P, and discovered Mutineer and Exeter Oil Field. Production of Mutineer and Exeter Oil Fields are commenced in 2005.
- In April 2011, using test well "Zola-1", made a Gas discovery in Block WA-290-P.

# Principal Individual E&P Project Overview ⑭



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%)

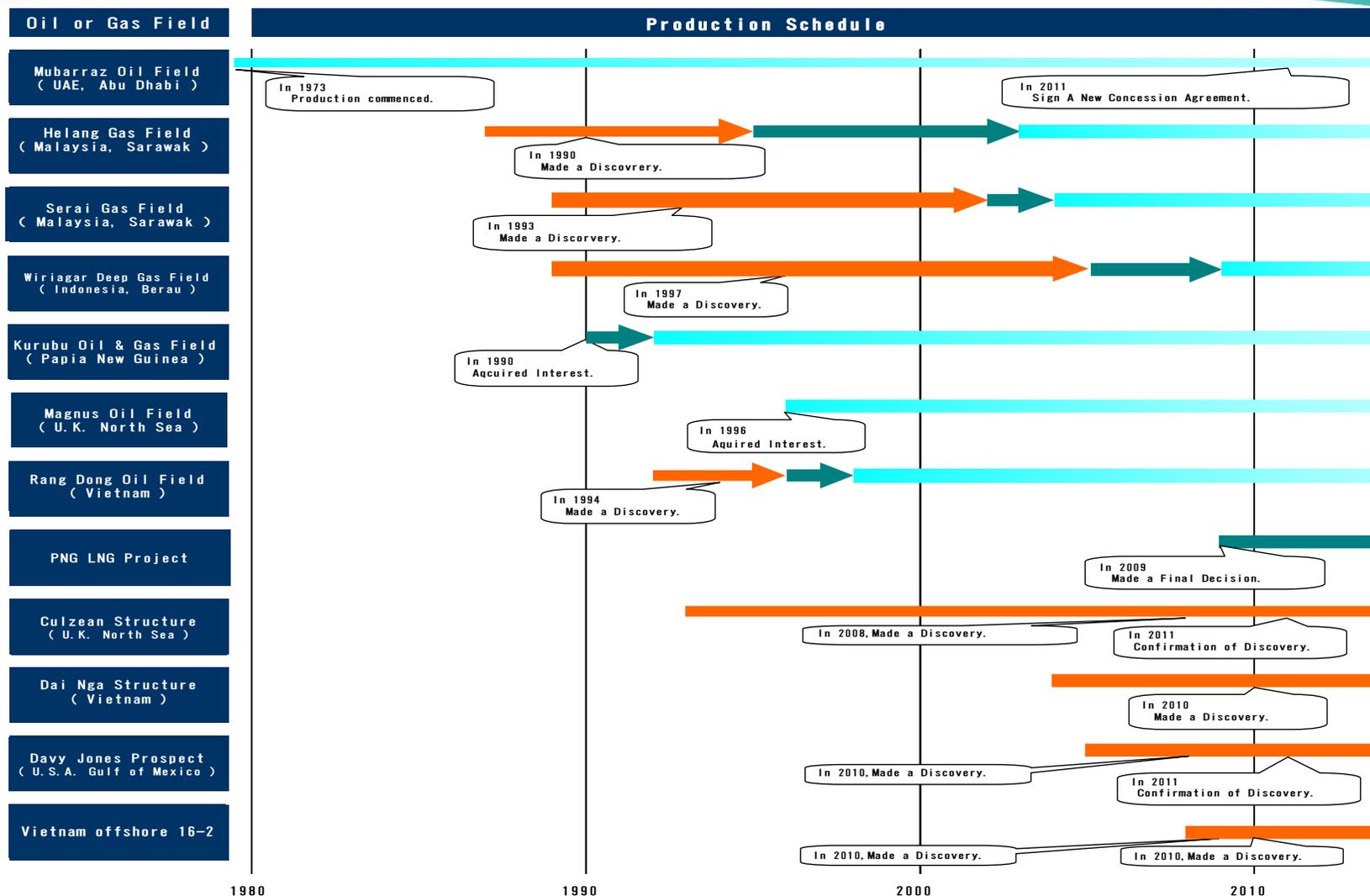
(%) = JX Group Shareholding

**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.
- In 2011, Sign a New Concession Agreement.

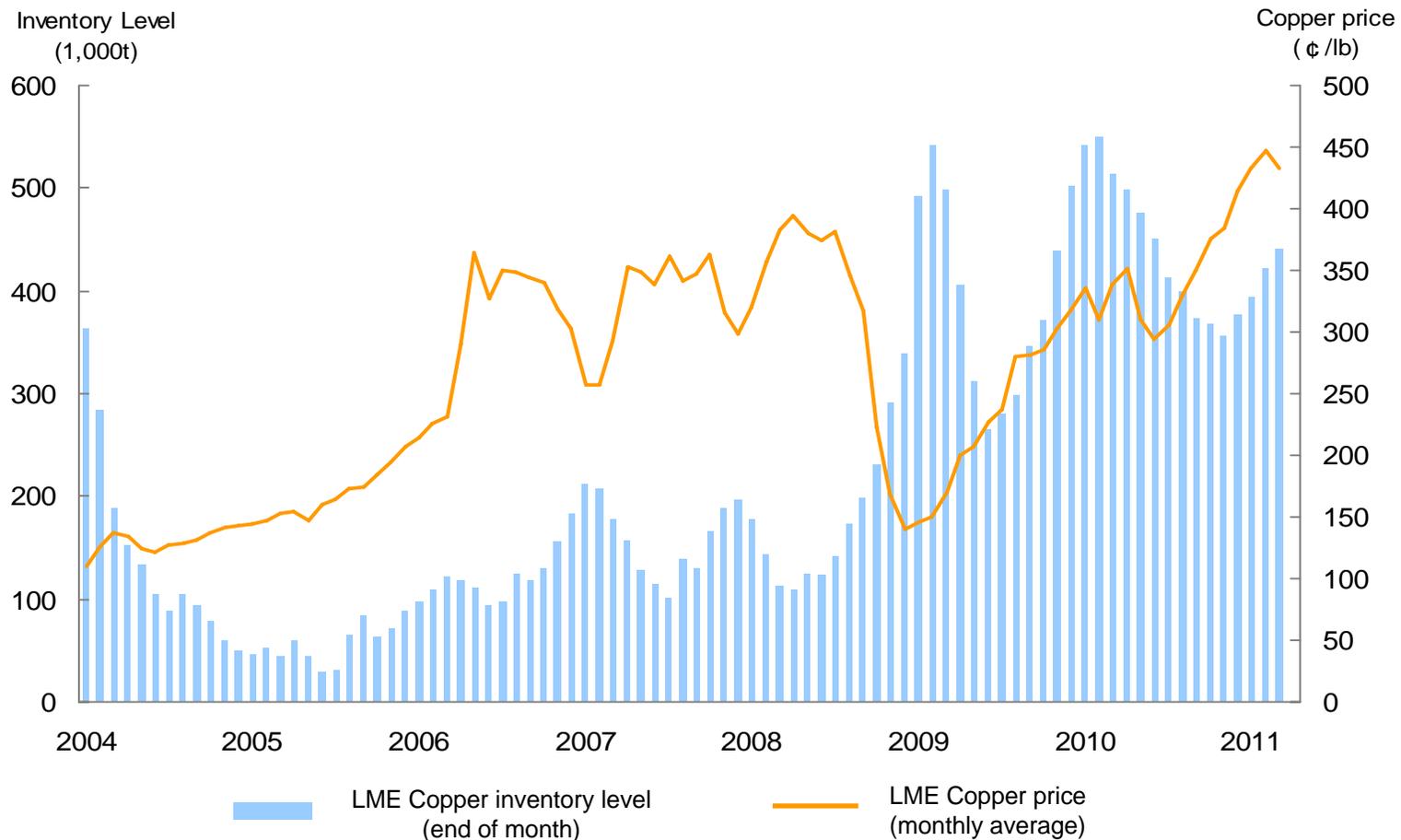
# Production Schedule of Principal E&P Projects



