

Security Code

Tokyo 5020

# Supplementary Information

~ JX Group A to Z ~

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November, 2014



The Future of Energy, Resources and Materials

**JX Holdings, Inc.**

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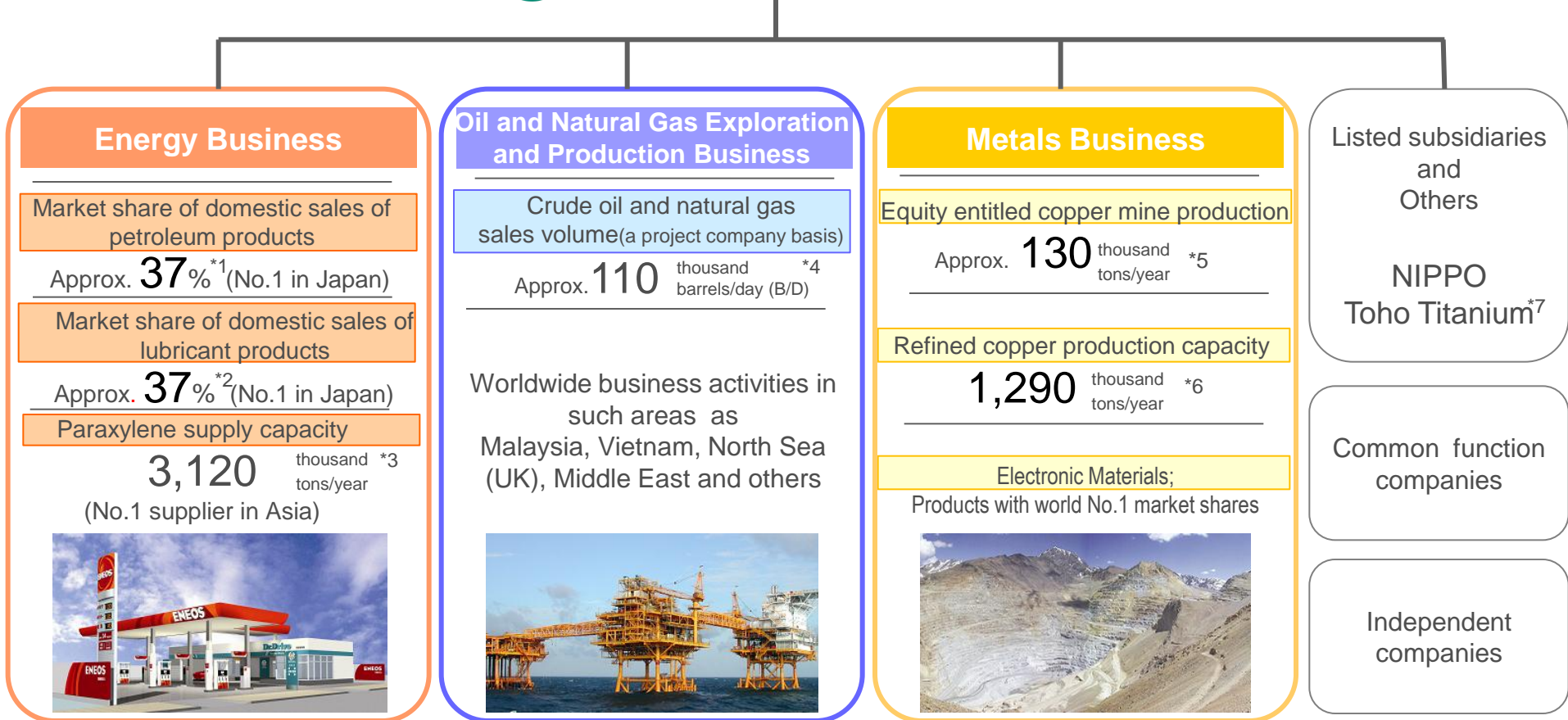


# Summaries of businesses and Financial Results



# Summary of JX Group's Businesses

## JX JX Holdings, Inc.



### Energy Business

Market share of domestic sales of petroleum products

Approx. **37%**<sup>\*1</sup> (No.1 in Japan)

Market share of domestic sales of lubricant products

Approx. **37%**<sup>\*2</sup> (No.1 in Japan)

Paraxylene supply capacity

**3,120** thousand<sup>\*3</sup> tons/year  
(No.1 supplier in Asia)



### Oil and Natural Gas Exploration and Production Business

Crude oil and natural gas sales volume(a project company basis)

Approx. **110** thousand<sup>\*4</sup> barrels/day (B/D)

Worldwide business activities in such areas as Malaysia, Vietnam, North Sea (UK), Middle East and others



### Metals Business

Equity entitled copper mine production

Approx. **130** thousand<sup>\*5</sup> tons/year

Refined copper production capacity

**1,290** thousand<sup>\*6</sup> tons/year

Electronic Materials;  
Products with world No.1 market shares



Listed subsidiaries and Others

NIPPO  
Toho Titanium<sup>\*7</sup>

Common function companies

Independent companies

\*1 FY2013 actual

\*2 FY2013 actual

\*3 As of Sep. 2014

\*4 Crude oil equivalent (average daily production from Jan. to Jun. 2014 actual)

