

## JX Group Strategy Presentation

Become a world's leading integrated energy, resources and materials business group

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December 1, 2010



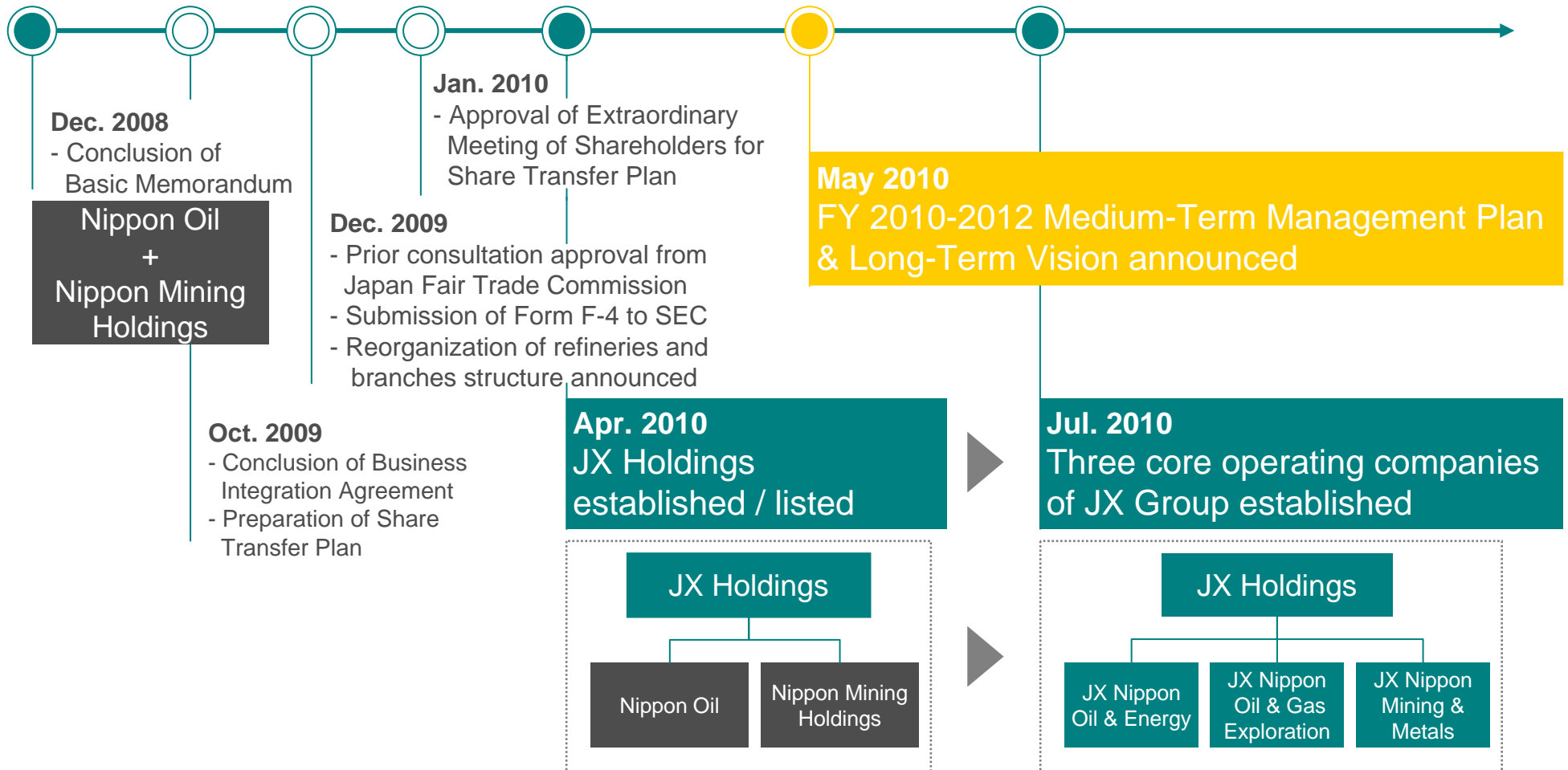
The Future of Energy, Resources and Materials

**JX Holdings, Inc.**



# Path to the Creation of JX Group

Two years since the basic agreement, eight months since the birth of JX Holdings.  
Steady progress in business integration.





# Strength of JX Group

## JX Holdings, Inc.

### JX Nippon Oil & Energy

Share in the domestic fuel market

**35 %**  
(No.1 in Japan)

Paraxylene production capacity

**2,620** thousand tons/year  
(No.1 supplier in Asia)



### JX Nippon Oil & Gas Exploration

Crude oil and natural gas production  
(a project company basis)

Approx. **150** thousand barrels/day (BD) <sup>\*1</sup>

Worldwide business activities ranging from crude oil to LNG and oil sand



### JX Nippon Mining & Metals

Copper Smelting & refining capacity

**1,170** thousand tons/year <sup>\*2</sup>  
(No.2 in the world)

Equity entitled copper mine production

Approx. **100** thousand tons/year  
(Self-sufficiency ratio : Approx. **20%**) <sup>\*3</sup>

Electronic Materials;  
Product Lines with World No.1 Market Shares



Listed subsidiaries

NIPPO  
Toho Titanium

Common group function companies

Independent companies

\*1 Crude Oil Equivalent (Average daily production from Jan. to Jun. 2010)

\*2 Pan Pacific Copper(66.0% equity stake) ; 610 thousand tons/year + LS-Nikko Copper(39.9% equity stake) ;560 thousand tons/year

\*3 Equity entitled copper production content in copper concentrate divided by the volume of the same necessary for the domestic smelters



# Medium-Term Management Plan for FY 2010-2012

## Basic Policy

With emphasis on the concept of “Best Practices,”  
dramatically transform the Petroleum Refining & Marketing Business  
 by realizing integration synergies and rigorously reducing costs,  
 and maximize corporate value by allocating management resources to  
highly profitable operations on a priority basis.

## Targets (FY 2012)

Ordinary Income	¥ 300 billion or more
ROE	10% or higher
Net Debt / Equity ratio	1.0 time

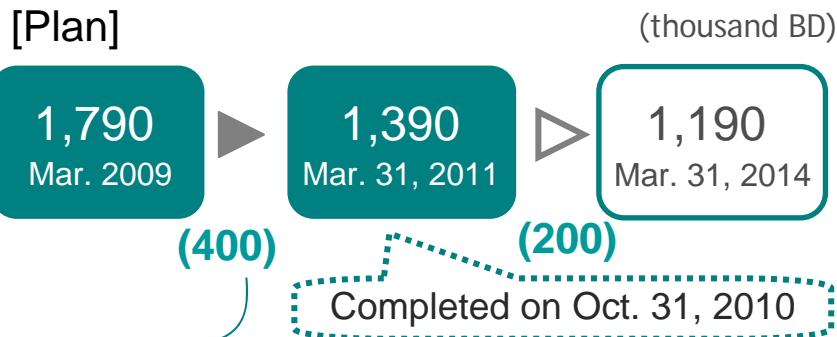
### Assumptions (FY 2012)

Exchange rate	90 ¥/\$
Crude oil FOB (Dubai spot)	80 \$/bbl
Copper price (LME)	280 ¢/lb

# Reducing Refining Capacity

Build Japan's most competitive refinery platform ahead of domestic demand decline

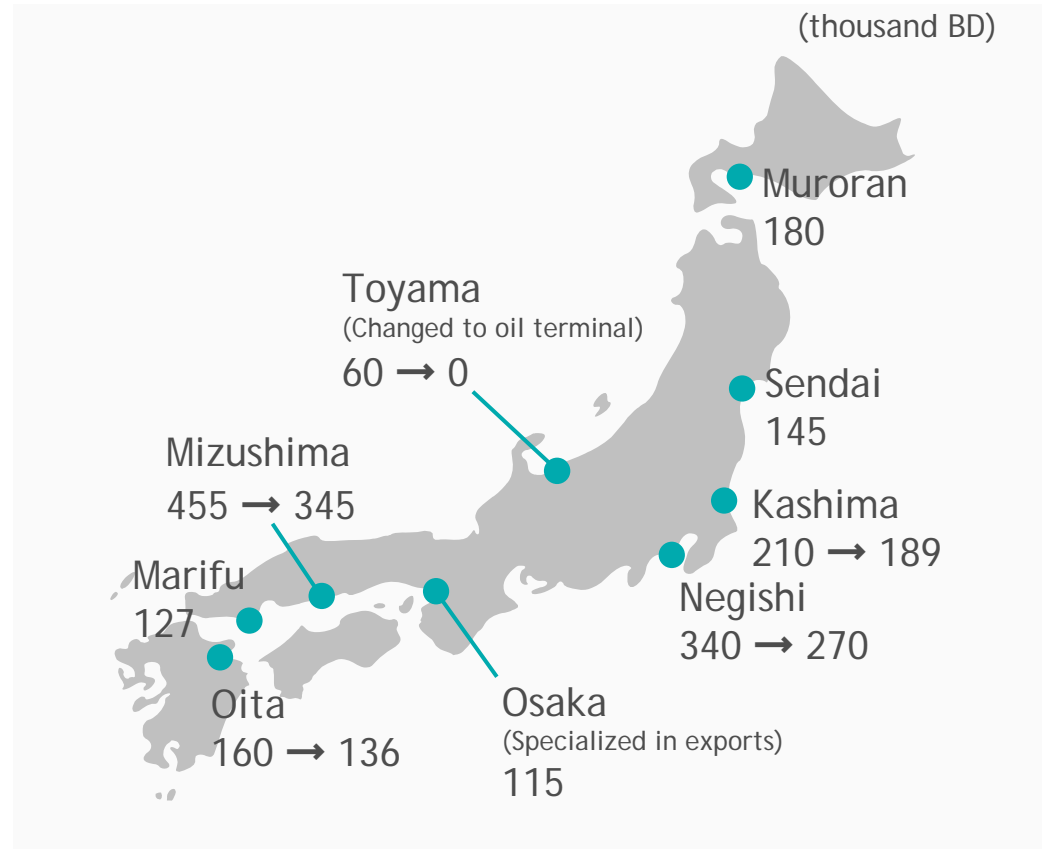
## JX Group Capacity Reduction Plan



### Breakdown of 400 thousand BD reduction

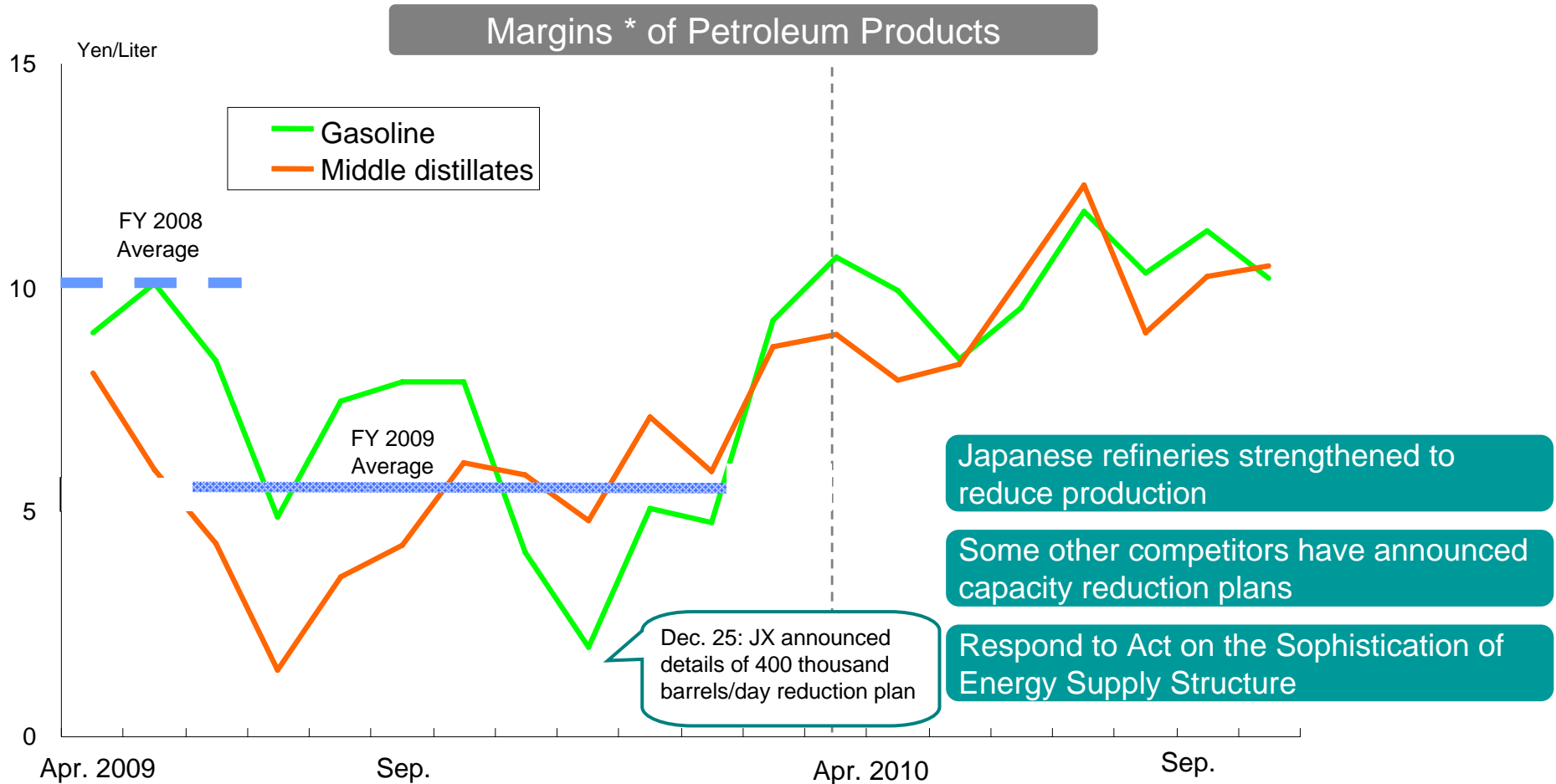
Refinery	Reduction (thousand BD)	Progress
Negishi	70	Oct. 31, 2010 Terminated operation of 2 <sup>nd</sup> CDU
Osaka	115	Oct. 1, 2010 Joint venture with CNPC; Specialized in exports
Mizushima	110	Jun. 30, 2010 Terminated operation of 2 <sup>nd</sup> CDU
Oita	24	May 31, 2010 Terminated operation of 1 <sup>st</sup> CDU
Kashima	21	May 31, 2010 Reduced capacity of 1 <sup>st</sup> CDU
Toyama	60	Mar. 31, 2009 Closed Toyama refinery of Nihonkai Oil Co., Ltd.
<b>Total</b>	<b>400</b>	

## JX Group Refineries (As of Oct. 31, 2010)



# Margins of Petroleum Products

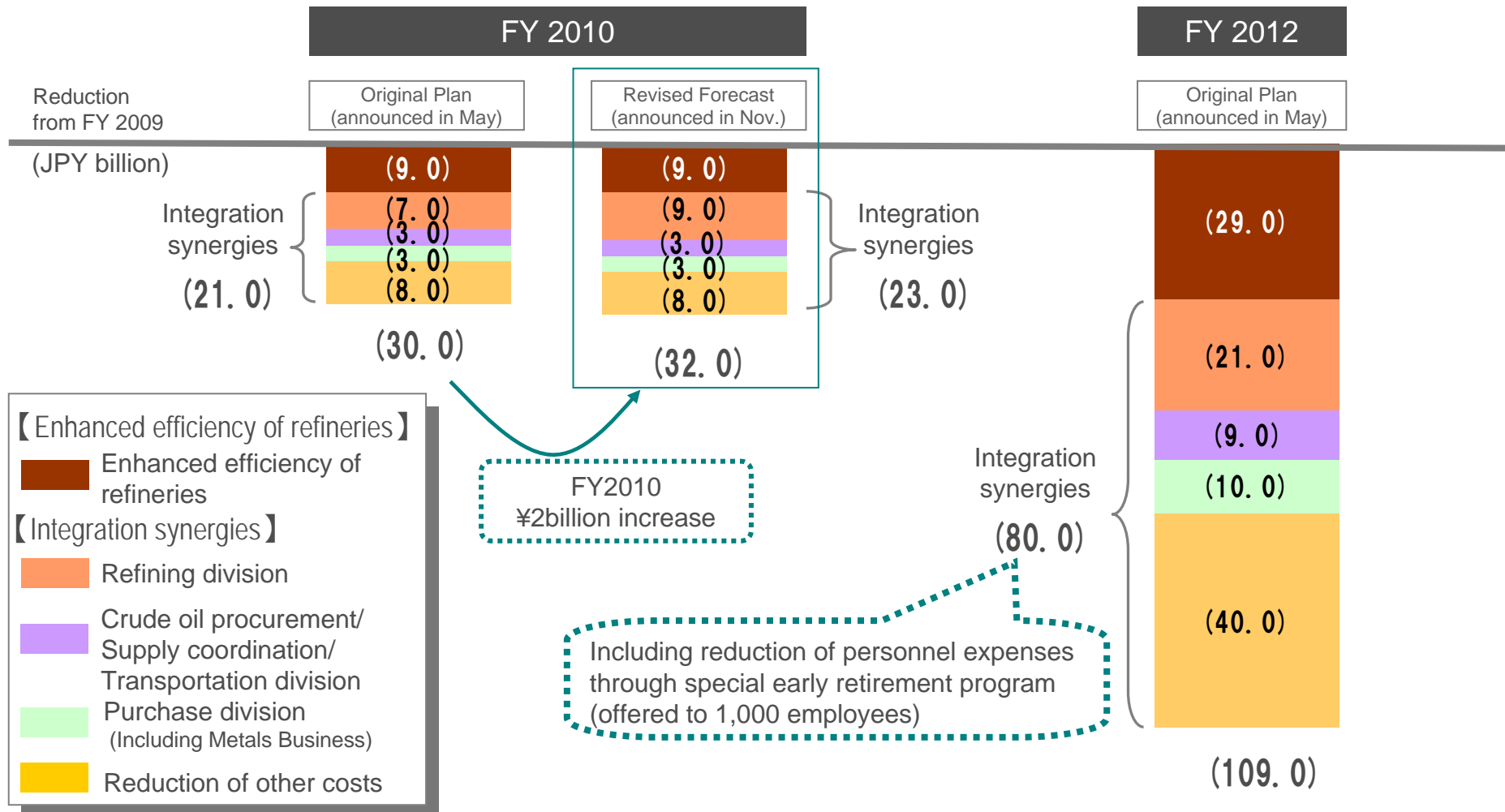
Improvement in petroleum product margins since the beginning of FY 2010



\* Spot petroleum products price — Crude Oil CIF Japan (including petroleum tax and interest)

# Integration Synergies & Enhanced Efficiency of Refineries

## Solid progress in realizing integration synergies



**【Enhanced efficiency of refineries】**

Enhanced efficiency of refineries

**【Integration synergies】**

- Refining division
- Crude oil procurement/Supply coordination/Transportation division
- Purchase division (Including Metals Business)
- Reduction of other costs



# Realizing Integration Synergies - Brand unification, merger of subsidiaries, etc. -

## ✓ Brand unification - ENEOS -

- Jul. 2010 Start unifying SS (Service Station) brand to 'ENEOS' (by March 2011)
- Oct. 2010 Integrate retail support business to JX Nippon Oil & Energy Trading Corporation
- Oct. 2010 Unify credit cards to 'ENEOS Card'
- Nov. 2010 Unify automotive oil to 'ENEOS Oil'

## ✓ Integration of Common group function companies

- Jul. 2010 Integrate funding business to JX Nippon Finance Corporation
- Jul. 2010 Integrate materials procurement business to JX Nippon Procurement Corporation
- Jul. 2010 Integrate administrative services to JX Nippon Business Services Corporation
- Jul. 2010 Integrate IT business to JX Nippon Information Technology Co., Ltd.
- Oct. 2010 Integrate research/consulting business to JX Nippon Research Institute, Ltd.