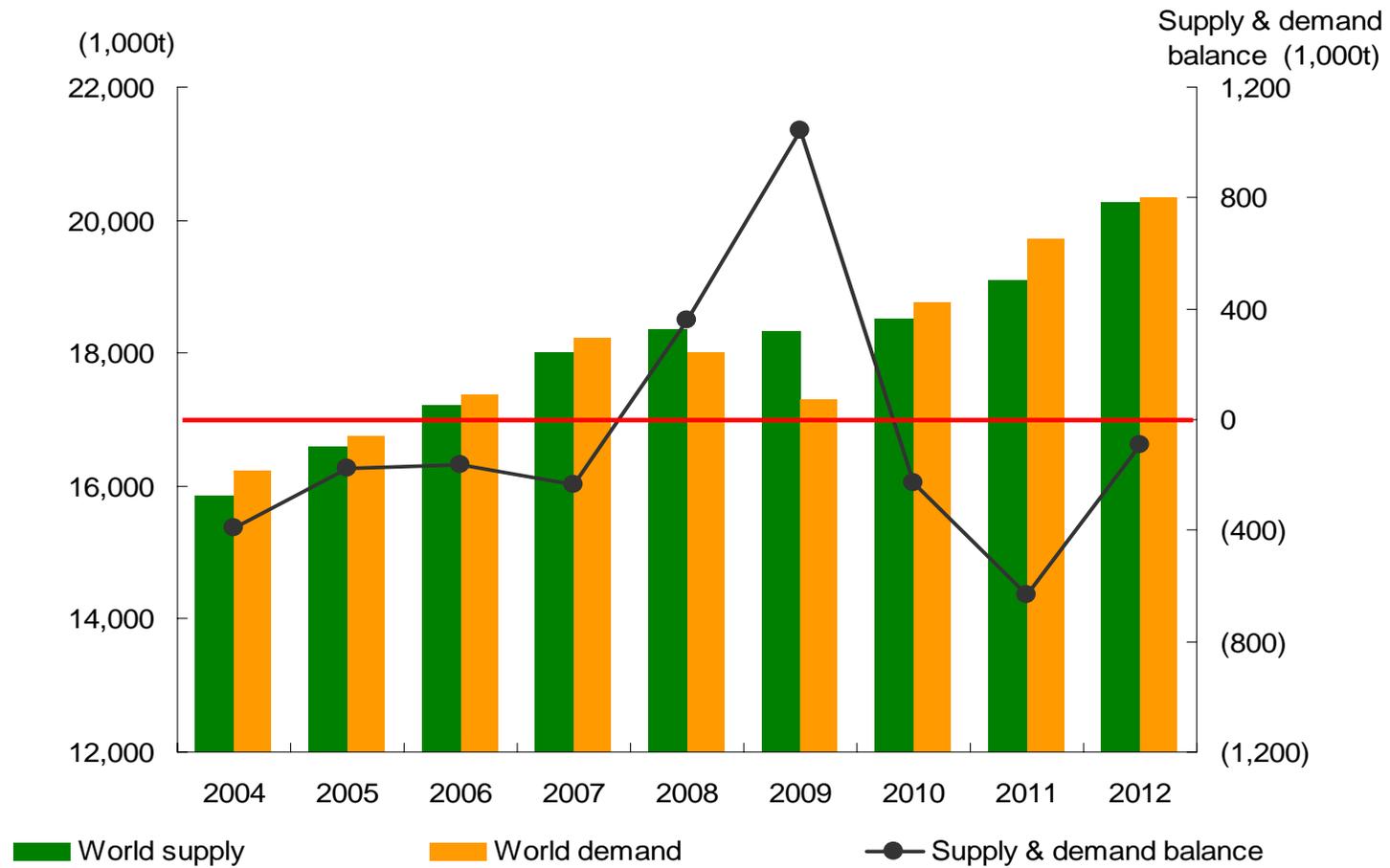
# Copper Price and Inventory Level



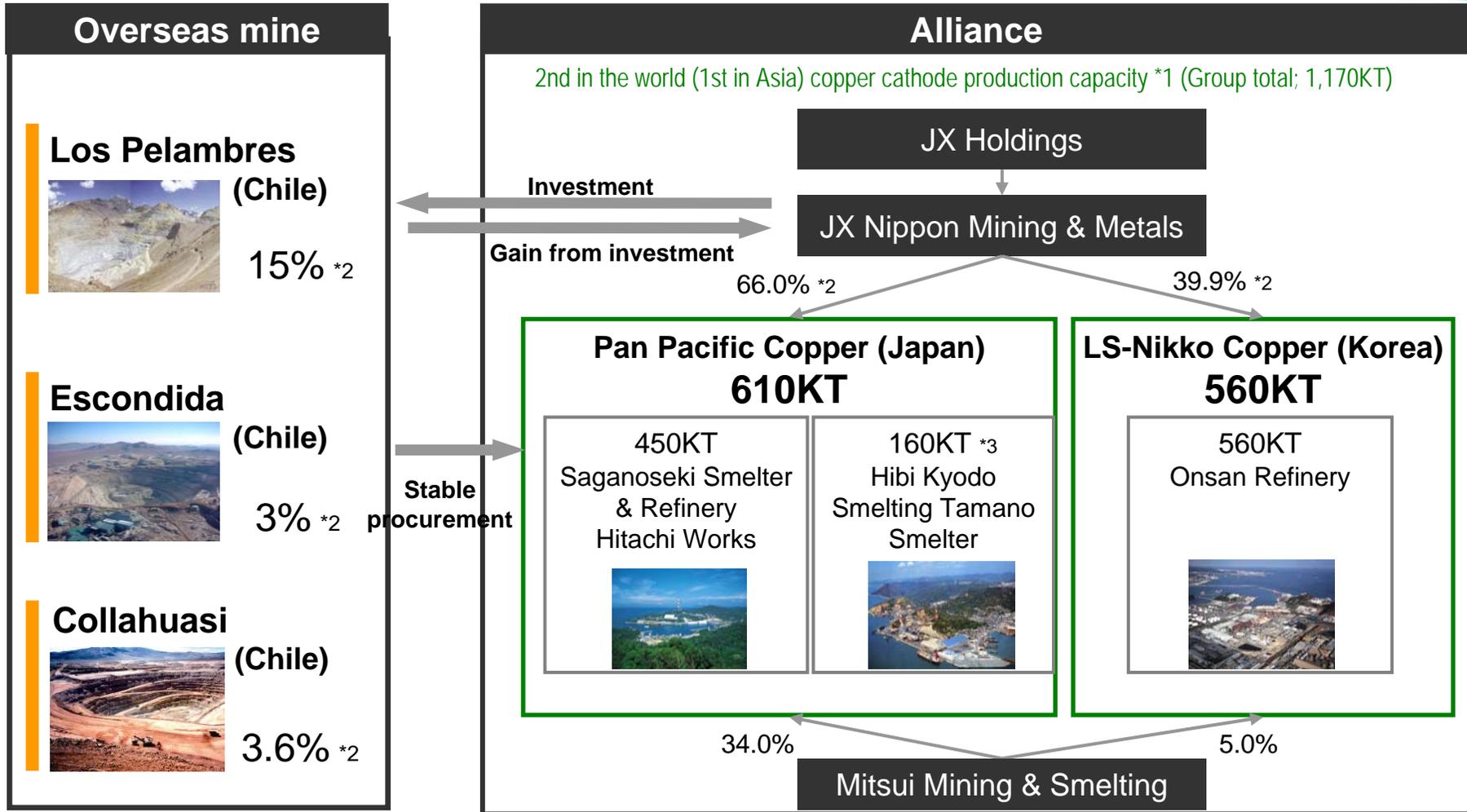
( ¢ /lb)	FY04	FY05	FY06	FY07	FY08	FY09	FY10				
							1 Q	2 Q	3 Q	4 Q	
Copper Price	136	186	316	344	266	277	319	329	392	438	369



## World Copper Cathodes Supply &amp; 