\*5 Equity entitled copper production contained in copper concentrate (CY2013 actual)

\*6 Pan Pacific Copper (66.0% equity stake) ; 610 thousand tons/year + LS-Nikko Copper (39.9% equity stake) ;680 thousand tons/year (As of Sep. 2014)

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



# Financial Summary

| (JPY billion)                  | FY2013         |                |                 | FY2014         |                |                         |
|--------------------------------|----------------|----------------|-----------------|----------------|----------------|-------------------------|
|                                | 1Q             | 1H             | Full Year       | 1Q             | 1H             | Full Year               |
|                                | Actual         | Actual         | Actual          | Actual         | Actual         | Forecast<br>(Nov. 2014) |
| <b>Net Sales</b>               | <b>2,773.8</b> | <b>5,777.7</b> | <b>12,412.0</b> | <b>2,640.9</b> | <b>5,442.4</b> | <b>11,720.0</b>         |
| Energy                         | 2,396.8        | 5,009.2        | 10,755.0        | 2,232.9        | 4,617.0        | 9,970.0                 |
| Oil and Natural Gas E&P        | 48.2           | 94.1           | 202.2           | 54.8           | 104.4          | 240.0                   |
| Metals                         | 252.9          | 506.5          | 1,039.1         | 268.2          | 550.0          | 1,120.0                 |
| Others                         | 75.9           | 167.9          | 415.7           | 85.0           | 171.0          | 390.0                   |
| <b>Operating Income (Loss)</b> | <b>53.6</b>    | <b>139.4</b>   | <b>213.7</b>    | <b>2.7</b>     | <b>14.3</b>    | <b>105.0</b>            |
| Energy                         | 24.6           | 80.7           | 79.9            | (28.0)         | (46.9)         | (33.0)                  |
| Oil and Natural Gas E&P        | 24.7           | 42.6           | 83.4            | 18.6           | 34.1           | 73.0                    |
| Metals                         | 1.2            | 5.8            | 13.8            | 5.0            | 11.2           | 33.0                    |
| Others                         | 3.1            | 10.3           | 36.6            | 7.1            | 15.9           | 32.0                    |
| <b>Ordinary Income (Loss)</b>  | <b>72.5</b>    | <b>176.1</b>   | <b>302.3</b>    | <b>14.9</b>    | <b>42.0</b>    | <b>180.0</b>            |
| Energy                         | 26.1           | 91.4           | 108.2           | (24.3)         | (35.3)         | 2.0                     |
| Oil and Natural Gas E&P        | 31.0           | 53.1           | 105.5           | 20.0           | 34.7           | 75.0                    |
| Metals                         | 10.1           | 19.6           | 47.4            | 9.7            | 23.9           | 63.0                    |
| Others                         | 5.3            | 12.0           | 41.2            | 9.5            | 18.7           | 40.0                    |
| <b>Net Income (Loss)</b>       | <b>35.7</b>    | <b>89.7</b>    | <b>107.0</b>    | <b>14.2</b>    | <b>17.7</b>    | <b>70.0</b>             |
| Energy                         | 21.6           | 61.8           | 52.2            | (6.3)          | (14.3)         | 0.0                     |
| Oil and Natural Gas E&P        | 13.1           | 20.0           | 53.4            | 10.8           | 10.7           | 26.0                    |
| Metals                         | 3.1            | 6.8            | (11.2)          | 5.1            | 13.1           | 23.0                    |
| Others                         | (2.1)          | 1.1            | 12.6            | 4.6            | 8.2            | 21.0                    |
| Capex                          | 94.0           | 245.0          | 500.0           | 111.0          | 215.0          | 460.0                   |
| Depreciation and Amortization  | 45.0           | 90.6           | 183.6           | 46.9           | 93.6           | 210.0                   |



# Ordinary Income by segment

| (JPY billion)                        | FY2013      |              |              | FY2014      |             |                         |
|--------------------------------------|-------------|--------------|--------------|-------------|-------------|-------------------------|
|                                      | 1Q          | 1H           | Full Year    | 1Q          | 1H          | Full Year               |
|                                      | Actual      | Actual       | Actual       | Actual      | Actual      | Forecast<br>(Nov. 2014) |
| <b>Ordinary Income (Loss)</b>        | <b>72.5</b> | <b>176.1</b> | <b>302.3</b> | <b>14.9</b> | <b>42.0</b> | <b>180.0</b>            |
| Energy Business                      | 26.1        | 91.4         | 108.2        | (24.3)      | (35.3)      | 2.0                     |
| Petroleum Products                   | (25.7)      | (12.6)       | (77.5)       | (24.2)      | (14.0)      | 47.0                    |
| Petrochemicals                       | 22.4        | 41.8         | 69.6         | (1.9)       | 9.2         | 26.0                    |
| Inventory Valuation                  | 29.4        | 62.2         | 116.1        | 1.8         | (30.5)      | (71.0)                  |
| Oil and Natural Gas E&P Business     | 31.0        | 53.1         | 105.5        | 20.0        | 34.7        | 75.0                    |
| Metals Business                      | 10.1        | 19.6         | 47.4         | 9.7         | 23.9        | 63.0                    |
| Resources Development                | 5.5         | 8.4          | 22.5         | 4.0         | 9.7         | 25.0                    |
| Smelting and Refining                | 2.5         | 5.6          | 12.5         | 3.7         | 7.4         | 19.0                    |
| Electronic Materials                 | 1.3         | 4.3          | 9.0          | 2.7         | 6.3         | 15.0                    |
| Recycling and Environmental Services | 0.3         | 2.3          | 5.6          | 1.1         | 3.4         | 7.0                     |
| Titanium                             | (0.9)       | (3.4)        | (5.4)        | (2.0)       | (3.8)       | (4.0)                   |
| Inventory Valuation                  | 1.4         | 2.4          | 3.2          | 0.2         | 0.9         | 1.0                     |
| Others                               | 5.3         | 12.0         | 41.2         | 9.5         | 18.7        | 40.0                    |