## ✓ Integration of overseas bases

- Oct. 2010 Integrate JX Nippon Oil & Energy's UK and Singapore affiliates

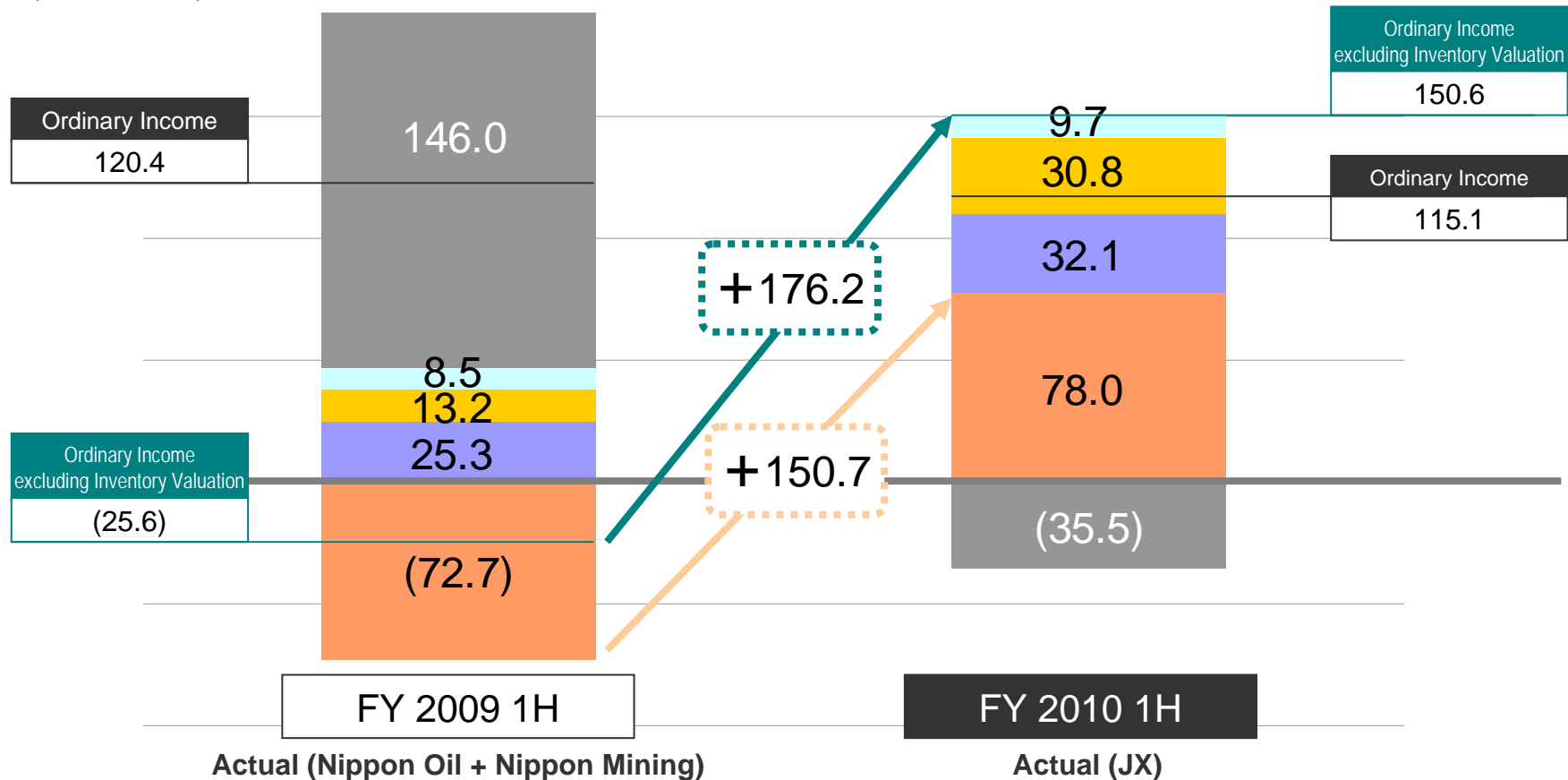
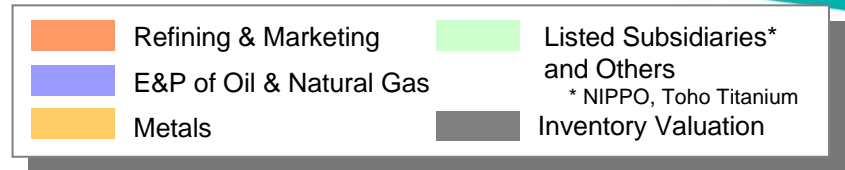




# FY 2010 1H Results Outline <Ordinary Income> (v.s. FY 2009 1H)

## Significant improvement in Petroleum Refining & Marketing profits

(JPY billion)



# Capital Expenditure & Investments

70% of Approx. ¥1 trillion investment targeted to strategic investment

(JPY billion)

Capital expenditure & investments		Depreciation & amortization	
Refining & Marketing	300.0		375.0
<i>Strategic investments</i>	150.0		
<i>Maintenance and others</i>	150.0		
E&P of Oil & Natural Gas ( <i>Strategic investments</i> )	320.0		148.0
Metals	300.0		82.0
<i>Strategic investments</i>	220.0		
<i>Maintenance and others</i>	80.0		
Listed Subsidiaries and Others ( <i>Maintenance and others</i> )	40.0		51.0
<b>Capital expenditure &amp; investments (3 years total)</b>	<b>960.0</b>	<b>Three-year total</b>	<b>656.0</b>
<i>Strategic investments total</i>	<b>690.0</b>		

Investment greatly exceeding depreciation and amortization in E&P and Metals Businesses

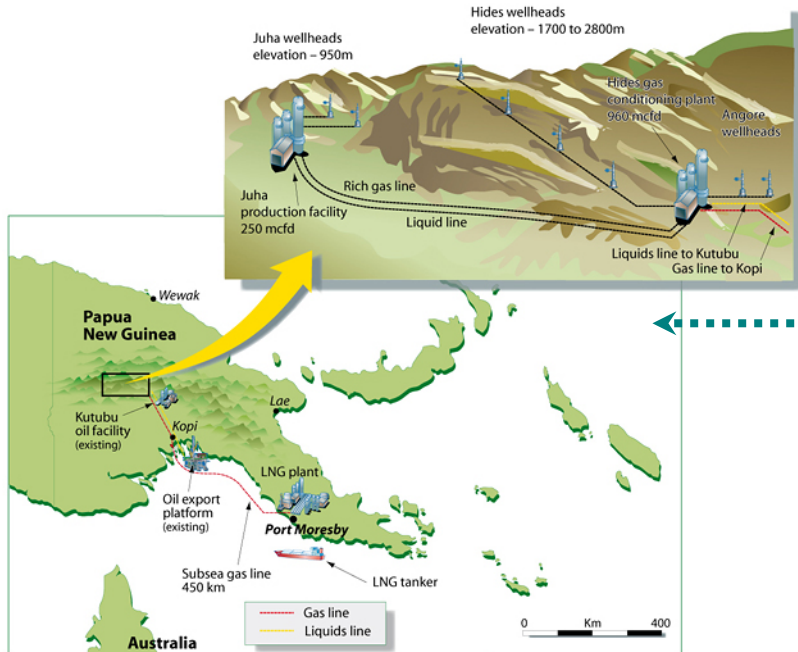
70% into strategic investments

# E&P of Oil & Natural Gas

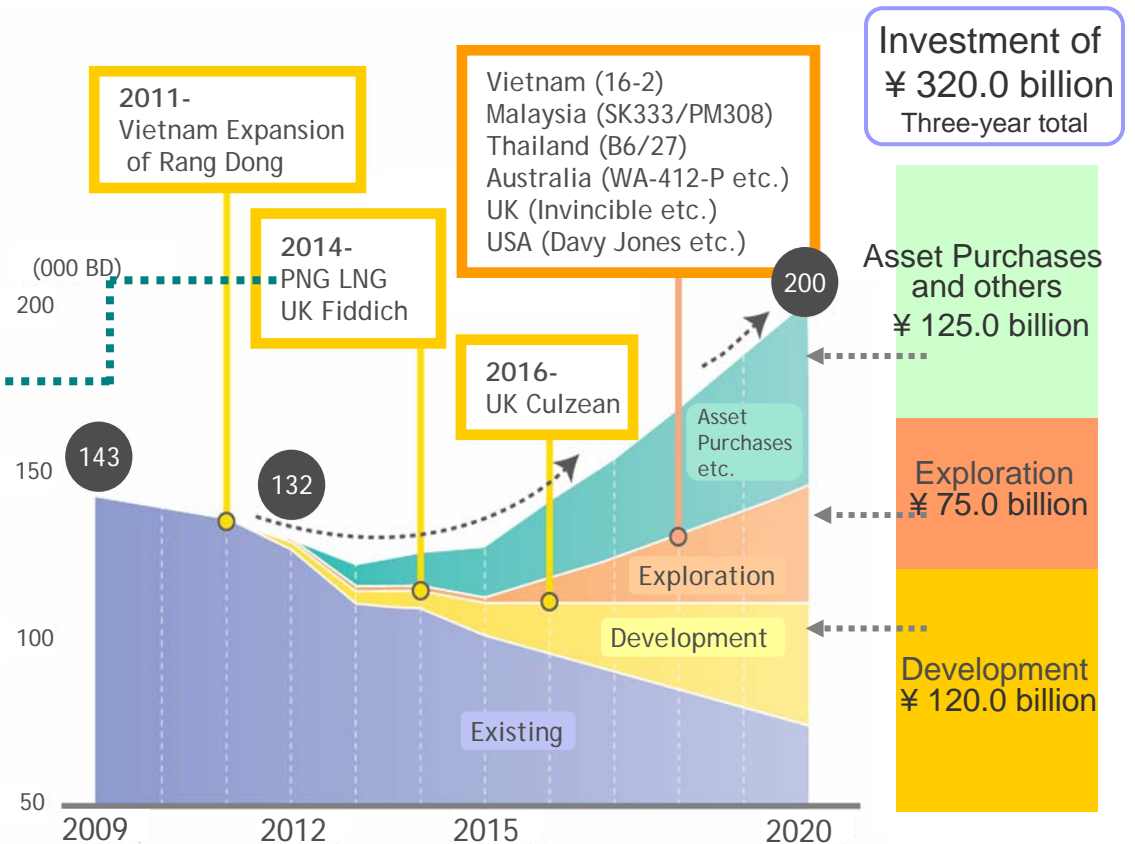
Positioning exploration activities as the basis and expanding production/reserve volume

Papua New Guinea

## PNG LNG Project



## Production schedule/investment plan



Source : ExxonMobil

# Overseas Copper Mine Development

Increase equity-entitled copper production volume from approx. 100kt to 300kt (60% self-sufficiency ratio)

## Caserones Copper Mine (Chile)



Full-Fledged Development forward 2013

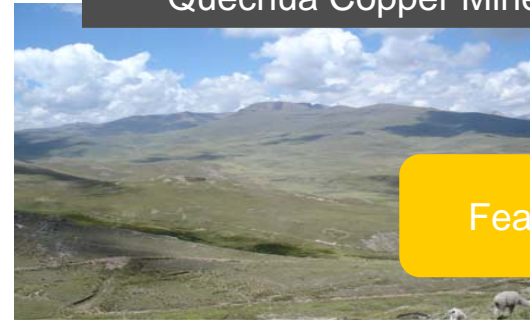
**Acquisition date** May 2006  
**Acquisition price** \$137 million  
**Mine life** From 2013 to 2040 (28 years)

### Production plan

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

**Initial investment** \$ 2.0 billion (Estimated)  
**Ownership** Pan Pacific Copper\* 75%  
 Mitsui & Co., Ltd. 25%

## Quechua Copper Mine (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 (17 years average)  
 Total production through mine life : 1,300kt

**Initial investment** \$ 0.85 billion (Estimated)  
**Ownership** Pan Pacific Copper\* 100%

\* Jointly established by JX Nippon Mining & Metals (66%) and Mitsui Mining & Smelting Co., Ltd. (34%)

# Key Topics in FY 2010

Apr.

JX Nippon Mining &amp; Metals

In Recycling & Environmental Services, moving to full operation of new facility, Hitachi Metal Recycling Complex (HMC)

May

JX Nippon Mining &amp; Metals

Acquisition of additional ownership interest in the Escondida copper mine in Chile (2%→3%)

Jul.

JX Nippon Oil &amp; Energy

Decision to construct LNG satellite terminal in Kushiro

Jul.

JX Nippon Oil &amp; Energy

Establishment of lubricants marketing company in Russia

Aug.

JX Nippon Oil &amp; Energy

Signing of agreement to integrate LP gas business with Mitsui & Co., Ltd., Marubeni Corporation and Mitsui Marubeni Liquefied Gas Co., Ltd.

Oct.

JX Nippon Oil &amp; Gas Exploration

Partial sale of assets in Gulf of Mexico

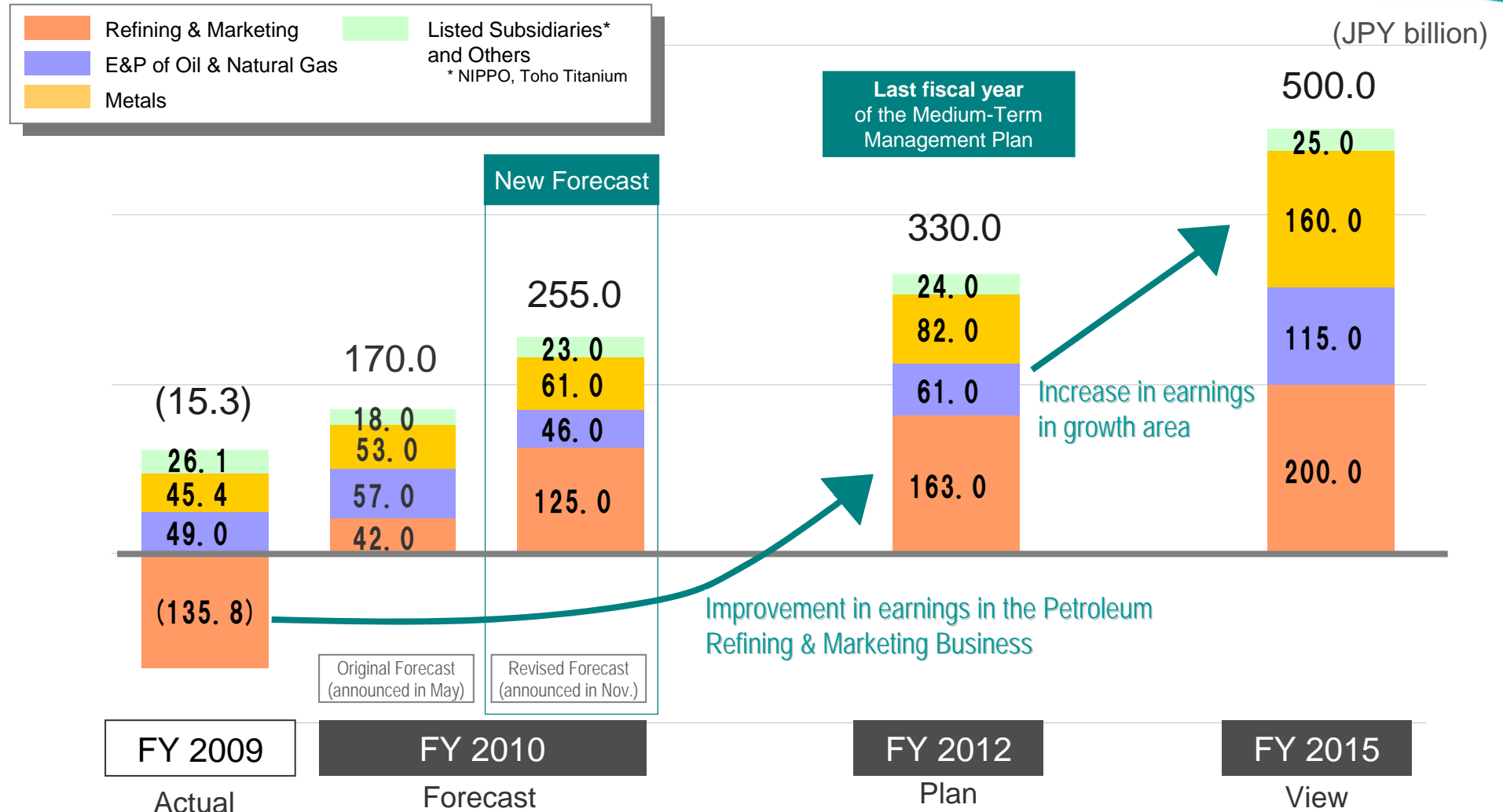
Oct.