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				
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.

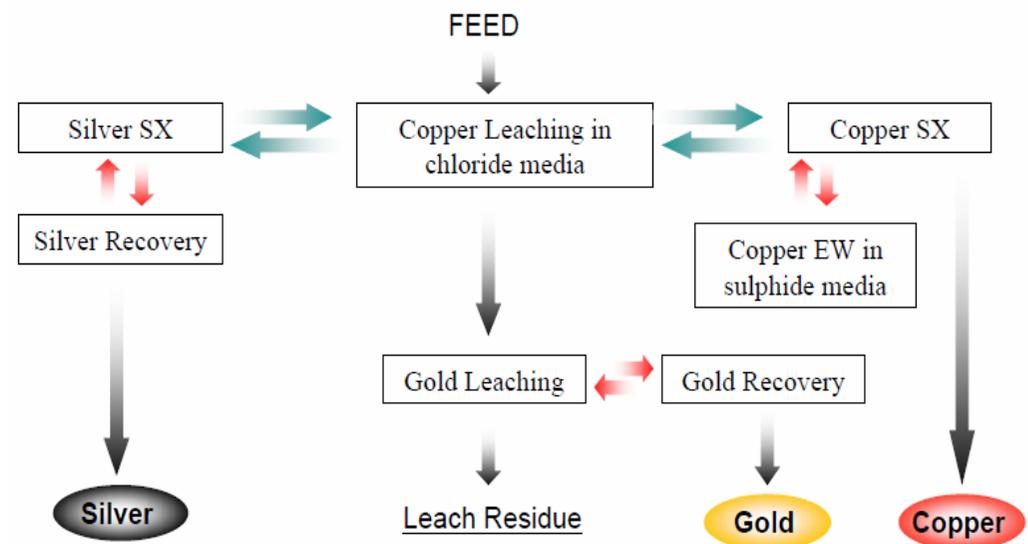
The process enables the effective recovery of not only copper from low-grade copper concentrate, but also such precious metals as gold and silver.