# Balance Sheets

|   | Sep. 2013      | Mar. 2014      | Sep. 2014      |
|---|----------------|----------------|----------------|
| (JPY billion)                                 | Actual         | Actual         | Actual         |
| <b>Total assets</b>                           | <b>7,401.4</b> | <b>7,781.8</b> | <b>7,888.0</b> |
| Current assets                                | 3,618.5        | 3,765.6        | 3,711.7        |
| - Cash and deposits                           | 282.9          | 281.7          | 293.6          |
| Noncurrent assets                             | 3,782.9        | 4,016.2        | 4,176.3        |
| Property, plant and equipment                 | 2,302.7        | 2,389.2        | 2,434.5        |
| Intangible assets                             | 138.7          | 132.7          | 128.5          |
| Investments and other assets                  | 1,341.6        | 1,494.3        | 1,613.3        |
| <b>Liabilities</b>                            | <b>4,871.0</b> | <b>5,155.5</b> | <b>5,297.9</b> |
| Interest-bearing debt                         | 2,608.4        | 2,801.7        | 3,027.0        |
| Other liabilities                             | 2,262.6        | 2,353.8        | 2,270.9        |
| <b>Net assets</b>                             | <b>2,530.4</b> | <b>2,626.3</b> | <b>2,590.1</b> |
| Shareholders' equity                          | 1,965.1        | 1,962.3        | 1,941.4        |
| Accumulated other comprehensive income (loss) | 113.0          | 172.8          | 169.0          |
| Minority interests                            | 452.3          | 491.2          | 479.7          |

# Performance Indicators

|                                      | FY2013    |           | FY2014    |
|--------------------------------------|-----------|-----------|-----------|
|                                      | 1H        | Full Year | 1H        |
| (JPY billion)                        | Actual    | Actual    | Actual    |
| Cash flows from operating activities | 244.5     | 305.2     | 37.5      |
| (Working capital)                    | 15.2      | (99.0)    | (62.3)    |
| Cash flows from investing activities | (248.1)   | (479.8)   | (220.5)   |
| Free cash flows                      | (3.6)     | (174.6)   | (183.0)   |
| Dividend and others                  | 7.9       | 7.3       | (37.1)    |
| Net cash flows                       | 4.3       | (167.3)   | (220.1)   |
|                                      |           |           |           |
|                                      | Sep. 2013 | Mar. 2014 | Sep. 2014 |
|                                      | Actual    | Actual    | Actual    |
| Net D/E Ratio (times)                | 1.12      | 1.18      | 1.30      |
| Shareholders' equity ratio (%)       | 28.1      | 27.4      | 26.8      |



## Equity in earnings of unconsolidated subsidiaries and affiliates

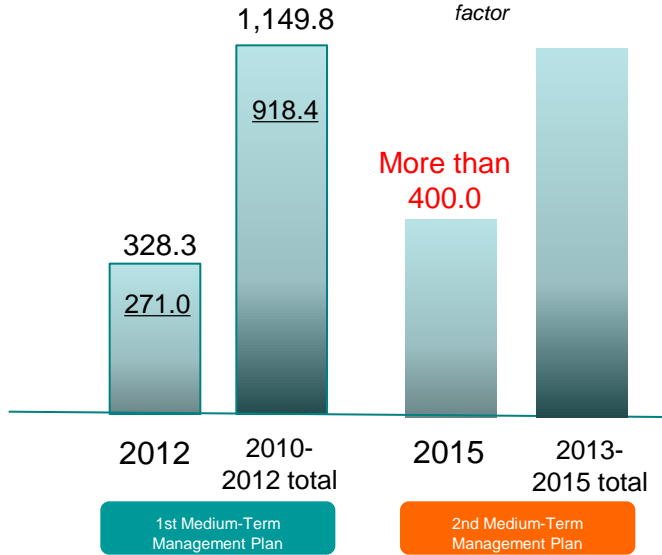
|                         | FY2013 |        |           | FY2014 |        |                         |
|-------------------------|--------|--------|-----------|--------|--------|-------------------------|
|                         | 1Q     | 1H     | Full Year | 1Q     | 1H     | Full Year               |
| (JPY billion)           | Actual | Actual | Actual    | Actual | Actual | Forecast<br>(Nov. 2014) |
| Energy                  | 1.3    | 2.3    | 6.9       | 1.4    | 2.1    | 6.5                     |
| Oil and Natural Gas E&P | 1.7    | 3.3    | 6.6       | 1.2    | 3.2    | 4.5                     |
| Metals                  | 10.1   | 16.5   | 39.6      | 6.7    | 18.3   | 40.0                    |
| Resources Development   | 8.9    | 13.2   | 32.0      | 5.6    | 15.4   | 33.0                    |
| Smelting and Refining   | 1.2    | 3.3    | 7.6       | 1.1    | 2.9    | 7.0                     |
| Others                  | 0.3    | 0.5    | 1.5       | 0.4    | 0.8    | 1.0                     |
| Total                   | 13.4   | 22.6   | 54.6      | 9.7    | 24.4   | 52.0                    |