JX Nippon Oil &amp; Gas Exploration

Awards of 12 blocks in UK North Sea Licensing Round

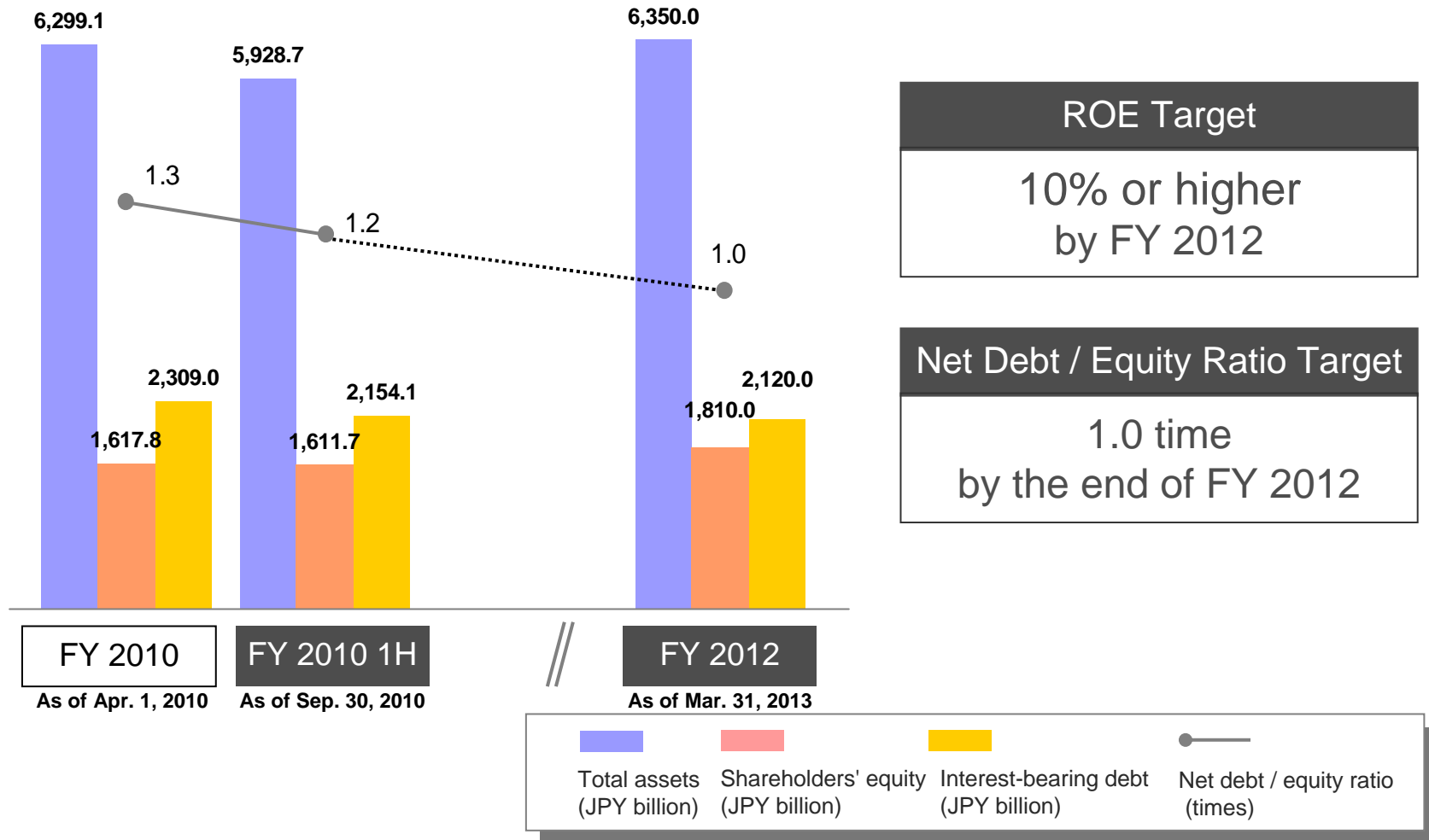


# Earnings Plan (Ordinary Income excluding Inventory valuation)



# Financial Position

Balance growth investment with improvements in financial condition





# Dividend Policy

## Basic Dividend Policy

Redistribute profits by reflecting consolidated business results while striving to maintain stable dividends

## FY 2010 Dividends

### Cash dividend per share

End of 1H	Year-end (Forecast)	Full year (Forecast)
¥7.5	¥7.5	¥15.0





Exhibit 1

**Financial Results for FY 2010 1H &  
Medium-Term Management Plan**



# FY 2010 1H Results Outline

\*1 Unaudited Pro Forma Combined Financial Results of Nippon Oil and Nippon Mining  
 \*2 Average from Mar. to Aug. (nearly equal to arrived crude cost)

Crude Oil(Dubai) (\$/B)	*2
Copper Price (¢/lb)	
Exchange Rate (Yen/\$)	
Net Sales	
Operating Income	
Non-operating Income(Expenses), Net	
Ordinary Income	
Ordinary Income Excl. Inventory Valuation	
Special Gain (Loss)	
Net Income	

Net Income per Share (Yen / Share)

FY 2009 *1	
1H	
('09/4-9)	
	60
('09/1-6)	239
<184>	
	95
JPY Billion	
	4,087.5
	96.0
	24.4
	120.4
	(25.6)
	(18.7)
	63.0

Including 226.5 of one time amortization of negative goodwill

FY 2010	
1H	
('10/4-9)	
	76
('10/1-6)	324
<323>	
	89
JPY Billion	
	4,531.5
	76.4
	38.7
	115.1
	150.6
	222.5
	286.7

115

< Excl. Impact of Negative Goodwill 24 >

Changes	
	+ 16
<+139>	+ 85
	-6
JPY Billion	
	+ 444.0
	-19.6
	+ 14.3
	-5.3
	+ 176.2
	+ 241.2
	+ 223.7

# FY 2009 1H Actual vs. FY 2010 1H Actual

## Changes in Ordinary Income by Segment

\* Unaudited Pro Forma Combined Financial Results of Nippon Oil and Nippon Mining

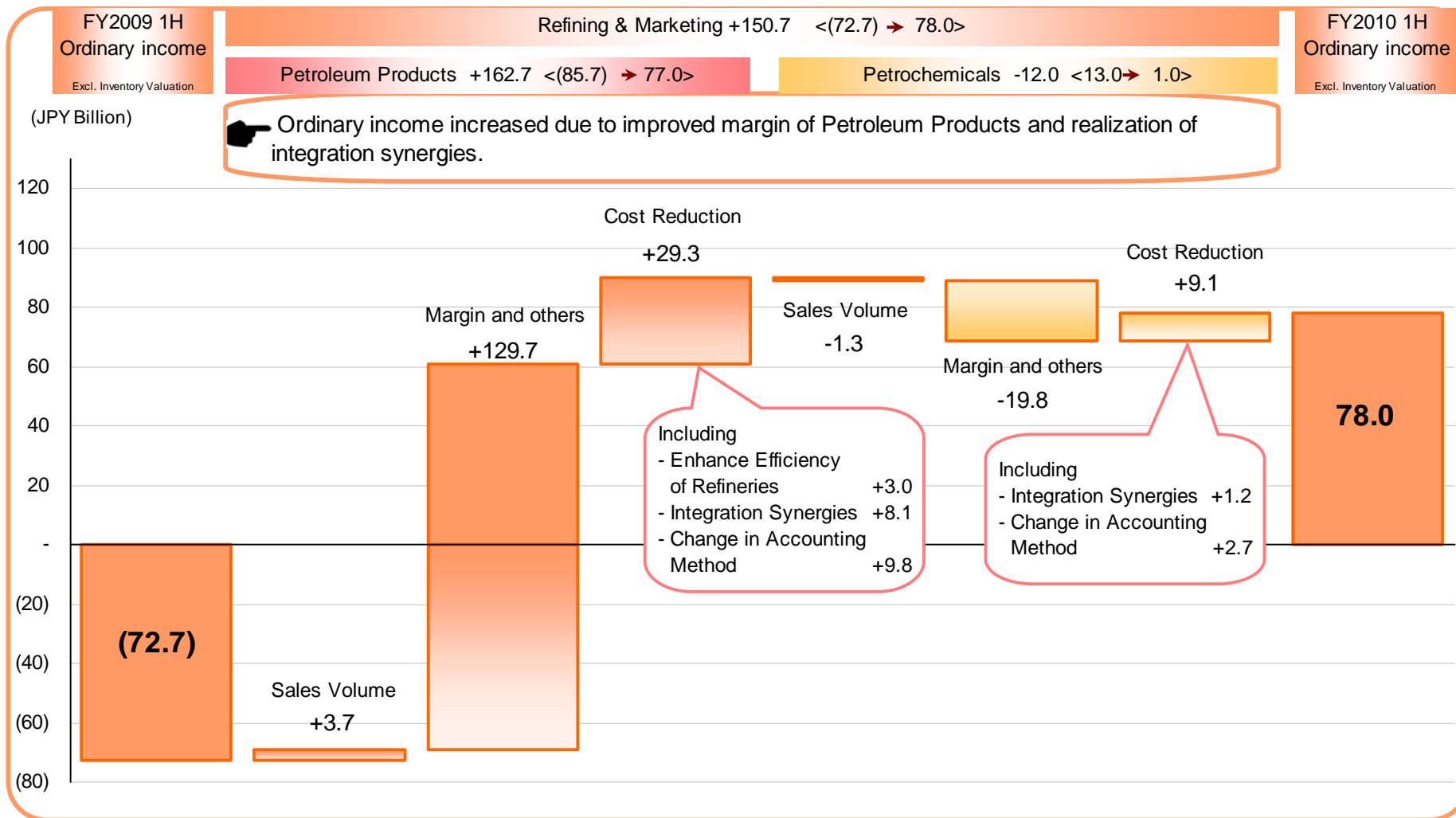
	FY 2009 <sup>*</sup> 1H (09/4-9)	FY 2010 1H (10/4-9)	Changes
	JPY Billion	JPY Billion	JPY Billion
Refining & Marketing	72.1	42.8	-29.3
- Inventory Valuation	144.8	(35.2)	-180.0
Excl. Inventory Valuation	(72.7)	78.0	+ 150.7
- Petroleum Products	(85.7)	77.0	+ 162.7
- Petrochemicals	13.0	1.0	-12.0
E&P of Oil & Natural Gas	25.3	32.1	+ 6.8
Metals	15.2	30.5	+ 15.3
- Inventory Valuation	1.9	(0.3)	-2.2
Excl. Inventory Valuation	13.2	30.8	+ 17.6
Listed subsidiaries <sup>*</sup> and Others	7.8	9.7	+ 1.9
-Inventory Valuation	(0.7)	-	+ 0.7
Excl. Inventory Valuation	8.5	9.7	+ 1.2
Total	120.4	115.1	-5.3
Excl. Inventory Valuation	(25.6)	150.6	+ 176.2

\*NIPPO Corporation and Toho Titanium Co.,Ltd.



FY 2009 1H Actual vs. FY 2010 1H Actual

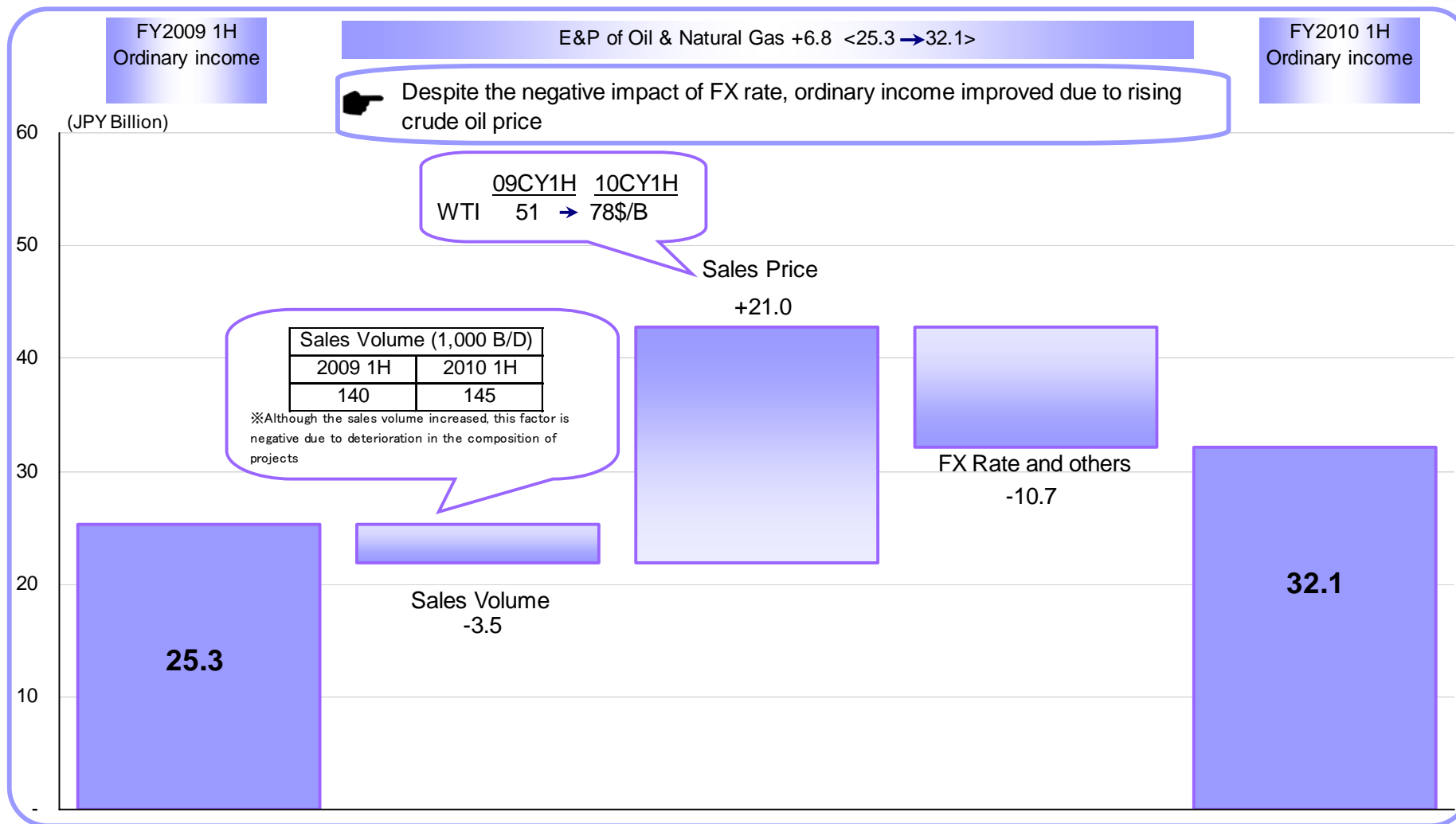
Changes in Ordinary Income - Refining and Marketing -





FY 2009 1H Actual vs. FY 2010 1H Actual

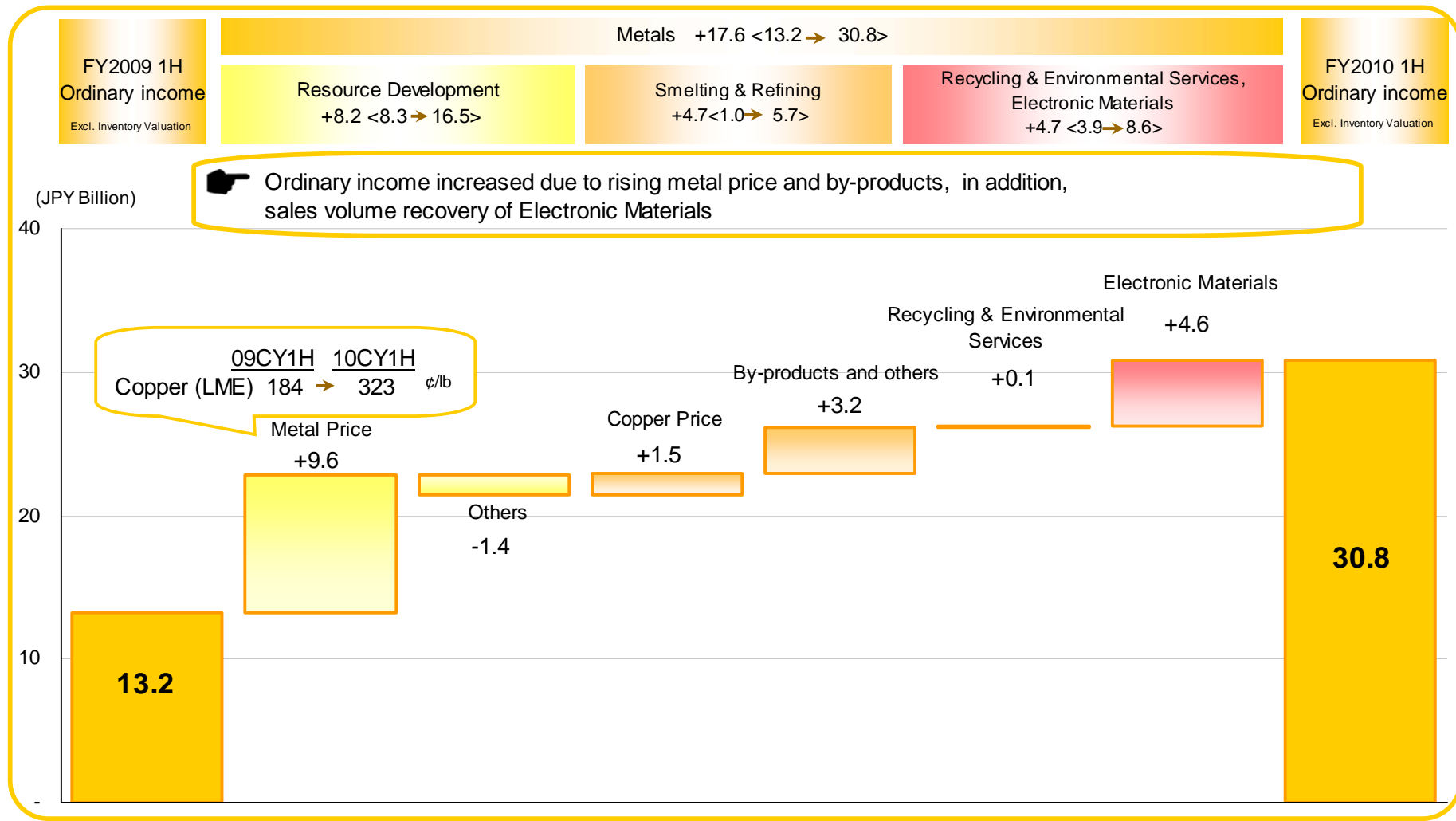
Changes in Ordinary Income - E&P of Oil and Natural Gas -





# FY 2009 1H Actual vs. FY 2010 1H Actual

## Changes in Ordinary Income - Metals -





# FY 2010 Forecast Outline

\* Average from Mar. to Feb. (nearly equal to arrived crude cost)

Crude Oil(Dubai) (\$/B) *
Copper Price (¢/lb)
Exchange Rate (Yen/\$)
Net Sales
Operating Income
Non-operating Income(Expenses), Net
Ordinary Income
Ordinary Income Excl. Inventory Valuation
Special Gain (Loss)
Net Income

FY 2009	
	67
('09/1-12) <234>	277
	93
JPY Billion	9,008.0
	130.4
	56.9
	187.3
	(15.3)
	(35.3)
	73.1

Forecast FY 2010 (Announced in Nov.)	
	78
('10/1-12) <324>	322
	84
JPY Billion	9,390.0
	150.0
	70.0
	220.0
	255.0
	175.0
	320.0

Including 226.5 of one time amortization of negative goodwill

Changes	
	+ 11
<+90>	+ 45
	-9
JPY Billion	+ 382.0
	+ 19.6
	+ 13.1
	+ 32.7
	+ 270.3
	+ 210.3
	+ 246.9

2H-:  
80 \$/B  
320 ¢/lb  
80 Yen/\$

Net Income per Share (Yen / Share)

129  
< Excl. Impact of Negative Goodwill 38 >

# FY 2009 Actual vs. FY 2010 Forecast

## Changes in Ordinary income by Segment

	FY 2009 (Actual)	FY 2010 (Forecast) (Announced in Nov.)	Changes	
	JPY Billion	JPY Billion	JPY Billion	
<b>Refining &amp; Marketing</b>	66.0	90.0	+ 24.0	Sales Volume - 5.0 Margin of Petroleum Products + 227.0 Margin of Petrochemicals - 20.0 Cost Reduction + 65.0 and others
- Inventory Valuation	201.8	(35.0)	-236.8	
Excl. Inventory Valuation	(135.8) <sup>*1</sup>	125.0	+ 260.8	
- Petroleum Products	(147.6)	121.0	+ 268.6	
- Petrochemicals	11.8	4.0	-7.8	
E&P of Oil & Natural Gas	49.0	46.0	-3.0	Sales Volume - 11.0 Sales Price + 23.0 FX Rate - 23.0 and others
<b>Metals</b>	47.4	61.0	+ 13.6	Copper Price +11.0 Recycling & Environmental Services and Electronic Materials +6.0 and others
- Inventory Valuation	2.0	0.0	-2.0	
Excl. Inventory Valuation	45.4	61.0	+ 15.6	
Listed subsidiaries <sup>*2</sup> and Others	24.9	23.0	-1.9	
-Inventory Valuation	(1.1)	-	+ 1.1	
Excl. Inventory Valuation	26.1	23.0	-3.1	
<b>Total</b>	187.3	220.0	+ 32.7	
Excl. Inventory Valuation	(15.3)	255.0	+ 270.3	

\*1 Breakdown of Refining & Marketing business in 2009 is revised from the announcement in May, 2010

\*2 NIPPO Corporation and Toho Titanium Co.,Ltd.