This process does not generate sulfur oxides (SOX), and it is possible to substantially reduce energy consumption and CO<sub>2</sub> 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)



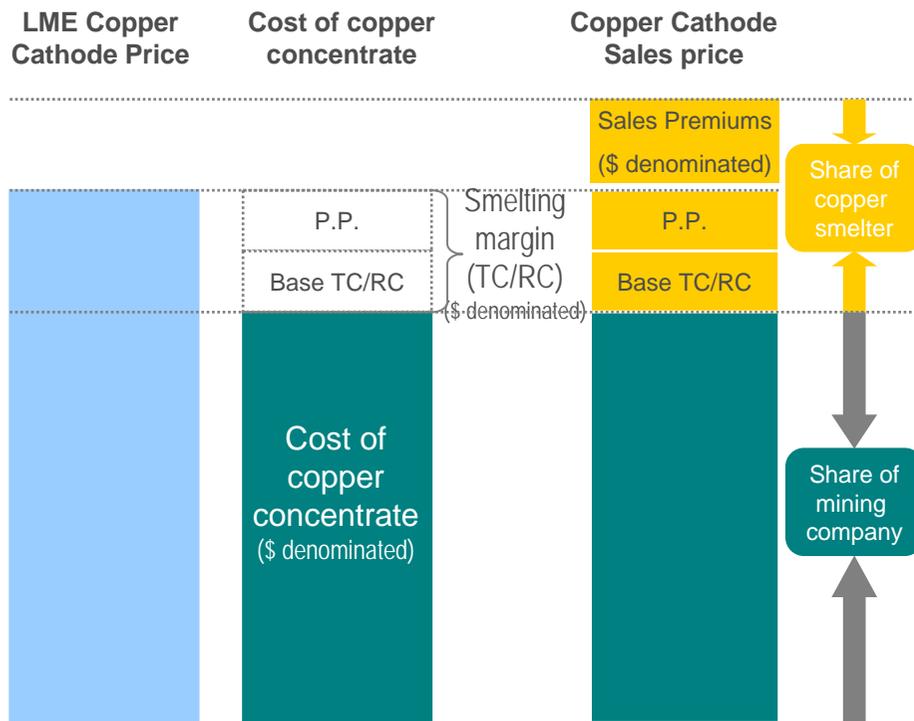
## Structure of N-Chlo Process



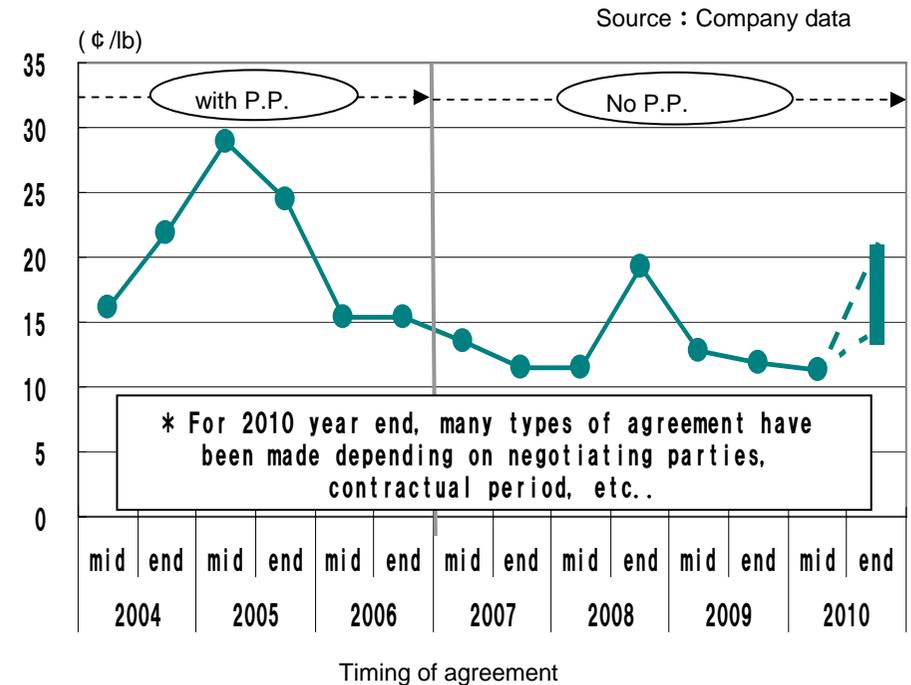


# Earnings Structure of Copper Smelter & Refinery / Trends of Base TC/RC

## Earnings Structure of Copper Smelter & Refinery



## Trends of Base TC/RC



**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.