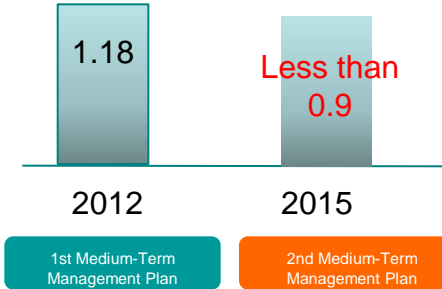
## Review of Target

### Ordinary Income (billion yen)

\*Numbers with underline mean ordinary income excluding inventory valuation factor

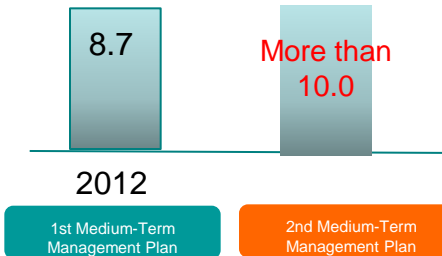


### Net D/E Ratio

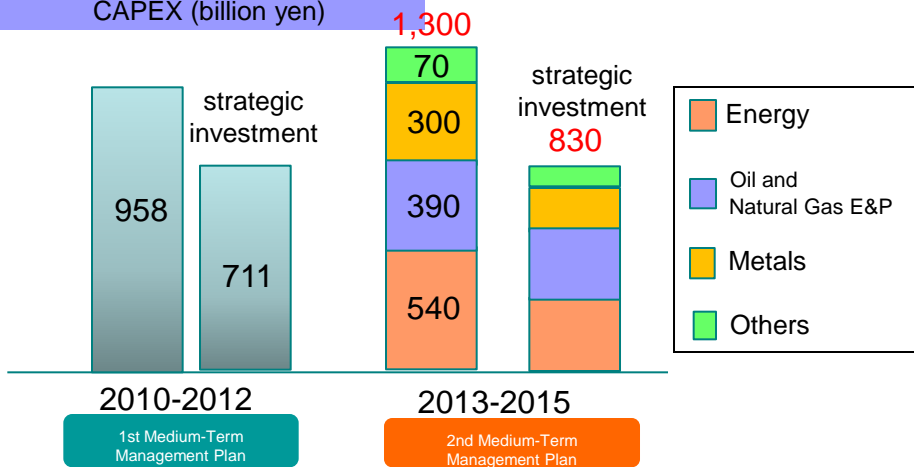


### ROE(%)

\*Excluding negative goodwill of merger for FY2010



### CAPEX (billion yen)

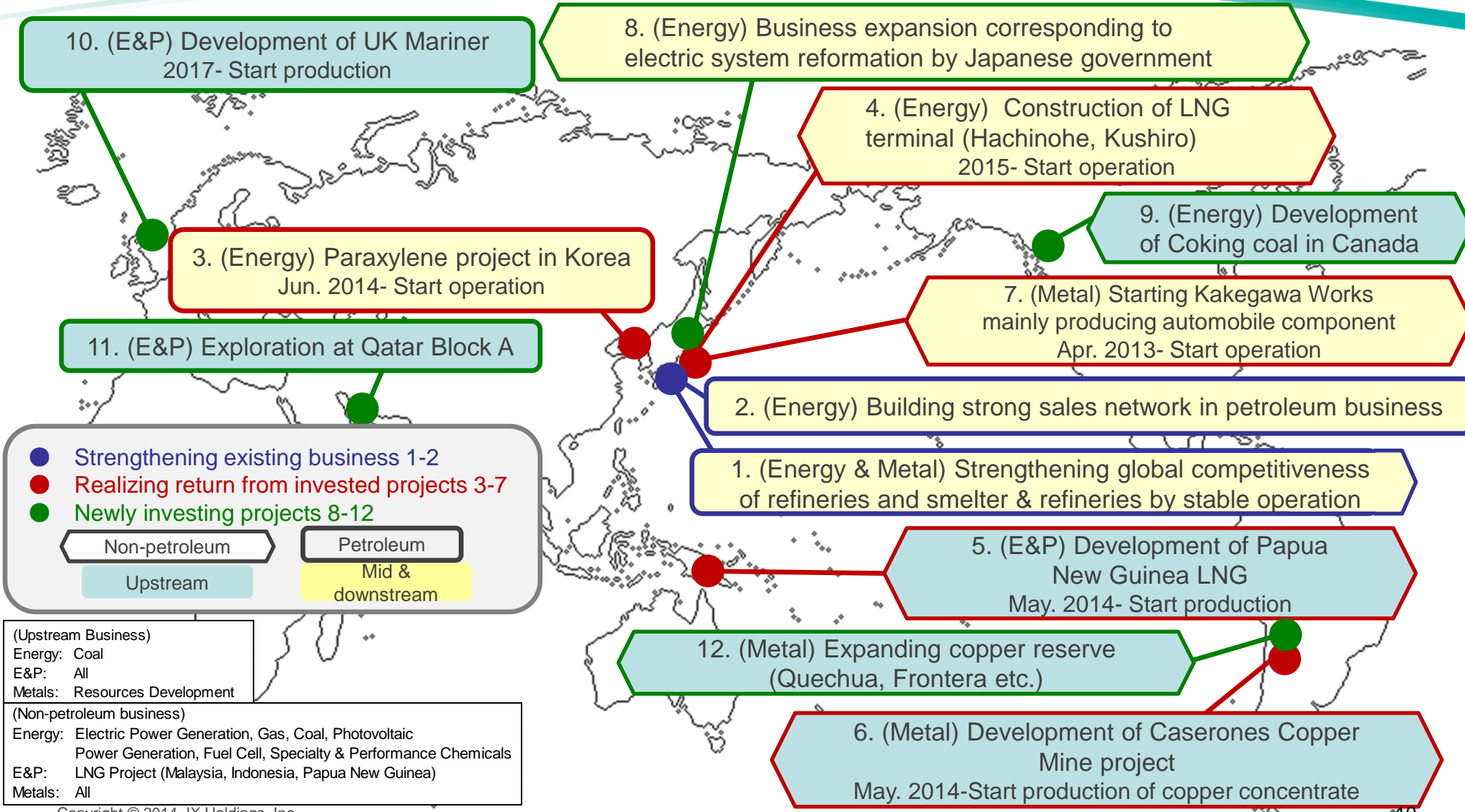


| Target          |   |
|-----------------|---|
| Ordinary Income | 400 billion yen or more (FY2015)        |
| ROE             | 10% or higher (FY2015)                  |
| Net D/E Ratio   | 0.9 times or lower (FY2015)             |
| CAPEX (plan)    | 1,300+α billion yen (FY2013-2015 total) |

\*Utilizing "α" for additional strategic investment project corresponding to business environmental change



# Highlight of Major Projects



- Strengthening existing business 1-2
- Realizing return from invested projects 3-7
- Newly investing projects 8-12



(Upstream Business)  
 Energy: Coal  
 E&P: All  
 Metals: Resources Development

(Non-petroleum business)  
 Energy: Electric Power Generation, Gas, Coal, Photovoltaic Power Generation, Fuel Cell, Specialty & Performance Chemicals  
 E&P: LNG Project (Malaysia, Indonesia, Papua New Guinea)  
 Metals: All