# Integration Synergies and Enhanced Efficiency of Refineries

(JPY billion)	FY 2010	FY 2010		FY 2012
	Full Year	1H	Full Year	3 Year Total
	Original Forecast	Actual	Forecast	Plan
<b>Integration synergies + Enhanced efficiency of refineries</b>	30.0	12.3	32.0	109.0
(Breakdown)				
<b>Integration synergies</b>	21.0	9.3	23.0	80.0
Refining division	7.0	3.8	9.0	21.0
Crude oil procurement/ Supply coordination/ Transportation division	3.0	1.4	3.0	9.0
Purchase division	3.0	1.4	3.0	10.0
Reduction of other costs	8.0	2.7	8.0	40.0
<b>Enhanced efficiency of refineries</b>	9.0	3.0	9.0	29.0



# Outlook of Business Performance

(JPY billion)	FY 2009		FY 2010		FY 2012
	1H	Full Year	1H	Full Year	Full Year
	Actual	Actual	Actual	Forecast	Plan
<b>Net Sales</b>	<b>4,087.5</b>	<b>9,008.0</b>	<b>4,531.5</b>	<b>9,390.0</b>	<b>9,360.0</b>
Refining & Marketing	3,482.4	7,607.6	3,834.3	7,950.0	7,840.0
E&P of Oil & Natural Gas	67.7	145.9	77.1	145.0	180.0
Metals	353.8	780.7	461.3	870.0	940.0
Listed Subsidiaries and Others*	183.7	473.8	158.8	425.0	400.0
<b>Operating Income</b>	<b>96.0</b>	<b>130.4</b>	<b>76.4</b>	<b>150.0</b>	<b>275.0</b>
Refining & Marketing	63.1	56.5	36.9	79.0	161.0
E&P of Oil & Natural Gas	16.1	28.5	24.9	36.0	55.0
Metals	7.0	16.9	10.8	20.0	41.0
Listed Subsidiaries and Others*	9.9	28.5	3.8	15.0	18.0
<b>Non-Operating Income (Expenses), Net</b>	<b>24.4</b>	<b>56.9</b>	<b>38.7</b>	<b>70.0</b>	<b>55.0</b>
Refining & Marketing	9.0	9.5	5.9	11.0	2.0
E&P of Oil & Natural Gas	9.2	20.5	7.2	10.0	6.0
Metals	8.2	30.5	19.7	41.0	41.0
Listed Subsidiaries and Others*	(2.1)	(3.6)	5.9	8.0	6.0
<b>Ordinary Income</b>	<b>120.4</b>	<b>187.3</b>	<b>115.1</b>	<b>220.0</b>	<b>330.0</b>
Refining & Marketing	72.1	66.0	42.8	90.0	163.0
E&P of Oil & Natural Gas	25.3	49.0	32.1	46.0	61.0
Metals	15.2	47.4	30.5	61.0	82.0
Listed Subsidiaries and Others*	7.8	24.9	9.7	23.0	24.0
<b>Net Income</b>	<b>63.0</b>	<b>73.1</b>	<b>286.7</b>	<b>320.0</b>	<b>175.0</b>

\* "Listed Subsidiaries and Others" includes "Eliminations or Corporate"

# Ordinary Income by Segment

(JPY billion)	FY 2009		FY 2010		FY 2012
	1H	Full Year	1H	Full Year	Full Year
	Actual	Actual	Actual	Forecast	Plan
Ordinary Income (Loss)	120.4	187.3	115.1	220.0	330.0
Refining & Marketing	72.1	66.0 <sup>*1</sup>	42.8	90.0	163.0
Petroleum Products	(85.7)	(147.6)	77.0	121.0	136.0
Petrochemicals	13.0	11.8	1.0	4.0	27.0
Inventory Valuation	144.8	201.8	(35.2)	(35.0)	-
E&P of Oil & Natural Gas	25.3	49.0	32.1	46.0	61.0
Metals	15.2	47.4	30.5	61.0	82.0
Resource Development	8.3	27.4	16.5	35.0	33.0
Smelting & Refining	1.0	7.7	5.7	10.0	8.0
Recycling & Environmental Services	2.3	4.9	2.4	5.0	10.0
Electronic Materials	1.6	5.4	6.2	11.0	30.0
Inventory Valuation	1.9	2.0	(0.3)	0.0	-
Listed Subsidiaries and Others <sup>*2</sup>	7.8	24.9	9.7	23.0	24.0
Listed Subsidiaries and Others <sup>*2</sup>	8.5	26.1	9.7	23.0	24.0
Inventory Valuation	(0.7)	(1.1)	-	-	-

<sup>\*1</sup> Breakdown of Refining & Marketing division in 2009 is revised from the announcement in May 2010

<sup>\*2</sup> "Listed Subsidiaries and Others" includes "Eliminations or Corporate"



## Key Factors

		FY 2009		FY 2010		FY 2012
		1H	Full Year	1H	Full Year	Full
		Actual	Actual	Actual	Forecast	Plan
All segments	Exchange Rate [¥/\$]	95	93	89	84	90
Refining & Marketing	Crude oil FOB [Dubai spot] *1 [\$/\$]	60	67	76	78	80
	Sales volume excluding barter trade & others [million kl/period·year]	40.4	85.5	41.0	85.9	80.2
	—Sales volume of paraxylene [million tons/period·year]	1.1	2.1	1.0	2.1	2.3
	Paraxylene spread [ACP] (vs. Dubai crude oil price) [\$/\$ton]	526	490	407	443	580
E&P Oil and Natural Gas	Sales volume <Crude oil equivalent> [1,000 bbl/day]	140	143	145	143	132
	Natural gas price <HenryHub> [\$/\$mmbtu]	4.1	3.9	4.7	4.4	6.0
Metals	Copper price [LME] [¢/lb]	239	277	324	322	280
	Equity entitled copper mine production*2 [1,000 tons/period·year]	40	82	46	99	110
	PPC copper cathode sales [1,000 tons/period·year]	301	605	304	586	640
	Gold recovery volume by Metals Recycling [1,000 tons/period·year]	2.8	6.3	3.6	7.6	9.0
	TRCF*3 sales [1,000 km/month]	2.6	2.7	3.6	3.6	5.0
	Precision rolled products sales [1,000 tons/month]	3.1	3.5	4.1	4.2	4.7

\*1 Crude oil arrival basis

\*2 Total of Nippon Mining &amp; Metals and PPC

\*3 Treated rolled copper foil



# Sensitivity Analysis

## ■ Assumptions (From Oct. 2010 to Mar. 2011)

Exchange Rate: 80¥/\$

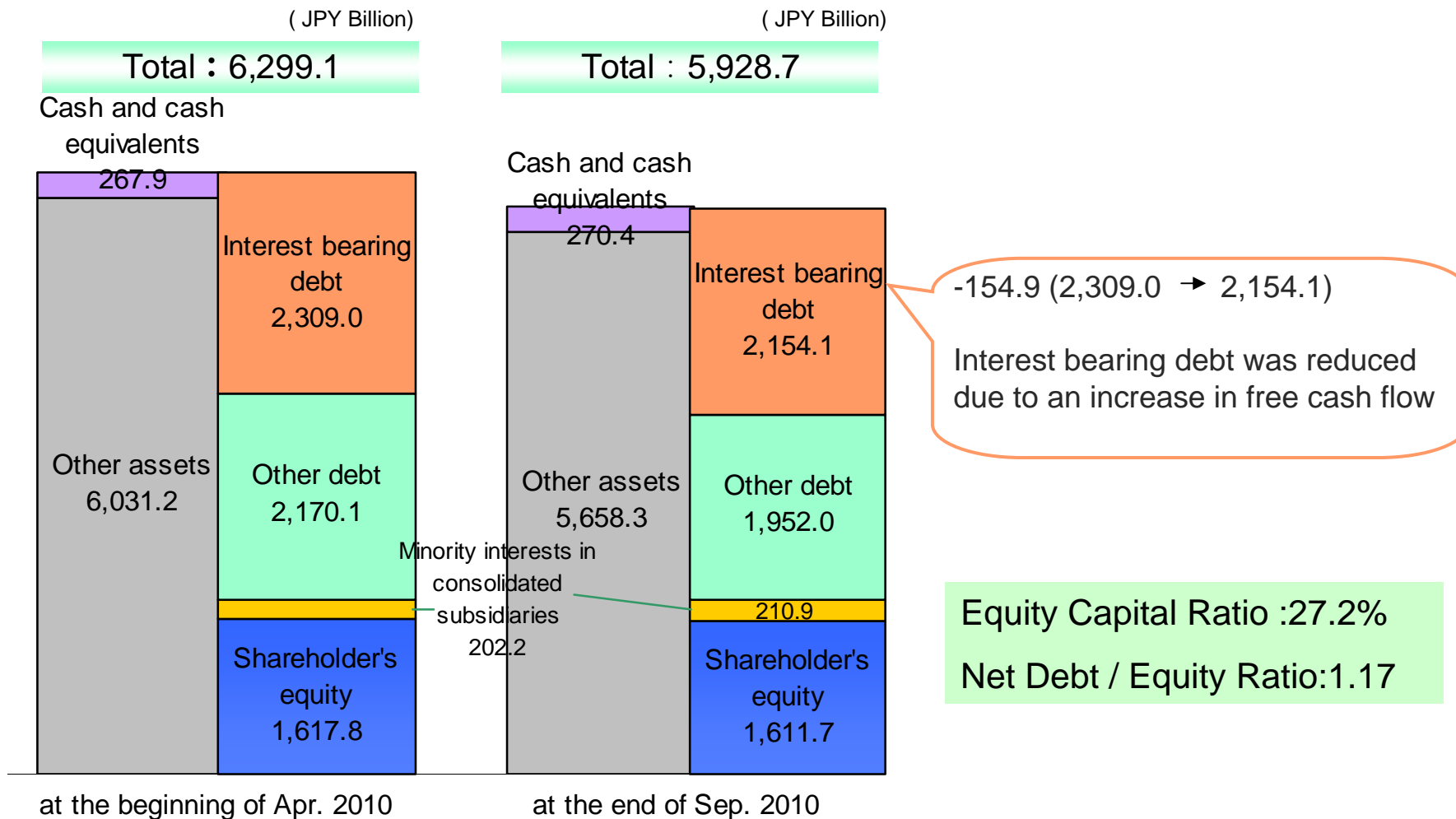
Crude Oil FOB : 80\$/bbl  
(Dubai spot)Copper Price : 320 ¢/lb  
(LME)

## ■ Sensitivity Analysis (Fiscal 2010)

		(billion yen / 2nd Half)	
Key factors	Appreciation	Segment	Impact
Exchange Rate	¥1/\$ yen appreciation	Refining & Marketing (energy costs decrease, margin deterioration in petrochemicals, etc.)	0.4
		E&P of Oil and Natural Gas	(0.5)
		Metals (margin deterioration, foreign exchange gain/loss)	(0.4)
		Subtotal	(0.5)
		Inventory valuation gain/loss	(6.0)
		<b>Total</b>	<b>(6.5)</b>
Crude Oil FOB (Dubai spot)	+1\$/bbl	Refining & Marketing (energy costs increase etc.)	(1.3)
		E&P of Oil and Natural Gas	0.3
		Subtotal	(1.0)
		Inventory valuation gain/loss	6.0
		<b>Total</b>	<b>5.0</b>
Copper Price (LME)	+10¢/lb	Metals (Resource Development)	0.8
		Metals (Smelting & Refining)	0.2
		<b>Total</b>	<b>1.0</b>



# Balance Sheet (at of Sep. 30, 2010)

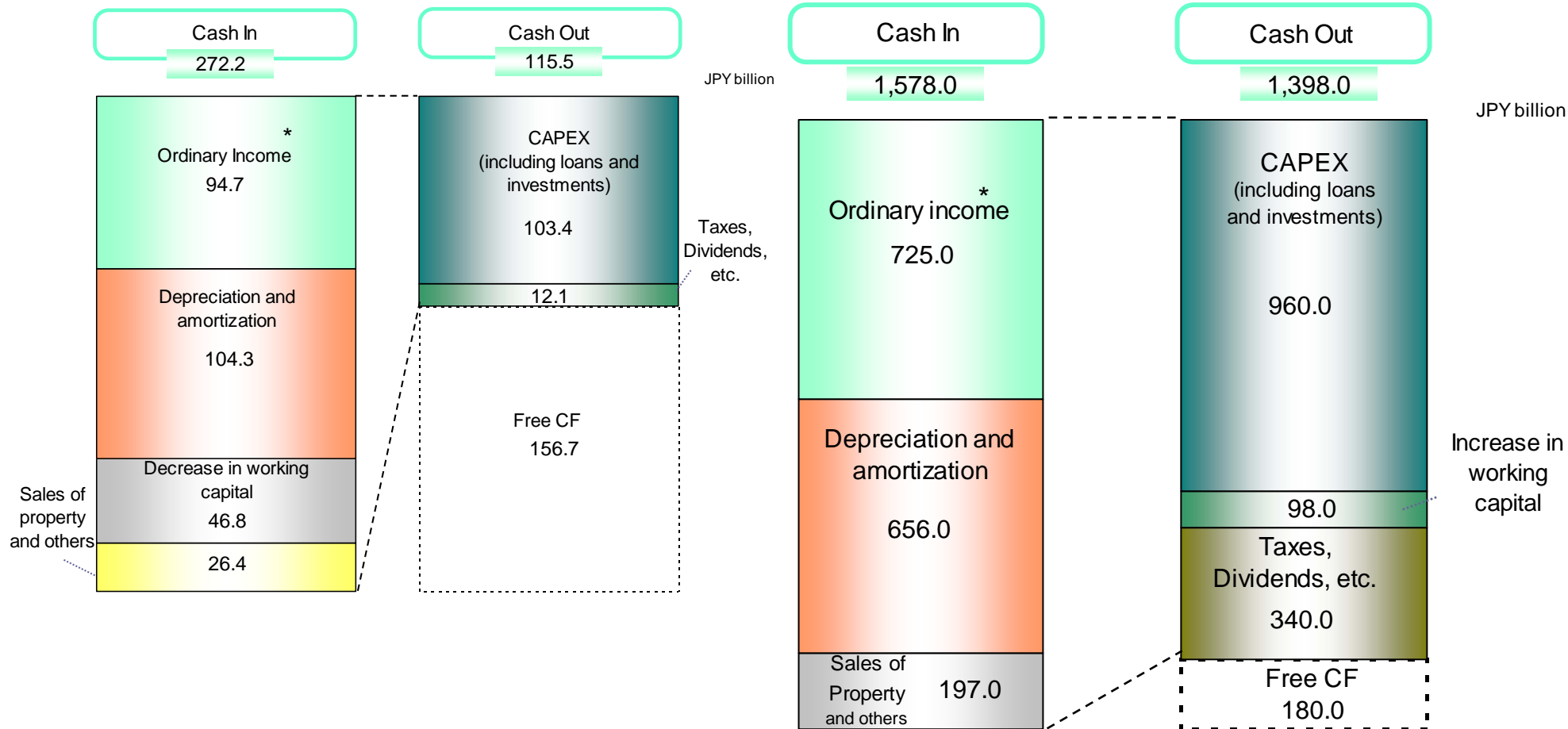




# Cash flows (FY 2010 1H / FY 2010-2012 total)

## FY 2010 1H

## FY 2010-2012 total [Medium-term Management Plan]



\* Excluding equity in income of affiliates and including dividends from affiliates accounted for by equity method

## Exhibit 2

# Supplementary Information & Data

### Refining & Marketing

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### E&P of Oil & Natural Gas