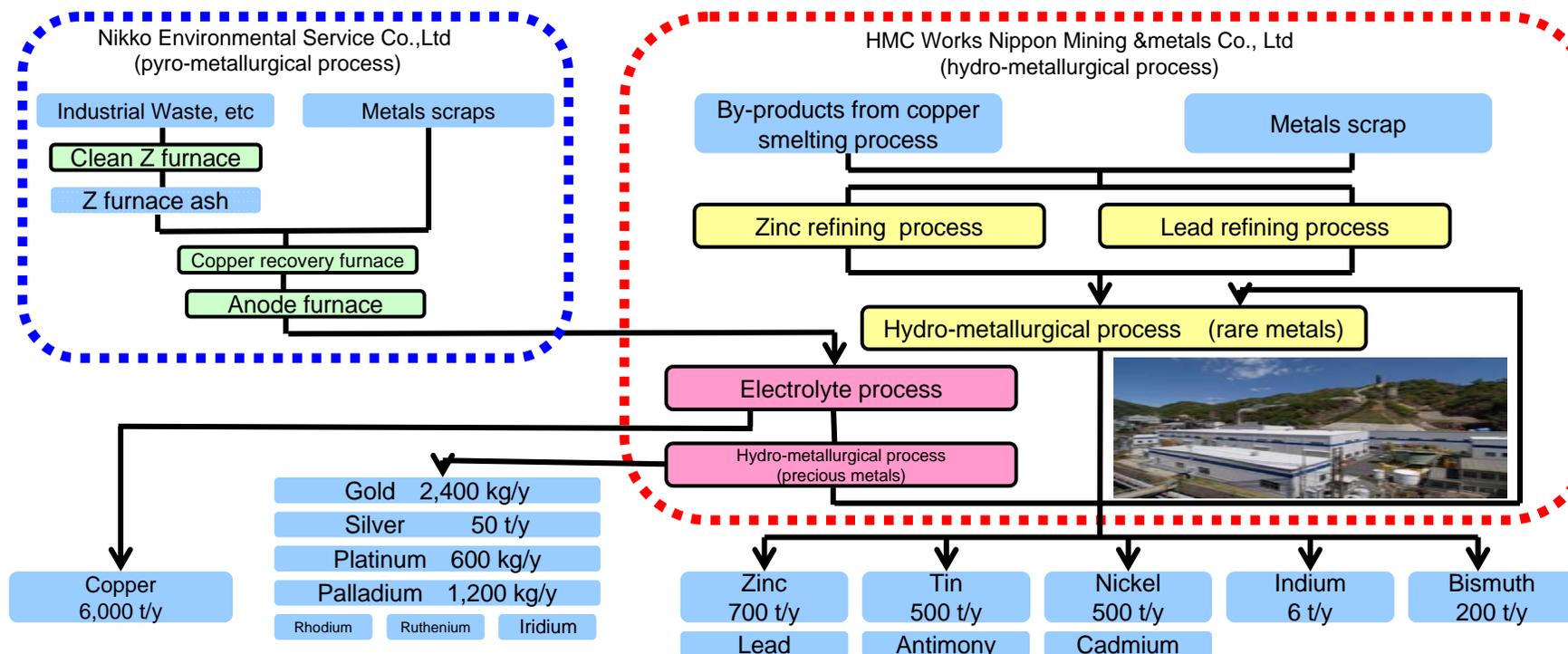
**Sales price :** LME price plus sales premiums, which is established by reference to various factors including importation costs, import tariffs, and others

# Metal's Recycling



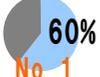
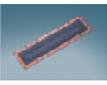
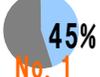
## Metal's Recycling Complex in Hitachi

- 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			○	⊙	○