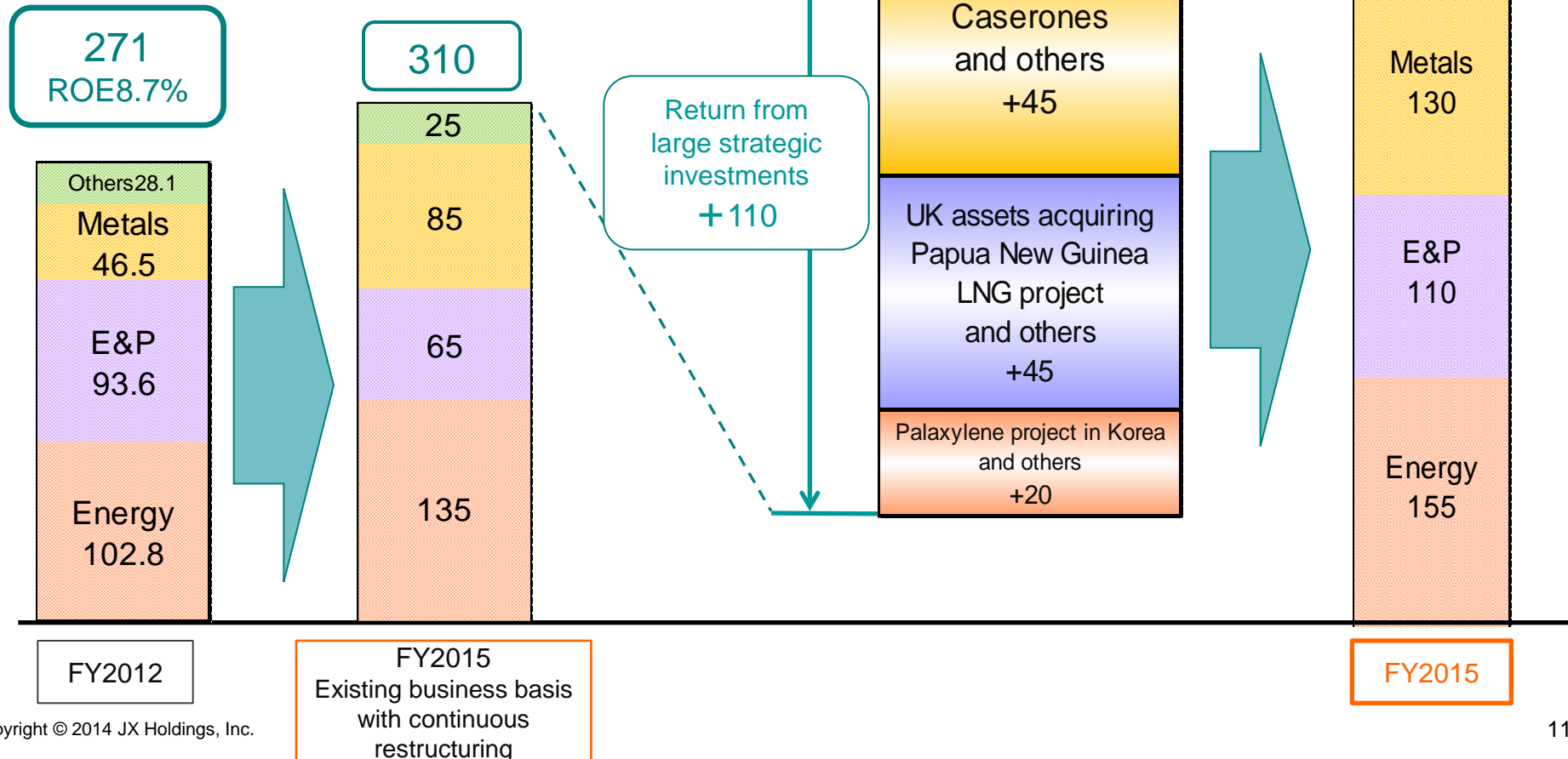


# Earnings Plan (Ordinary Income Excluding Inventory Valuation Factor) (Unit : billion yen)

Securing stable profitability in existing business by realizing overwhelming competitiveness through continuous restructuring

Realizing return from strategic investment for business expansion

420  
ROE more than 10%



# Shareholder Return Policy

## Basic Shareholder Return Policy

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

## Indication of Shareholder Return for 2nd Medium-Term Management Plan Period

Based on the basic policy, during the 2nd medium-term management plan period (FY2013-2015), we will strive to maintain dividends of 16 yen per share per annum. When we secure stable