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### Metals

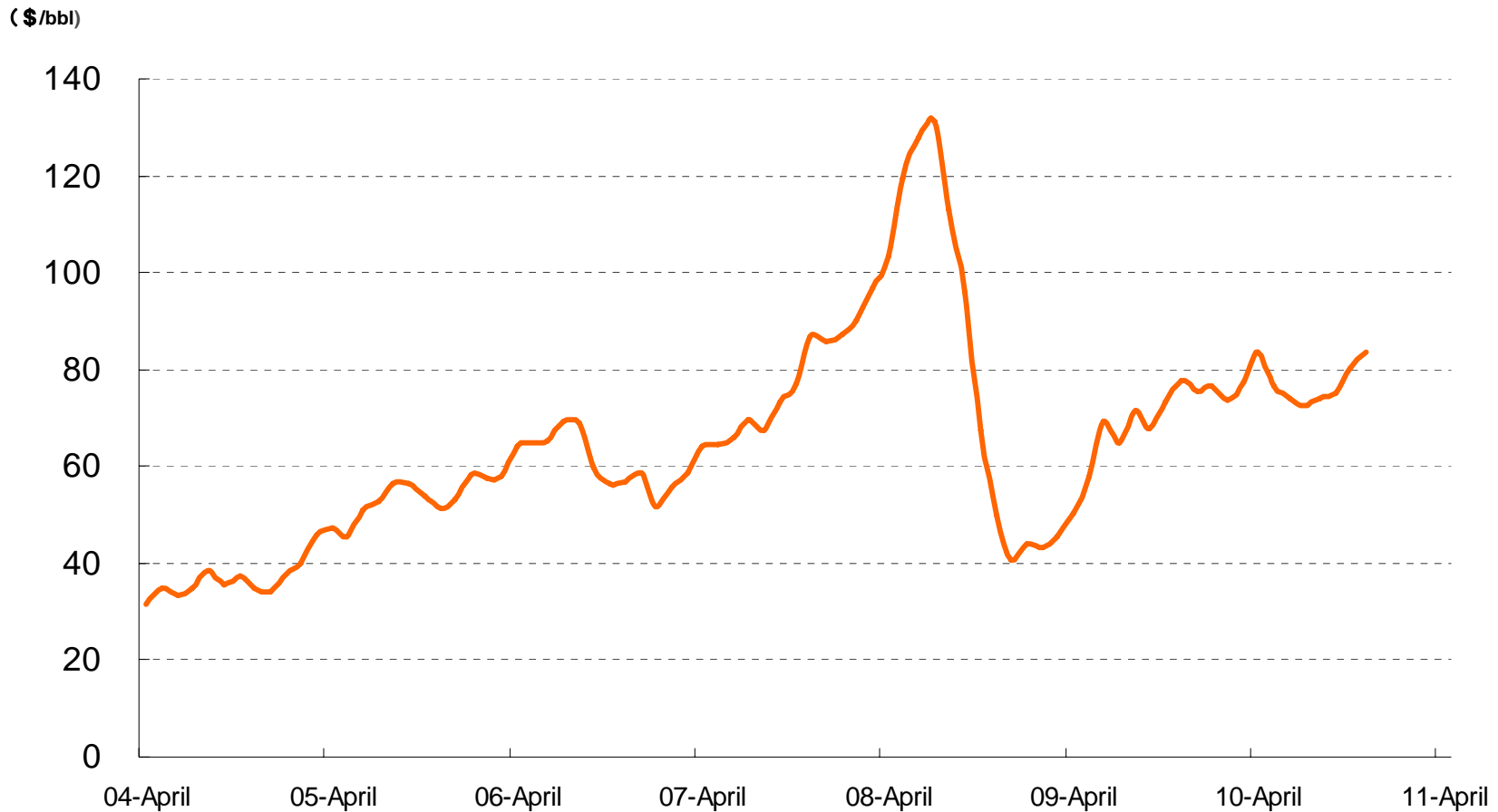
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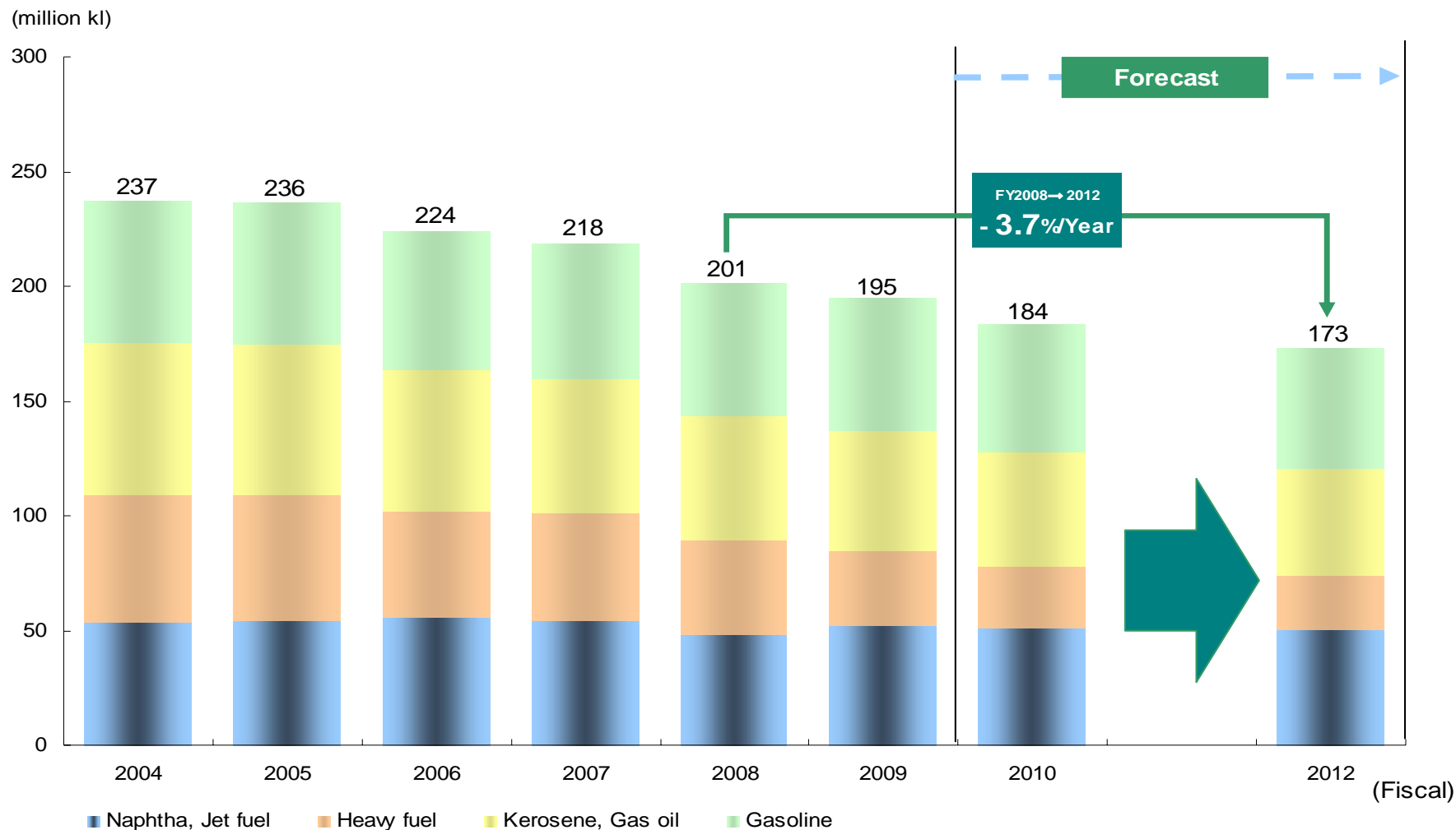


# Historical Dubai Crude Oil Price

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 )

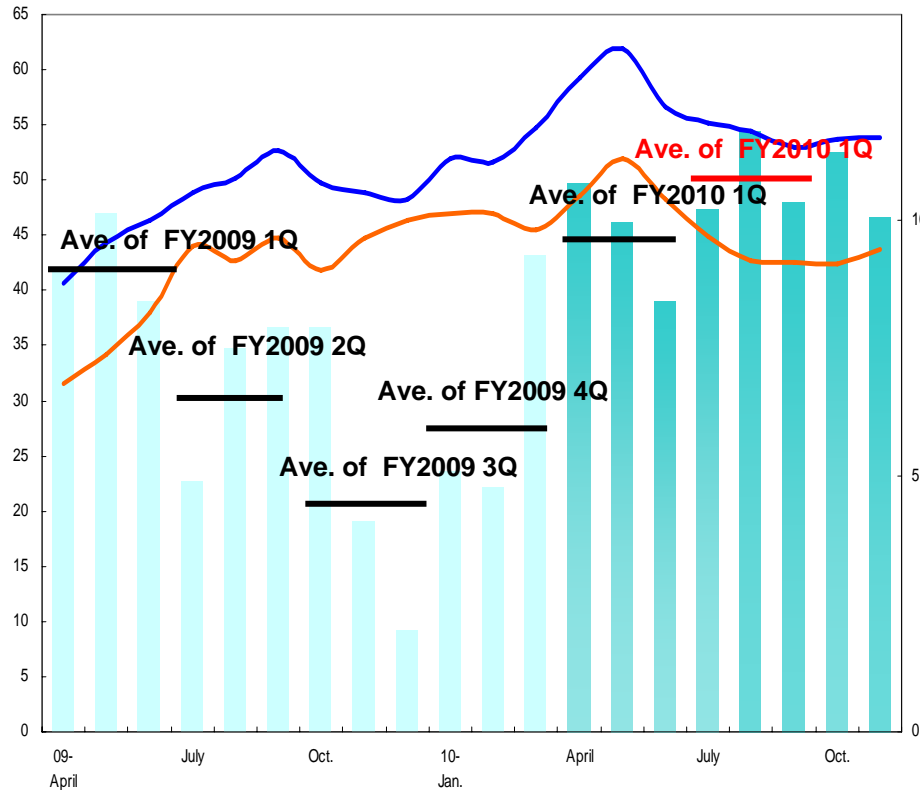


Source: Ministry of Economy, Trade and Industry, Japan

# Domestic Market Margin (Gasoline and Kerosene)

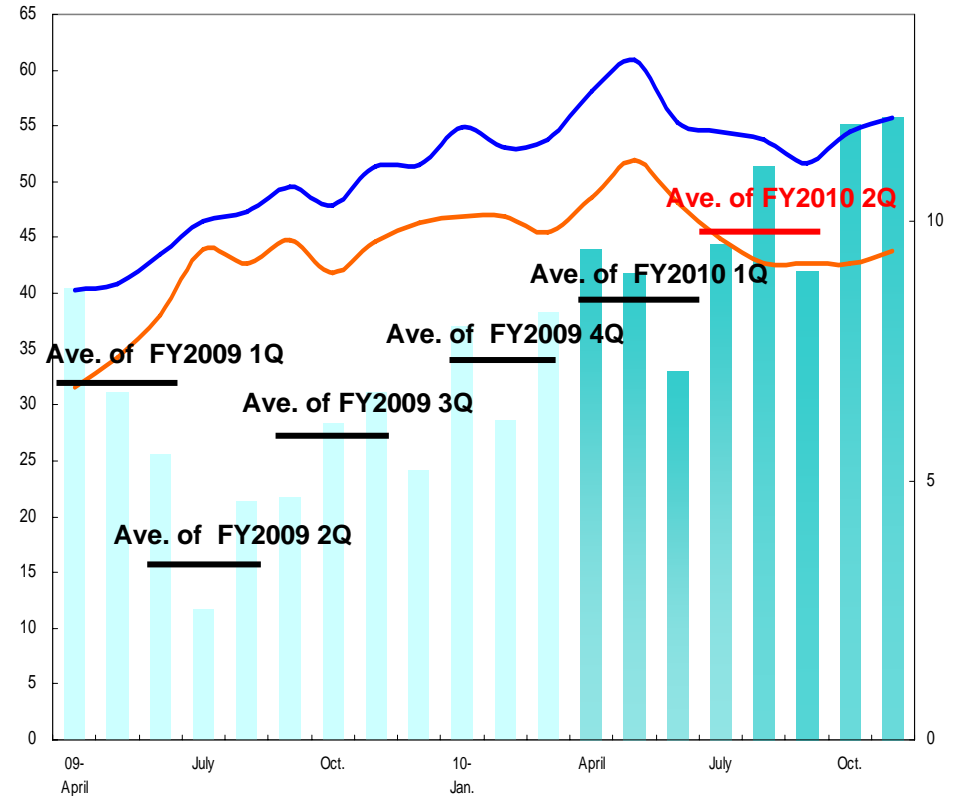
## Gasoline

(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 )

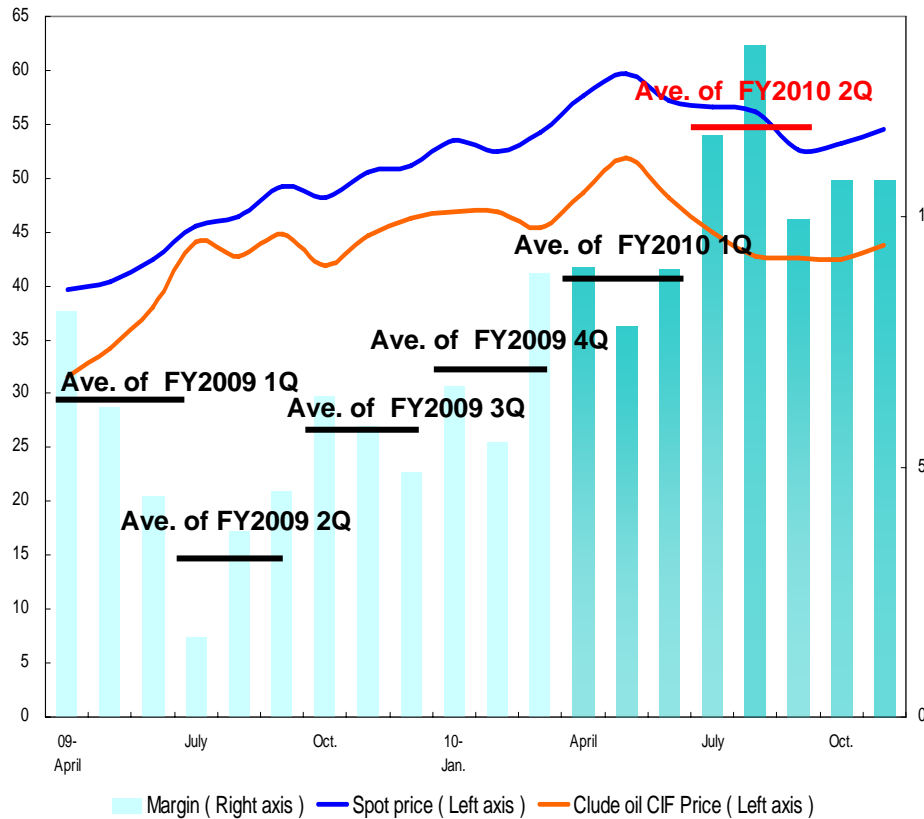
Note : Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest) – Taxes

Source : Trade statistics (Ministry of Finance, Japan)

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

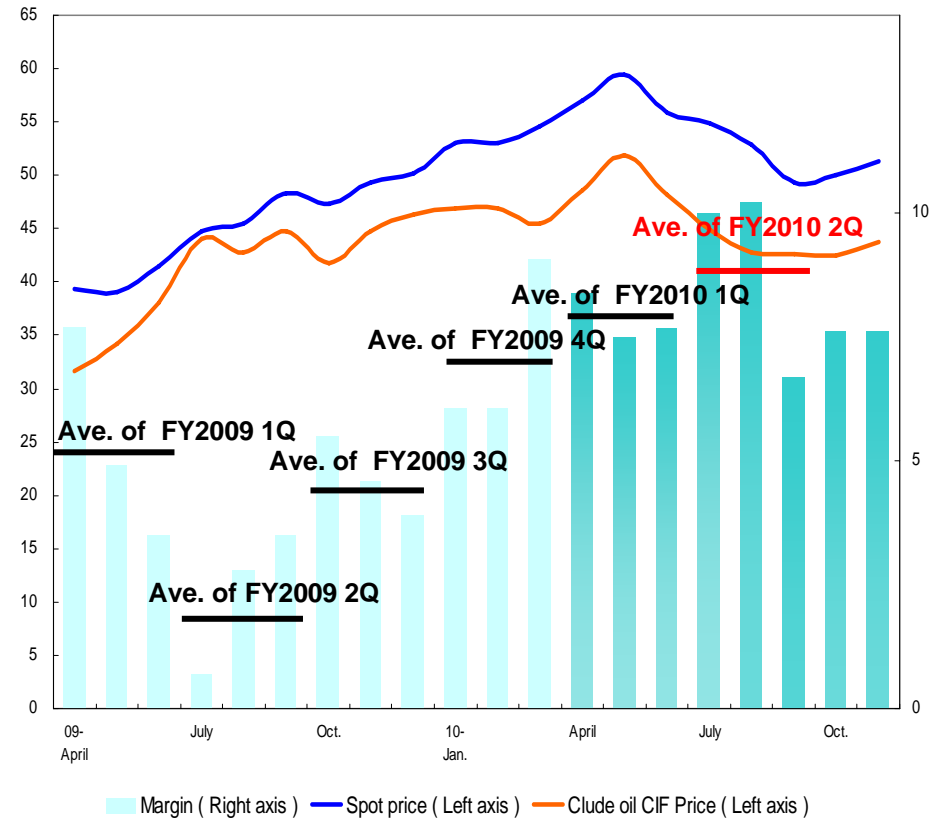
## Diesel Fuel Oil

(Yen/L)



## Heavy Fuel Oil A

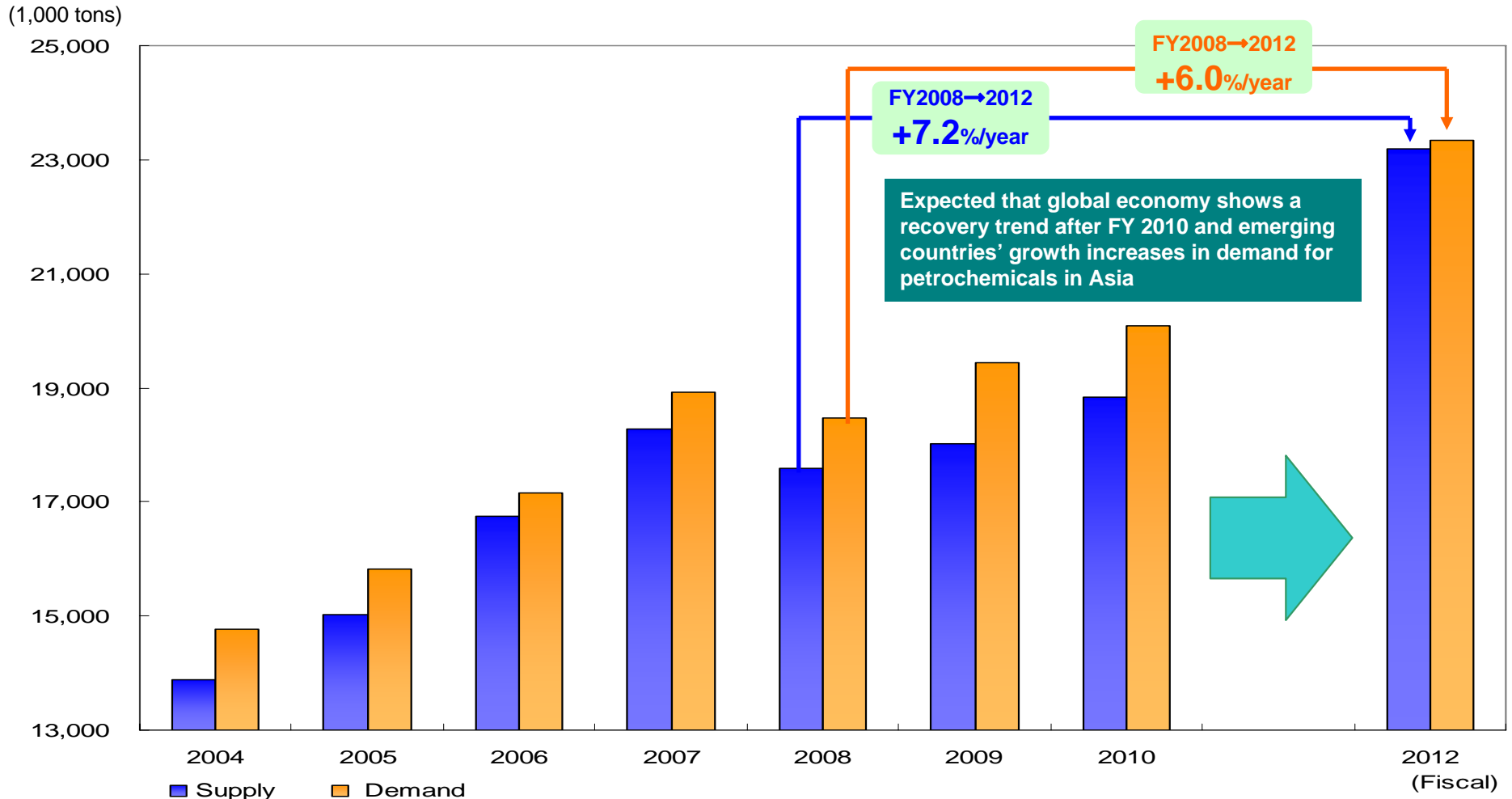
(Yen/L)



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)