profitability in existing business and foresee realization of return from strategic investments, we will expand shareholder return centering on increase of dividend.

### Reference) Dividend from FY2010-2014

|                      | 2010 | 2011 | 2012 | 2013 | 2014 (Forecast) |
|----------------------|------|------|------|------|-----------------|
| Dividend (yen/share) | 15.5 | 16.0 | 16.0 | 16.0 | 16.0            |
| EPS (yen/share)      | 34   | 69   | 64   | 43   | 28              |

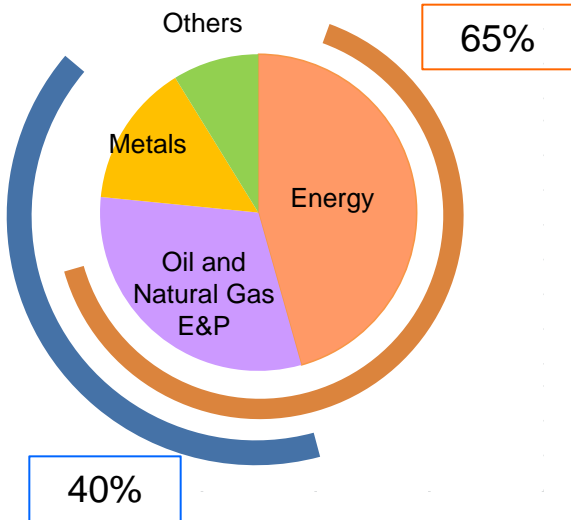
\*Excluding impact of negative goodwill

# Target of JX Group (2020)

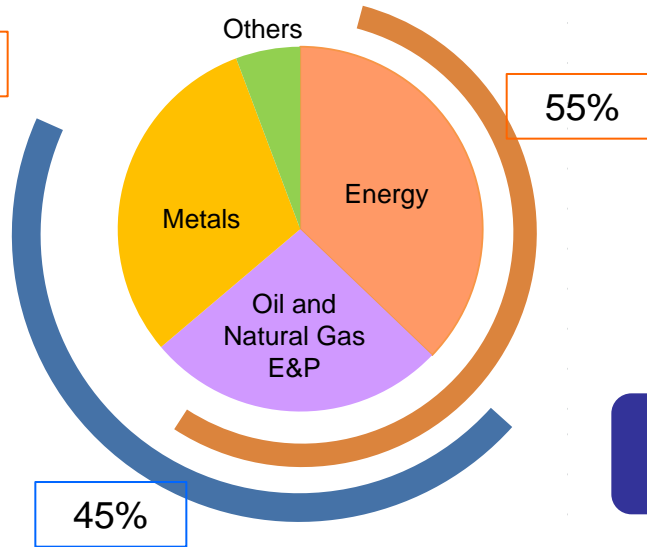
Well-balanced business portfolio  
petroleum and non-petroleum, upstream and mid & downstream business