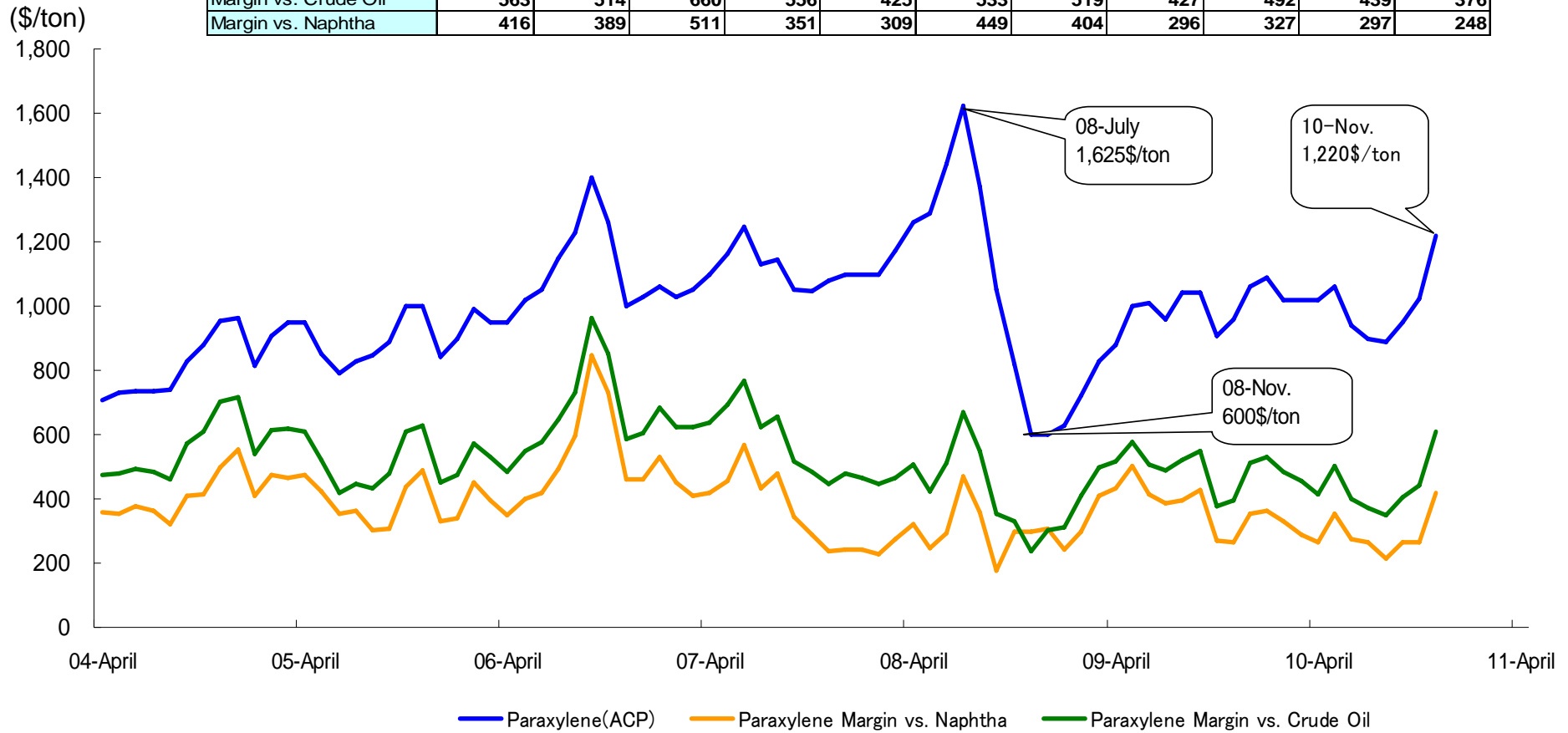


Source: Company Data



# 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.

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

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

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%
<b>26.82</b>	<b>56.90</b>	<b>-0.9%</b>	<b>-3.6%</b>
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%
<b>41.01</b>	<b>85.90</b>	<b>1.6%</b>	<b>-0.2%</b>
11.04	22.16	-13.5%	-18.1%
<b>52.05</b>	<b>108.06</b>	<b>-2.1%</b>	<b>-4.5%</b>

\* 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
<b>JX Group</b>	15,082	14,640	14,076	13,474	13,318	12,687	12,460
<b>EMGK</b> *1	6,701	6,464	6,044	5,635	5,064	4,761	4,630
<b>Idemitsu Kosan</b>	5,358	5,249	5,059	4,913	4,598	4,338	4,237
<b>Showa Shell Sekiyu</b>	4,808	4,689	4,560	4,481	4,256	4,102	3,984
<b>Cosmo Oil</b>	4,709	4,552	4,359	4,188	3,913	3,768	3,692
<b>Others</b> *2	1,500	1,439	1,388	1,383	687	683	665
<b>Oil Companies</b>	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%)
<b>Private Brands and Others</b> *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%)
<b>Total</b> *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 Utilization Rate<sup>\*1</sup>

## 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)
<b>JX Group</b>	<b>94%</b>	<b>93%</b>	<b>91%</b>	<b>89%</b>	<b>85%</b>	<b>78%</b>	<b>81%</b>
<b>Total for Japan</b>	<b>84%</b> <b>(4.78)</b>	<b>87%</b> <b>(4.77)</b>	<b>83%</b> <b>(4.39)</b>	<b>83%</b> <b>(4.49)</b>	<b>84%</b> <b>(4.59)</b>	<b>82%</b> <b>(4.41)</b>	—

\* 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),

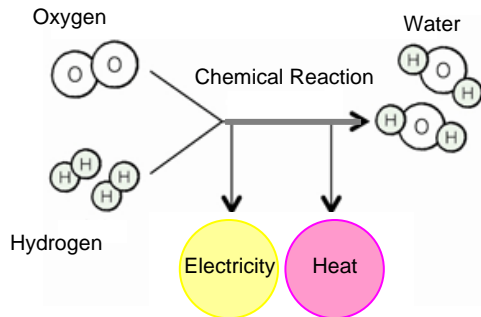
a Utilization Rate(JX) of FY10 1H rises to about 84%.

Source: Petroleum Association of Japan and Company data

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

## Merit of ENE·FARM

### Environment Friendly



The case using ENE·FARM for a year

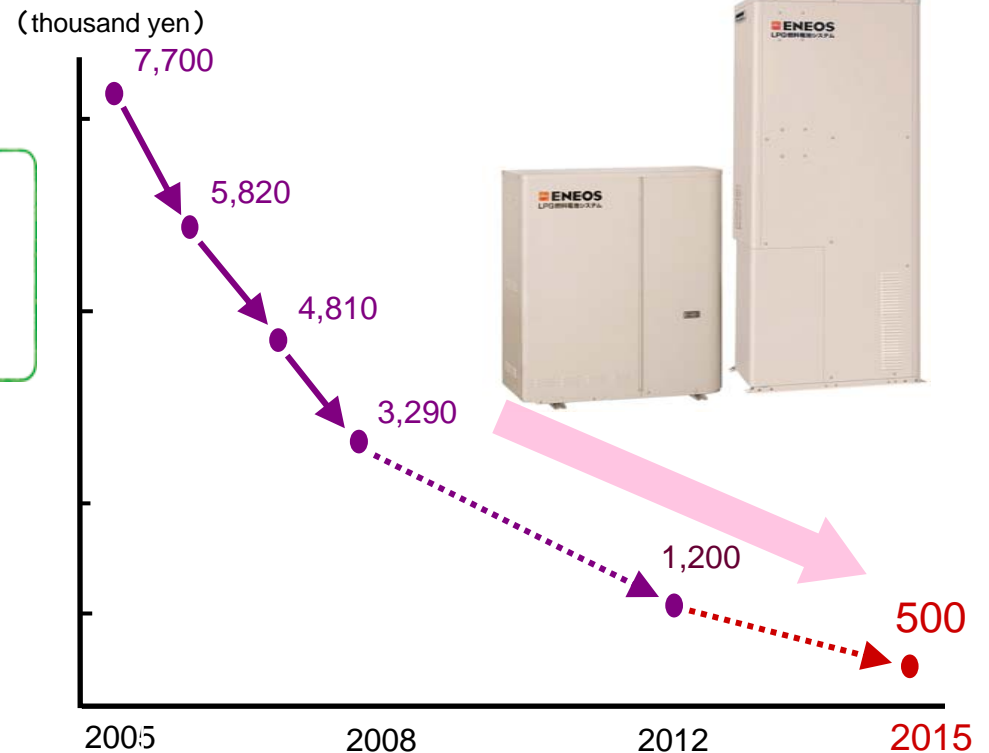
Reduce about 30% of CO2 emission

CO2 amount that 80 Japan cedar absorb in a year

### Conservation of Energy

Conventional System *	
<ul style="list-style-type: none"> <li>Power Transmission Loss 5%</li> <li>Rejection Heat Loss 55~60%</li> </ul>	<p><b>Energy Efficiency 35-40%</b></p>
ENE·FARM	
<ul style="list-style-type: none"> <li>Power Transmission Loss 0%</li> <li>Rejection Heat Loss 15~20%</li> </ul>	<p><b>Energy Efficiency 80-85%</b></p>

## Cost Down Target of ENE·FARM



\* 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)		Reserves *2 (1million BOE)
	PC Basis	Equity Basis	
[Gulf of Mexico(U.S.A.)] Nippon Oil Exploration U.S.A. Limited	11	11	48
[Canada] Japan Canada Oil Company Limited	15	15	280
[North Sea, U.K.] Nippon Oil Exploration and Production U.K. Limited	13	13	21
[Vietnam] Japan Vietnam Petroleum Co., Ltd.	11	11	
[Myanmar] Nippon Oil Exploration (Myanmar) Limited	9	5	
[Malaysia] Nippon Oil Exploration (Malaysia) Ltd.	20	16	
Nippon Oil Exploration (Sarawak) Ltd.	33	26	
[Indonesia] Nippon Oil Exploration (Berau) Ltd.	11	6	
[Papua New Guinea] Japan Papua New Guinea Petroleum Company Ltd. Southern Highlands Petroleum Co., Ltd.	7	6	<Subtotal> 88
[Australia] Nippon Oil Exploration (Australia) Pty Ltd.	1	1	
[United Arab Emirates, Qatar and others] Nippon Oil Exploration (Myanmar) Ltd. Abudhabi Oil Co., Ltd., United Petroleum Development Co., Ltd. and others	*1 14	 14	24
Total	145	122	813

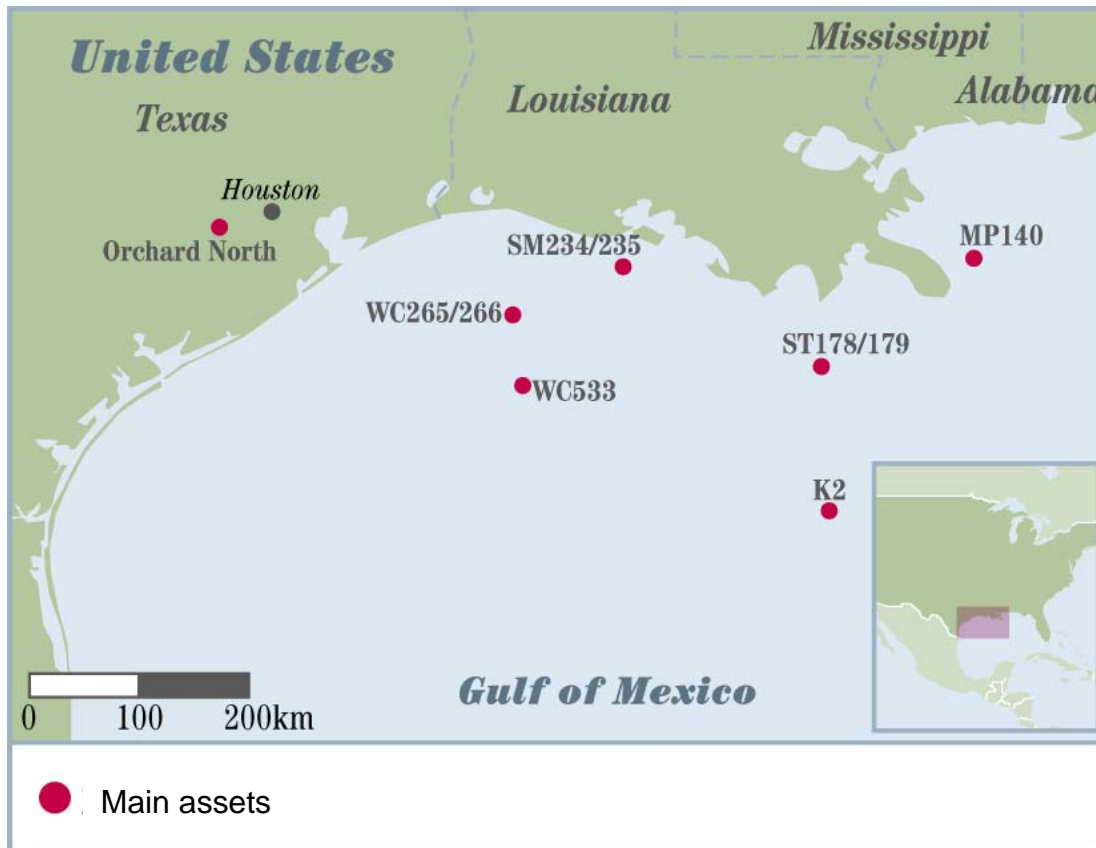
+113  
(Compared to Dec., 2008)

\*1 JX Group's equity basis

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

# 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%

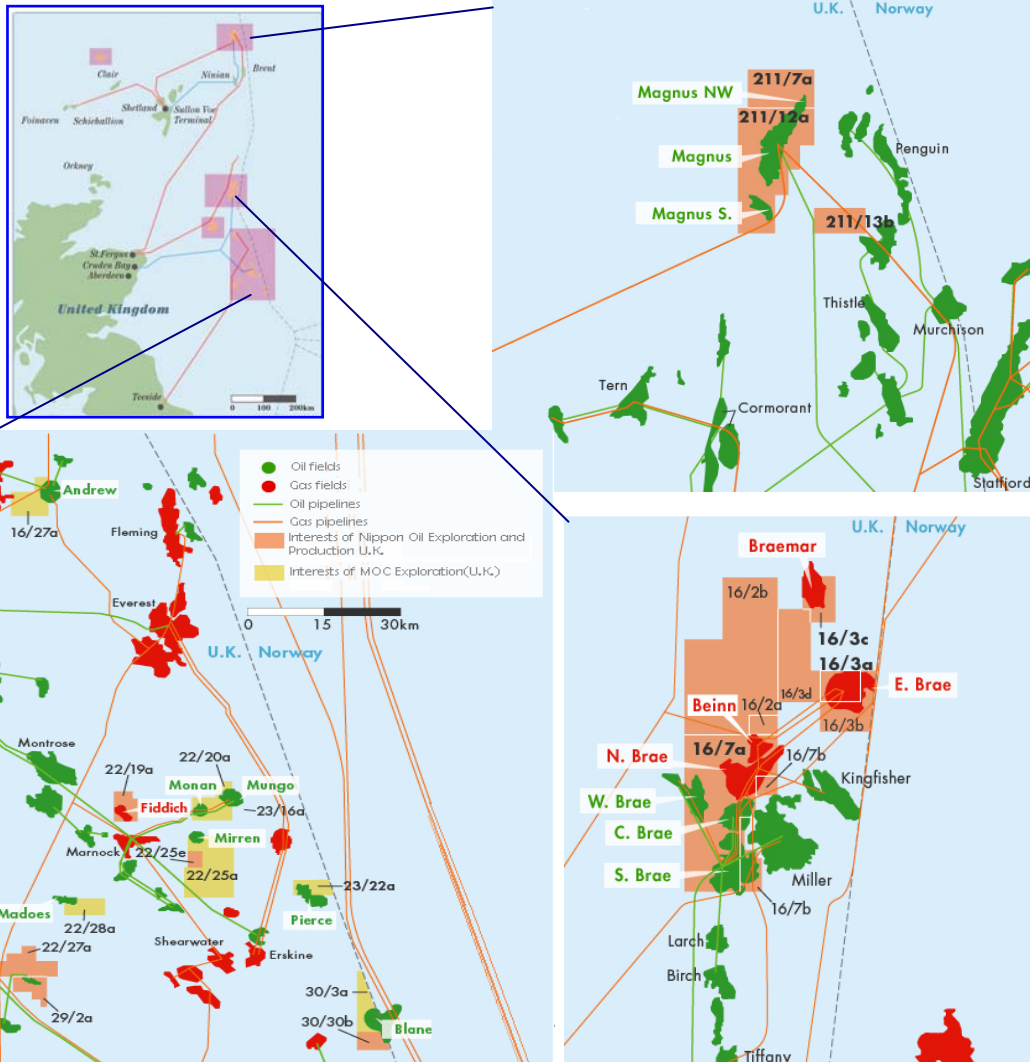
### Operator

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

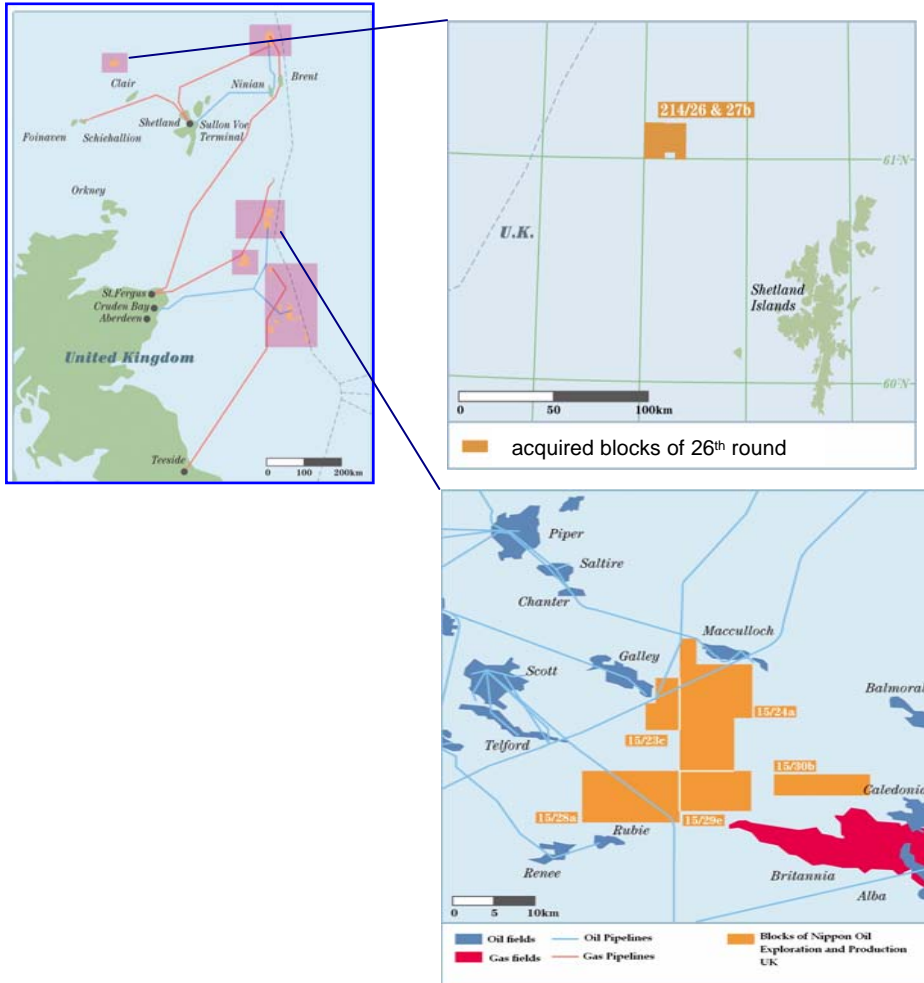
**Range of Interests in Individual Fields**  
 2.1% to 45%

**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

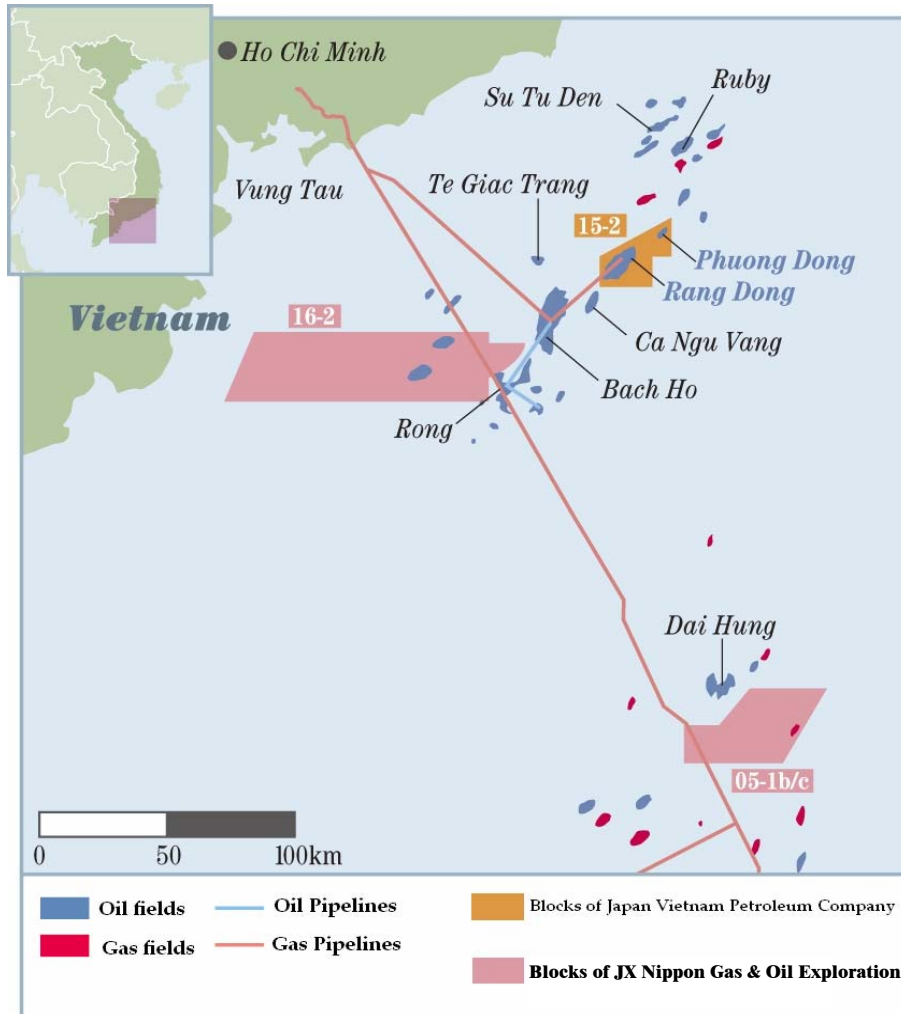
### In the west of Shetland Islands

2010 214/26, 214/27b



# Principal Individual E&P Project Overview ⑤

## Vietnam



### '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%

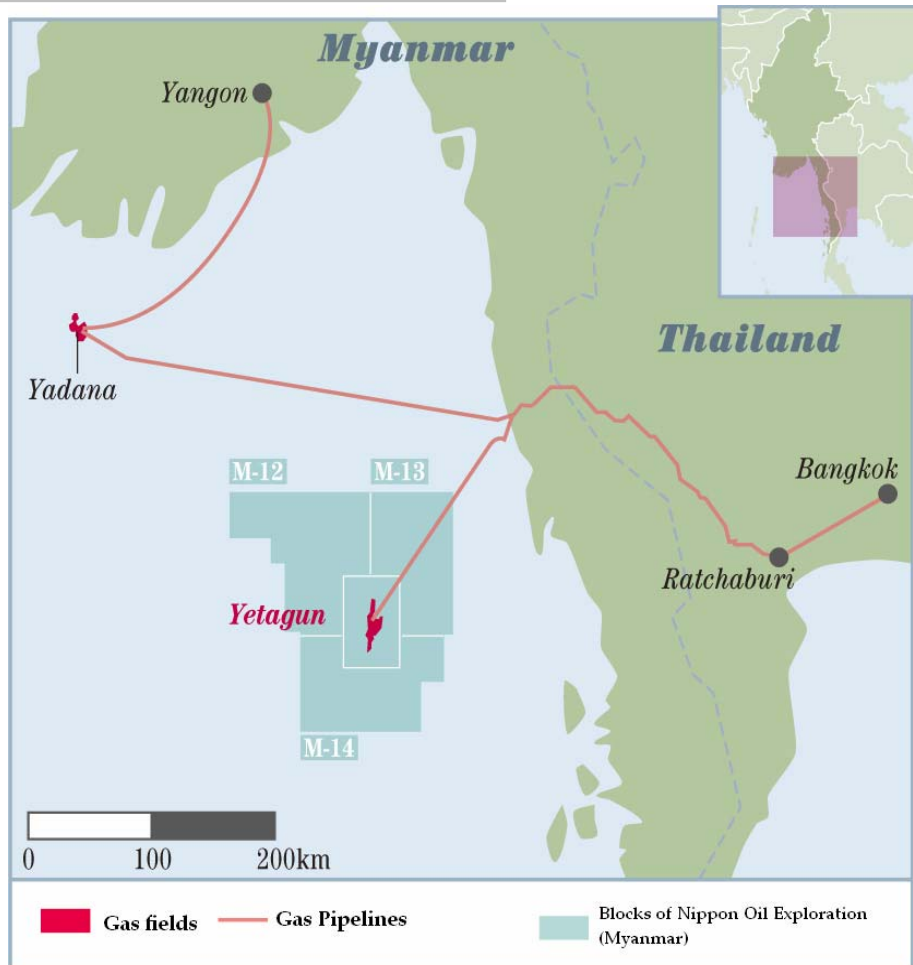
### Operator

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%

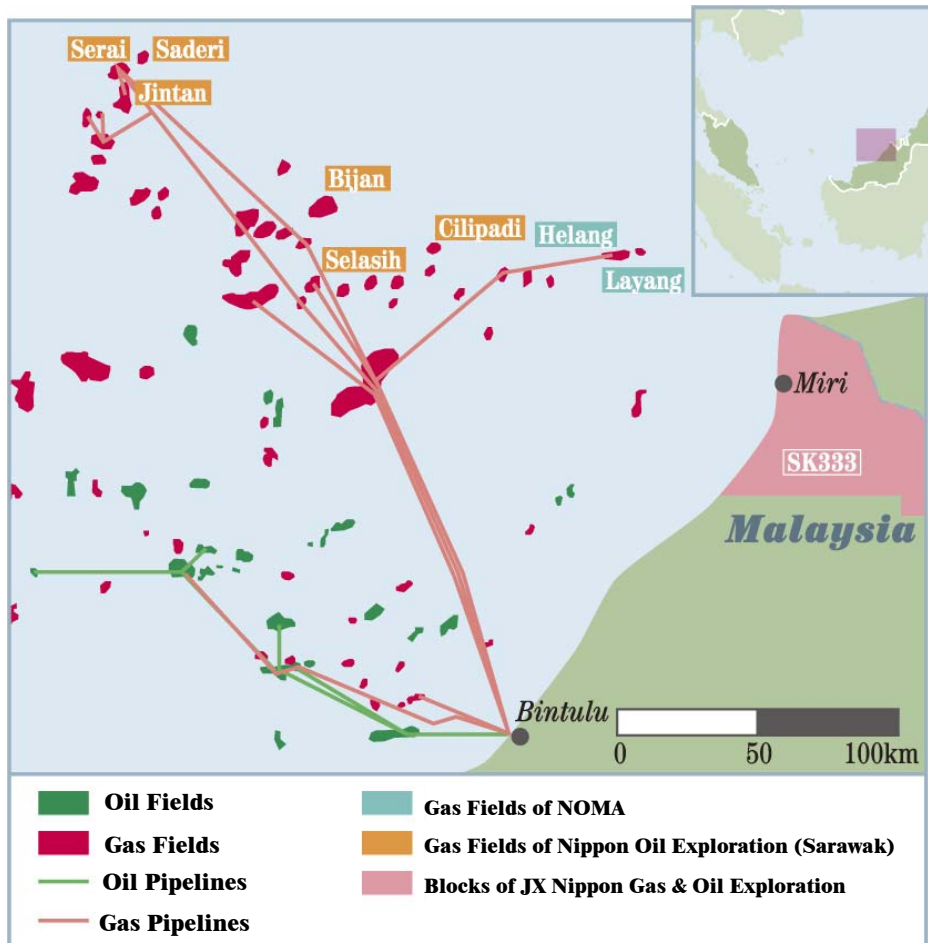
### Operator

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%

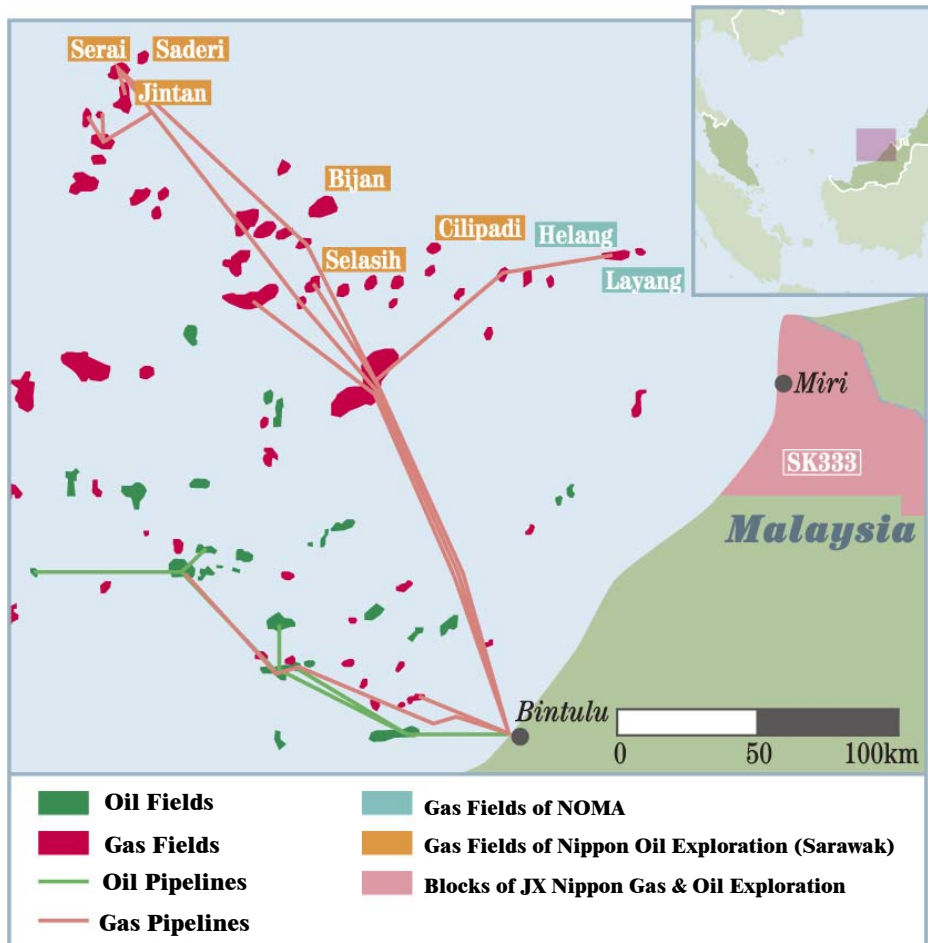
### Operator

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%

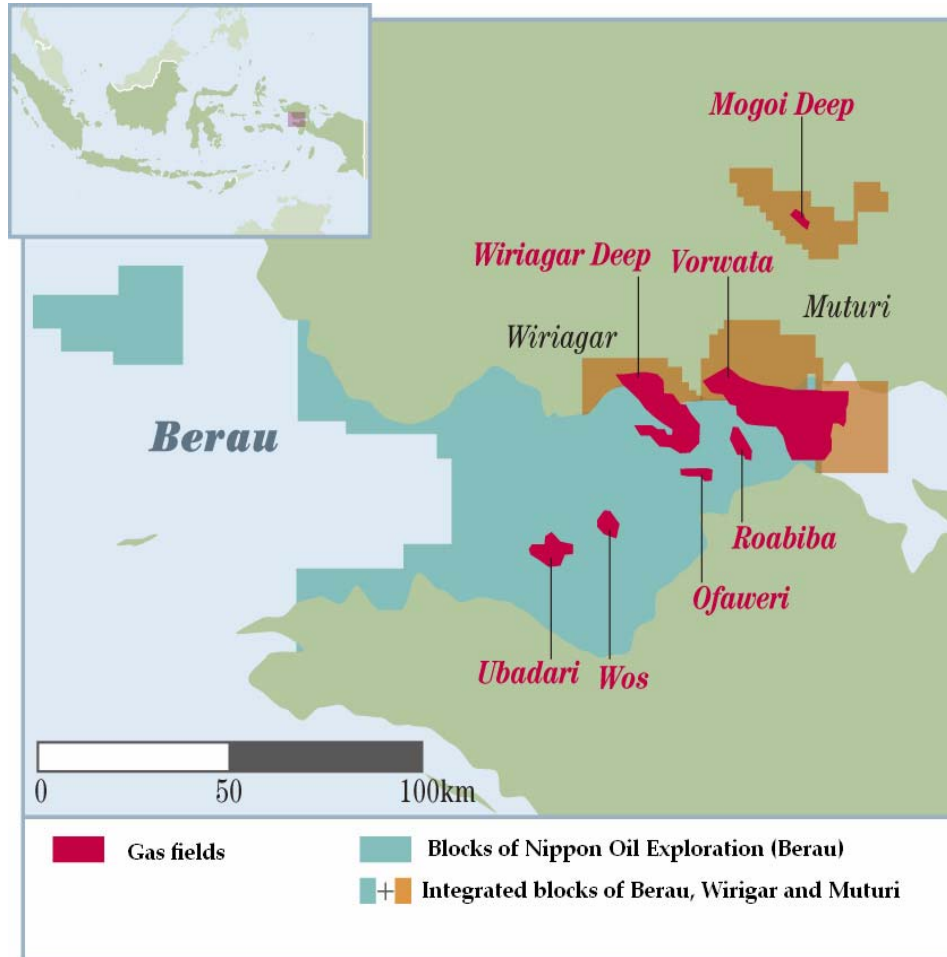
### Operator

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 Saderi 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)

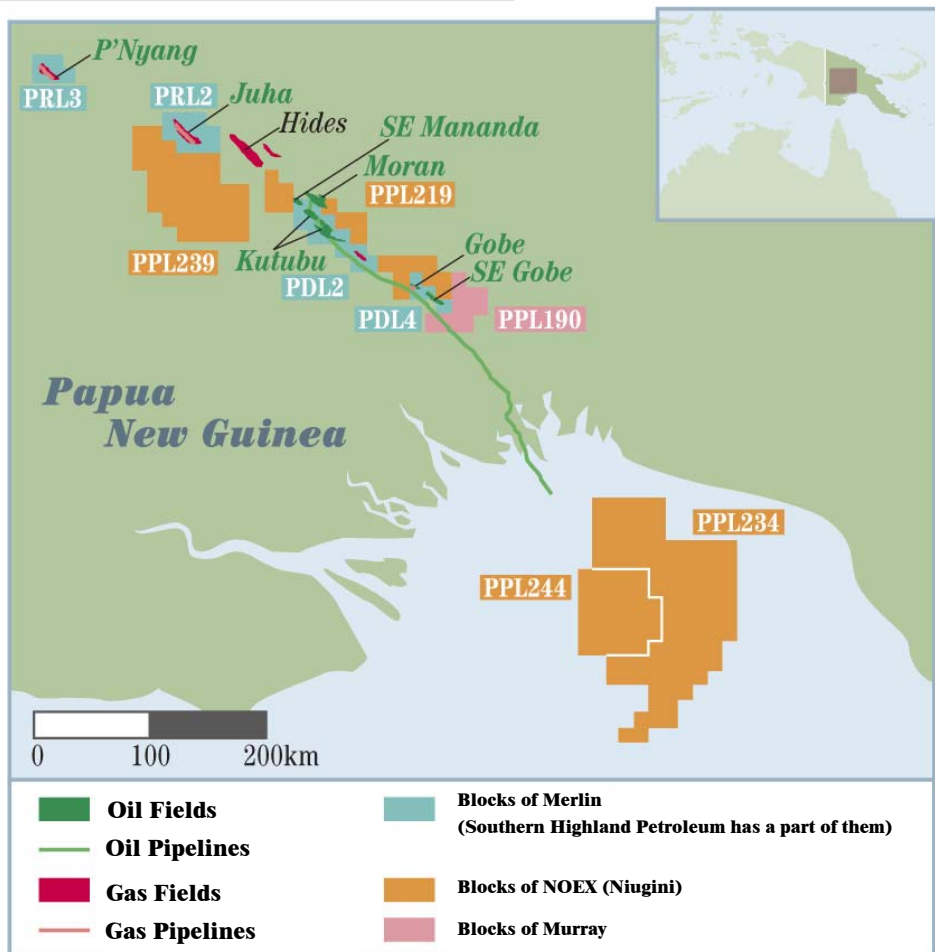
### Operator

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

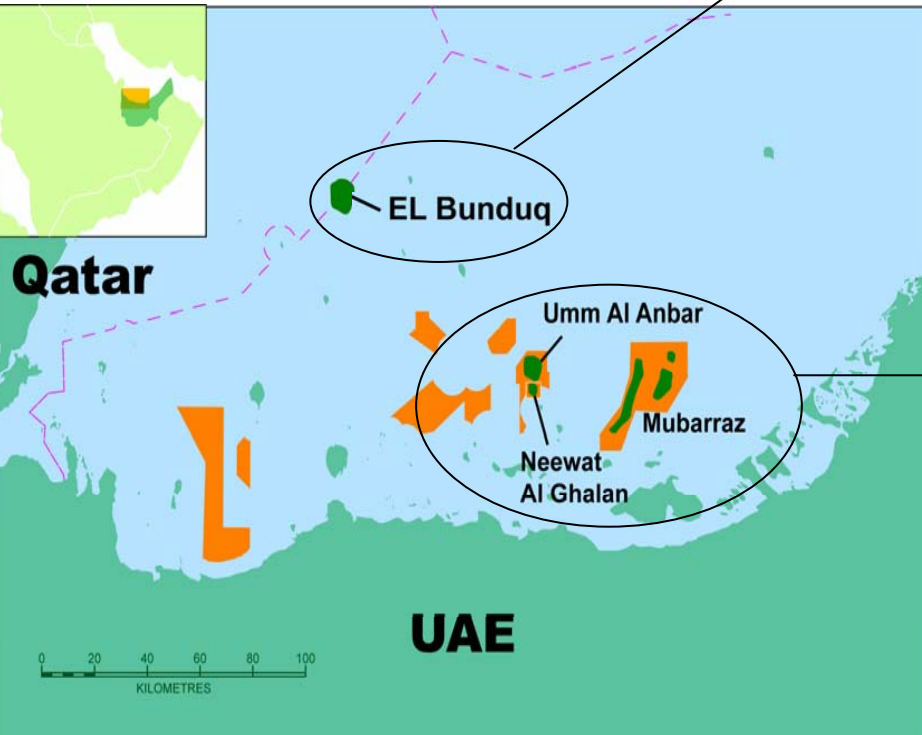
- In 1967, acquired working interest in block of Mubarraz.

- In 1973, oil production commenced in Mubarraz Oil Field.

- In 1989, oil production commenced in Umm Al Anbar Oil Field.