Balance of ordinary income  
excl. inventory valuation

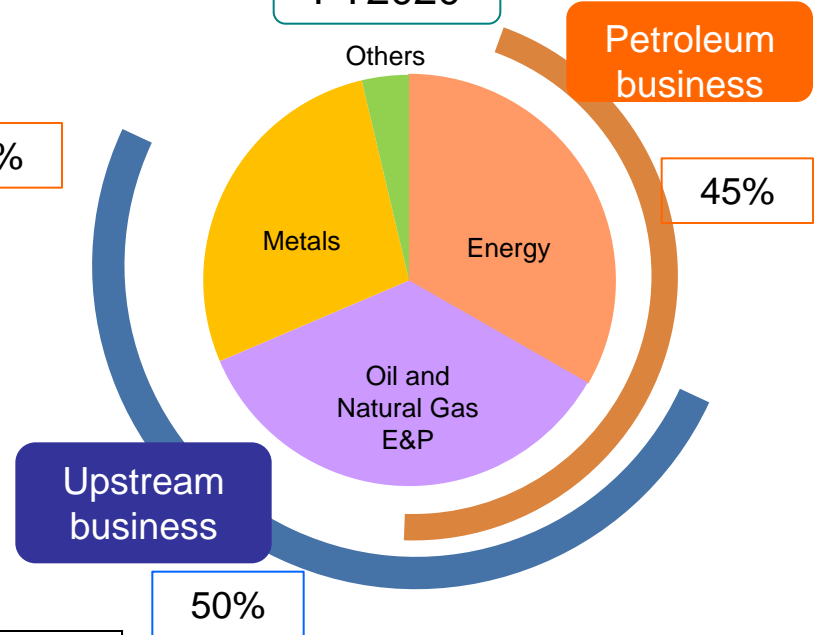
FY2012



FY2015



FY2020



(Upstream Business)  
Energy: Coal  
E&P: All  
Metals: Resources Development

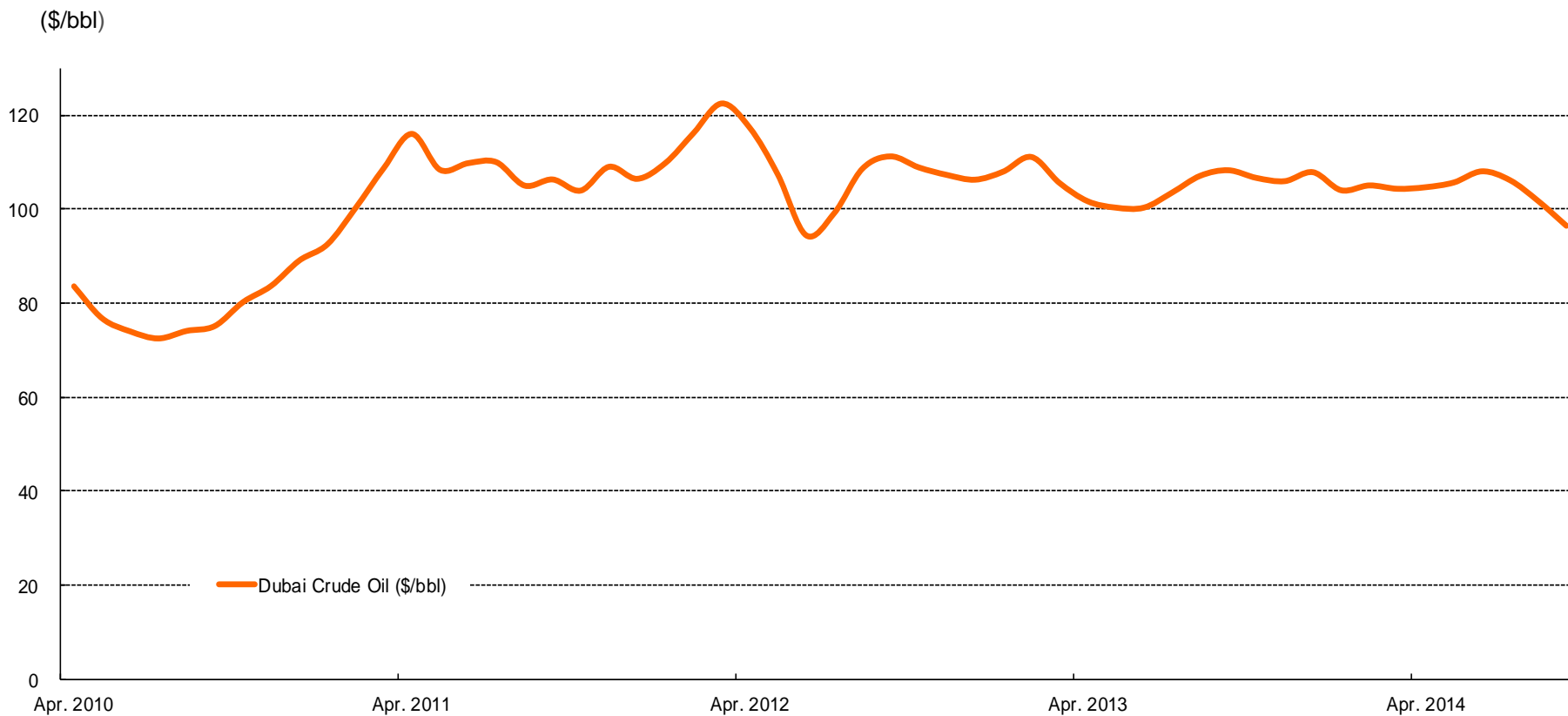
(Non-petroleum business)  
Energy: Electric Power Generation, Gas, Coal, Photovoltaic Power Generation, Fuel Cell, Specialty & Performance Chemicals  
E&P: LNG Project (Malaysia, Indonesia, Papua New Guinea)  
Metals: All