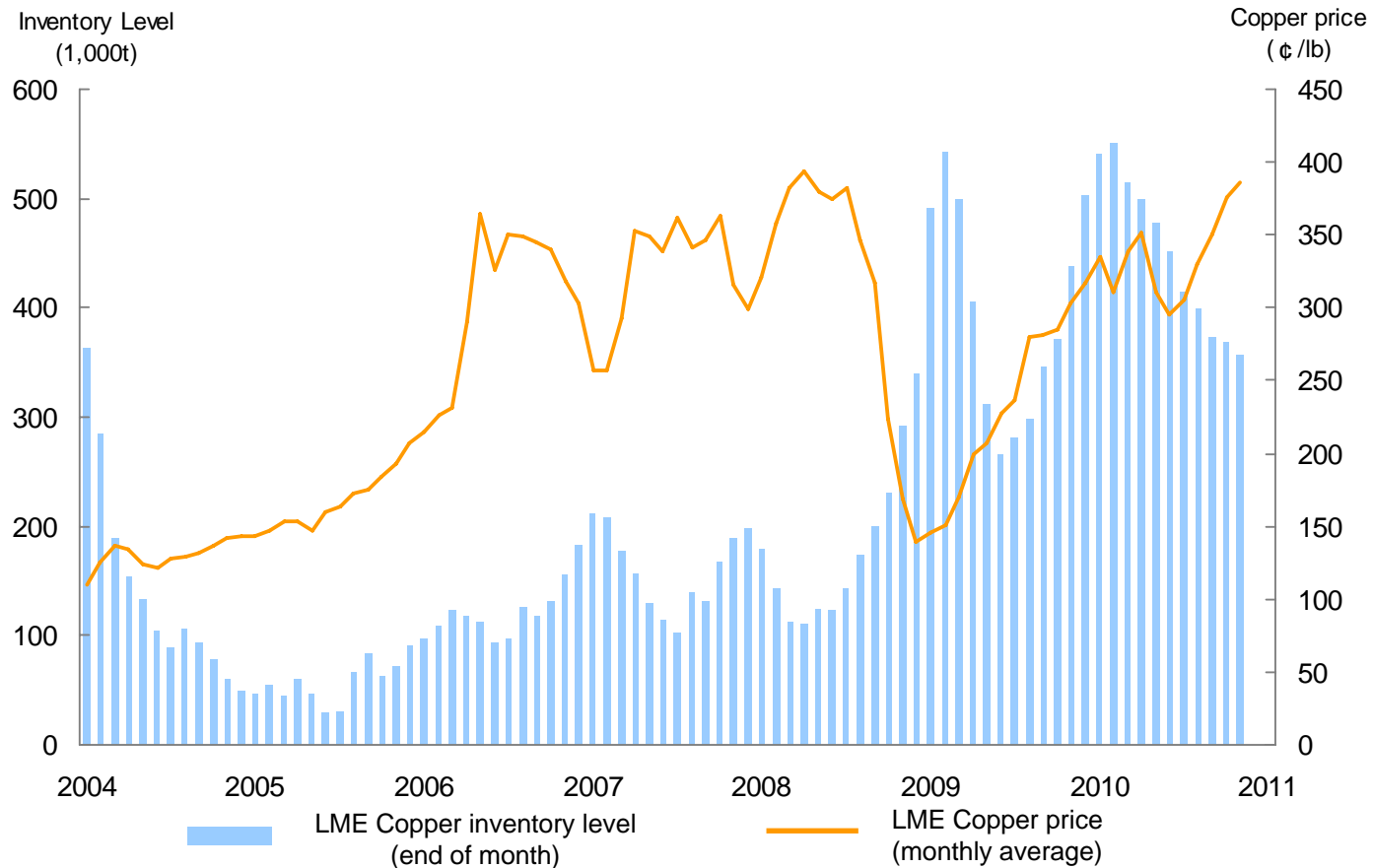
- In 1995, oil production commenced in Neewat Al Ghalan Oil Field.

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



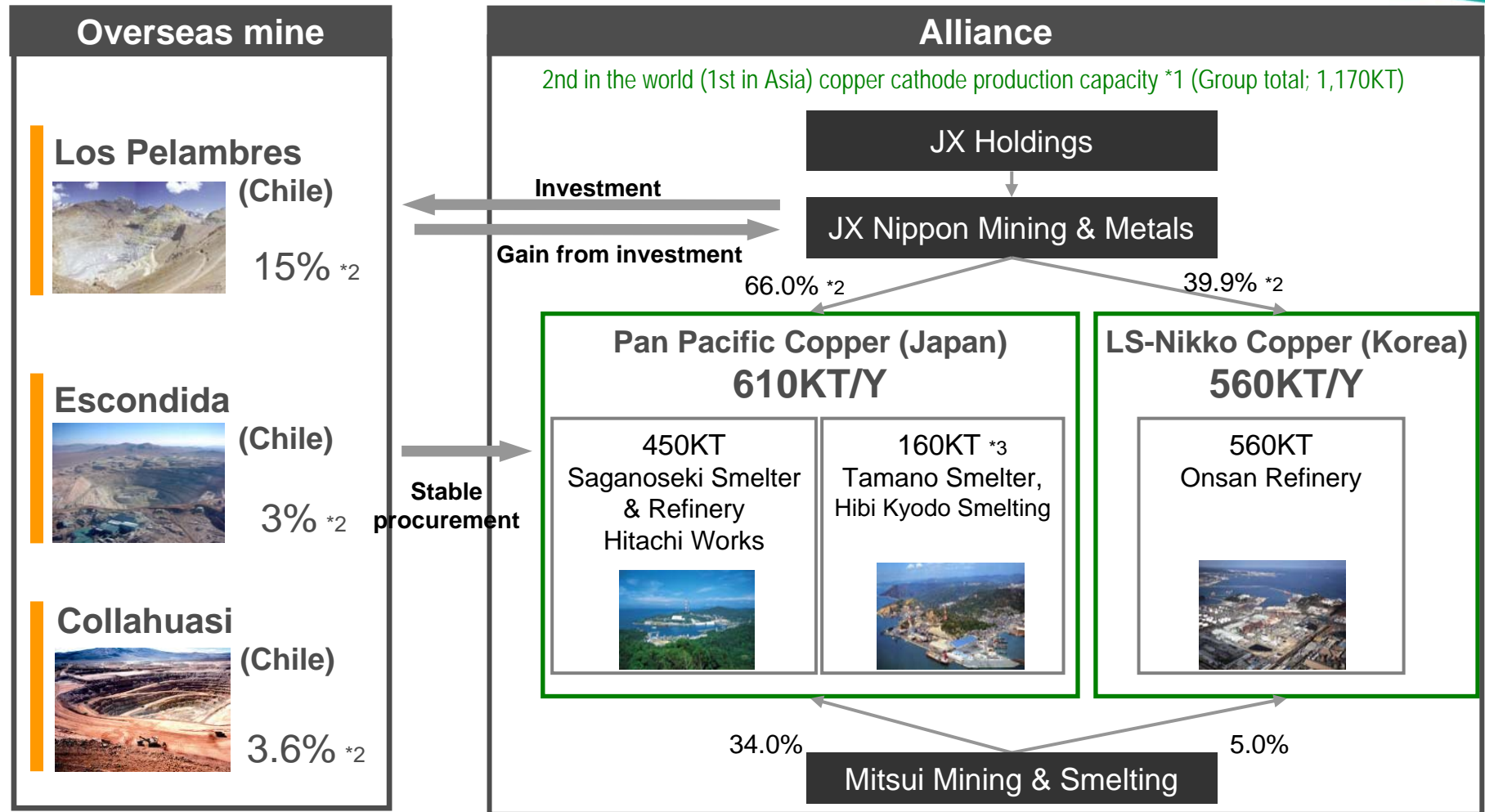
# Copper Price and Inventory Level

	( ¢ /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





# Copper Smelting & Refining



Notes: \*1 Source: Brook Hunt \*2 Shares held by JX Nippon Mining & Metals  
 \*3 PPC owns 63.51% of the total 260KT/Y production capacity.

# Nikko-Chloride Process (N-Chlo Process)

## N-Chlo Process

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

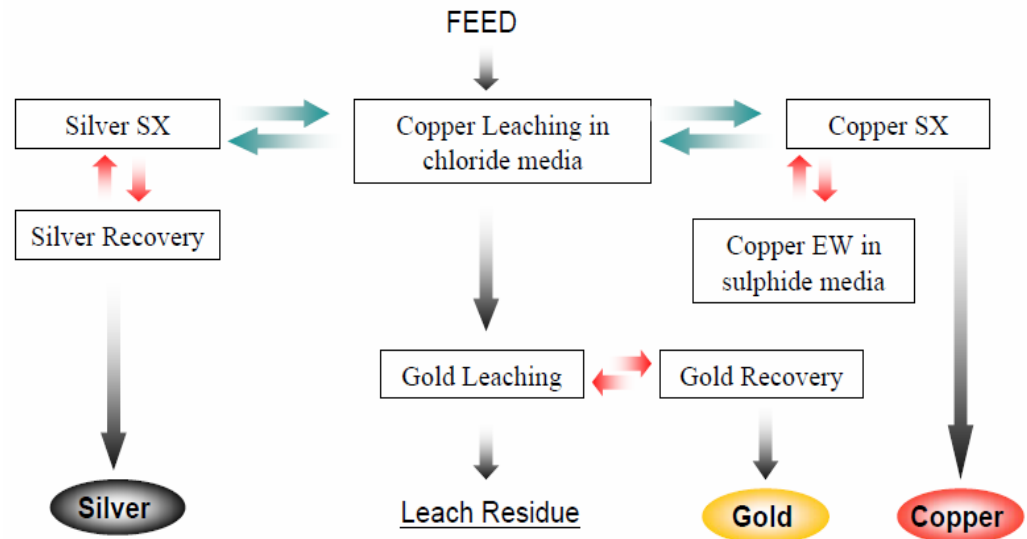
The process enables the effective recovery of not only copper from low-grade copper concentrate, but also such precious metals as gold and silver .

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)

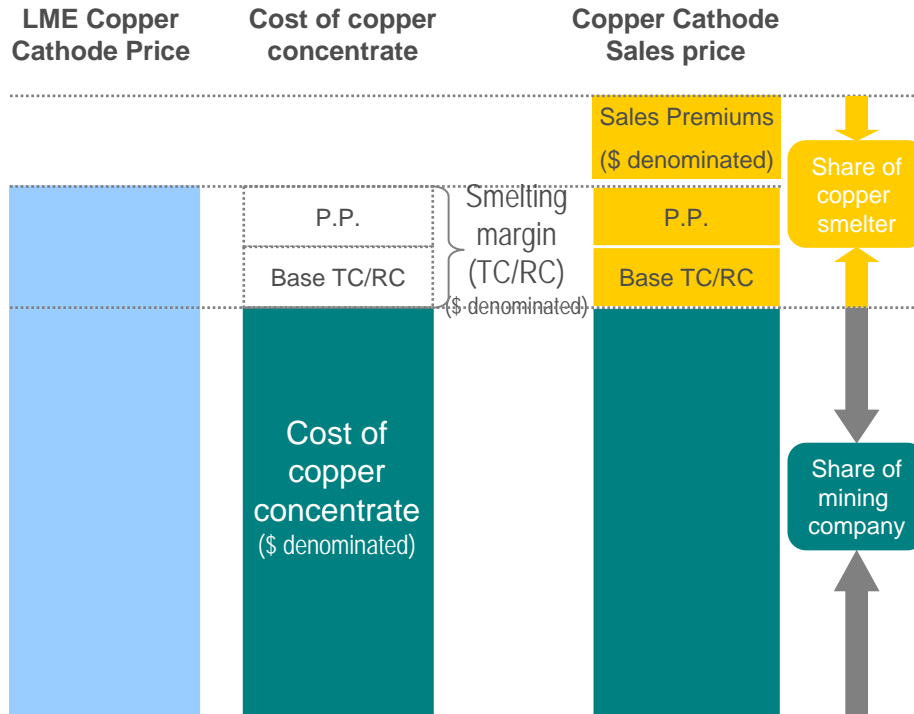


## Structure of N-Chlo Process

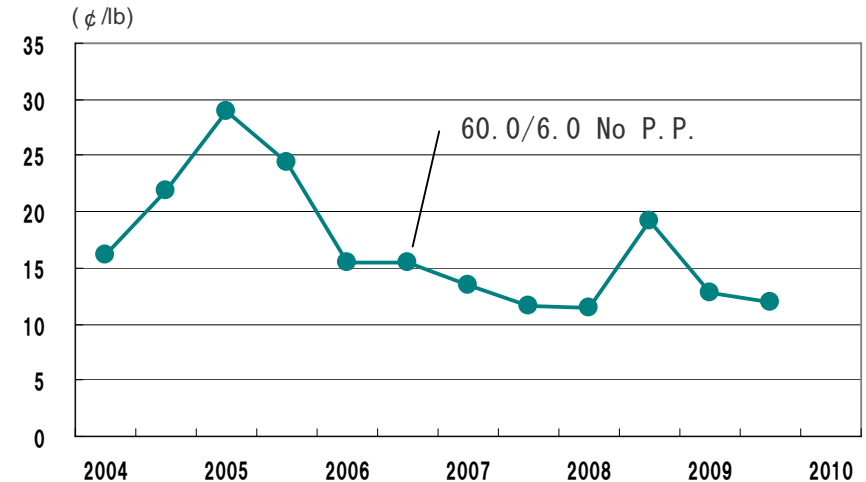


# Earnings Structure of Copper Smelter & Refinery / Trends of Base TC/RC

## Earnings Structure of Copper Smelter & Refinery



## Trends of Base TC/RC (Contract basis)



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."

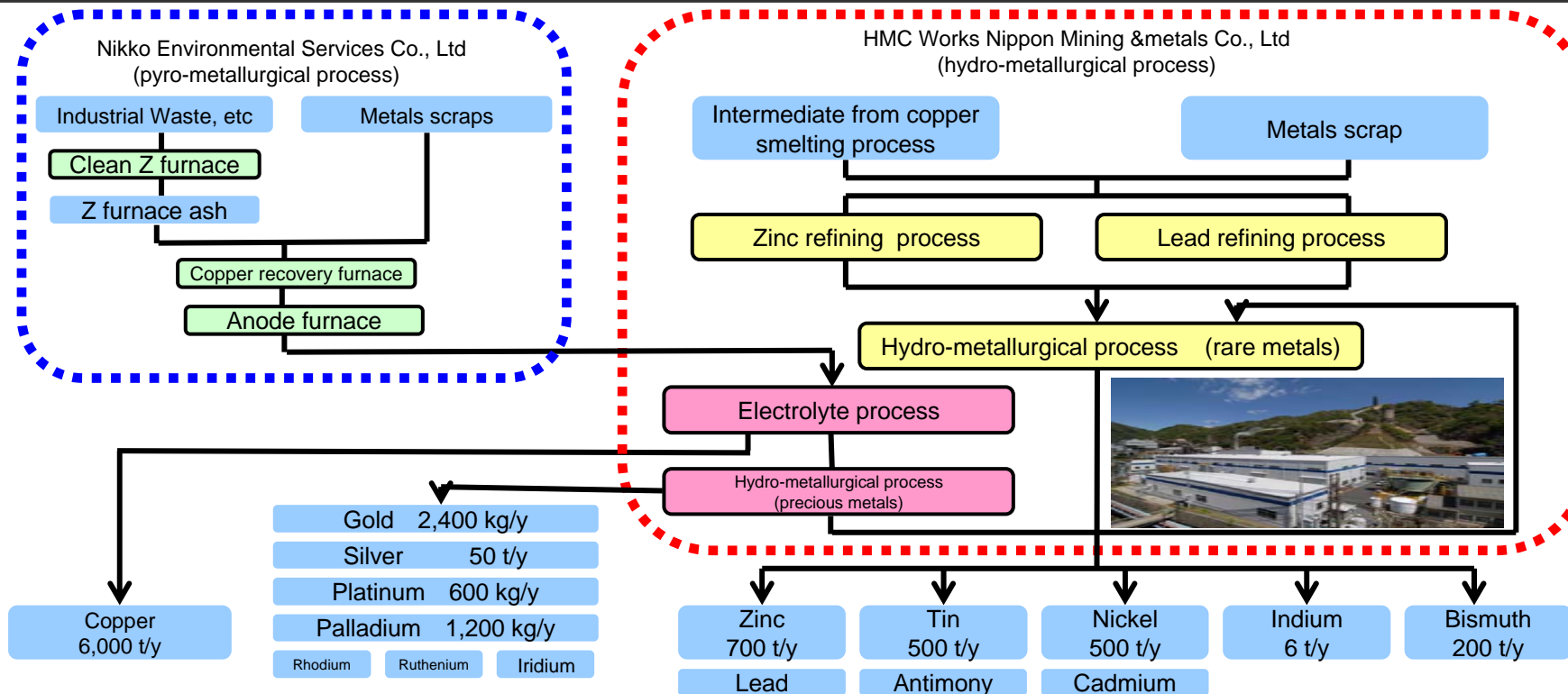
**P.P. (Price participation) :** The system under which mines and smelters share margins when LME copper price exceeds benchmark price.

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


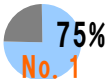

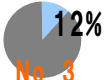

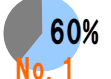

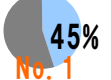

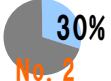

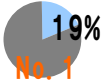

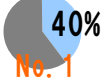

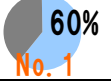

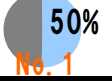
# Metal's Recycling

## 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

30%

-Toho Titanium Co., Ltd.

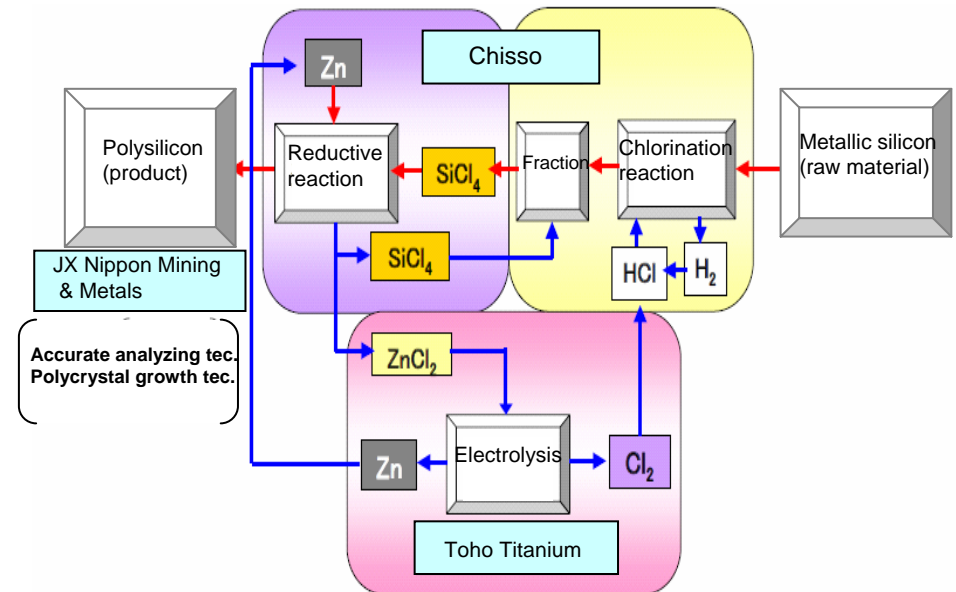
20%

## 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 JX Nippon Mining & Metals, Toho Titanium and Chisso

✓ High response efficiency and low cost



## Cautionary Statement Regarding Forward-Looking Statements

This notice contains certain forward-looking statements. These forward-looking statements may be identified by words such as “believes”, “expects”, “anticipates”, “projects”, “intends”, “should”, “seeks”, “estimates”, “future” or similar expressions or by discussion of, among other things, strategy, goals, plans or intentions. Actual results may differ materially in the future from those reflected in forward-looking statements contained in this notice, due to various factors including but not limited to:

- (1) macroeconomic condition and general industry conditions such as the competitive environment for companies in energy, resources and materials industries;
- (2) regulatory and litigation matters and risks; (3) legislative developments; and
- (4) changes in tax and other laws and the effect of changes in general economic conditions.