# Historical Dubai Crude Oil Price

(\$/bbl)

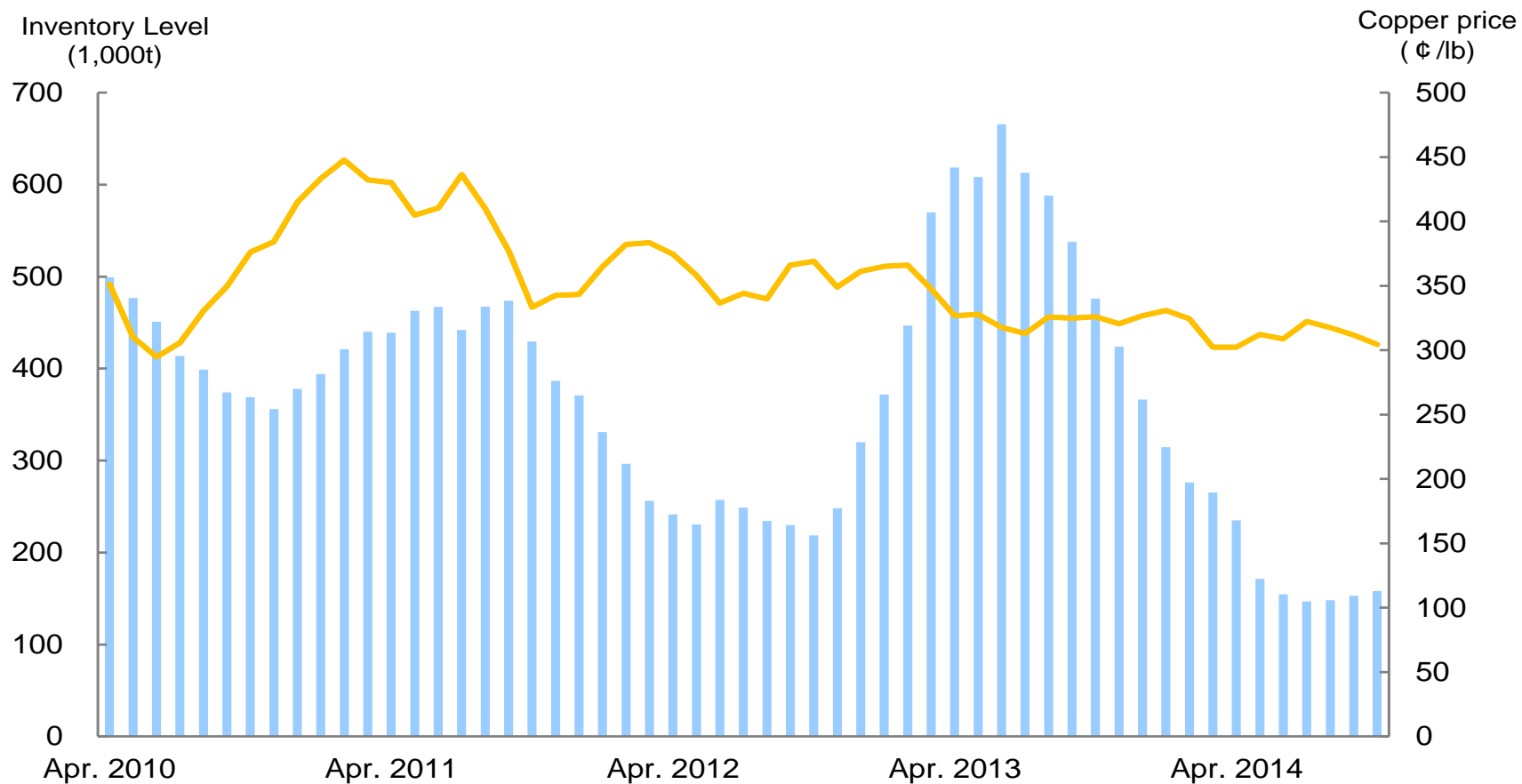
| Average Price   | FY2010 | FY2011 | FY2012 | FY2013 |     |     |     |     | FY2014 |     |
|-----------------|--------|--------|--------|--------|-----|-----|-----|-----|--------|-----|
|                 |        |        |        | 1Q     | 2Q  | 3Q  | 4Q  | FY  | 1Q     | 2Q  |
| Dubai Crude Oil | 84     | 110    | 107    | 101    | 106 | 107 | 104 | 105 | 106    | 101 |





# Historical Copper Price and Inventory Level

| Average Price | FY2010 | FY2011 | FY2012 | FY2013 |     |     |     |     | FY2014 |     |
|---------------|--------|--------|--------|--------|-----|-----|-----|-----|--------|-----|
|               |        |        |        | 1Q     | 2Q  | 3Q  | 4Q  | FY  | 1Q     | 2Q  |
| Copper        | 369    | 385    | 356    | 324    | 321 | 324 | 319 | 322 | 308    | 317 |

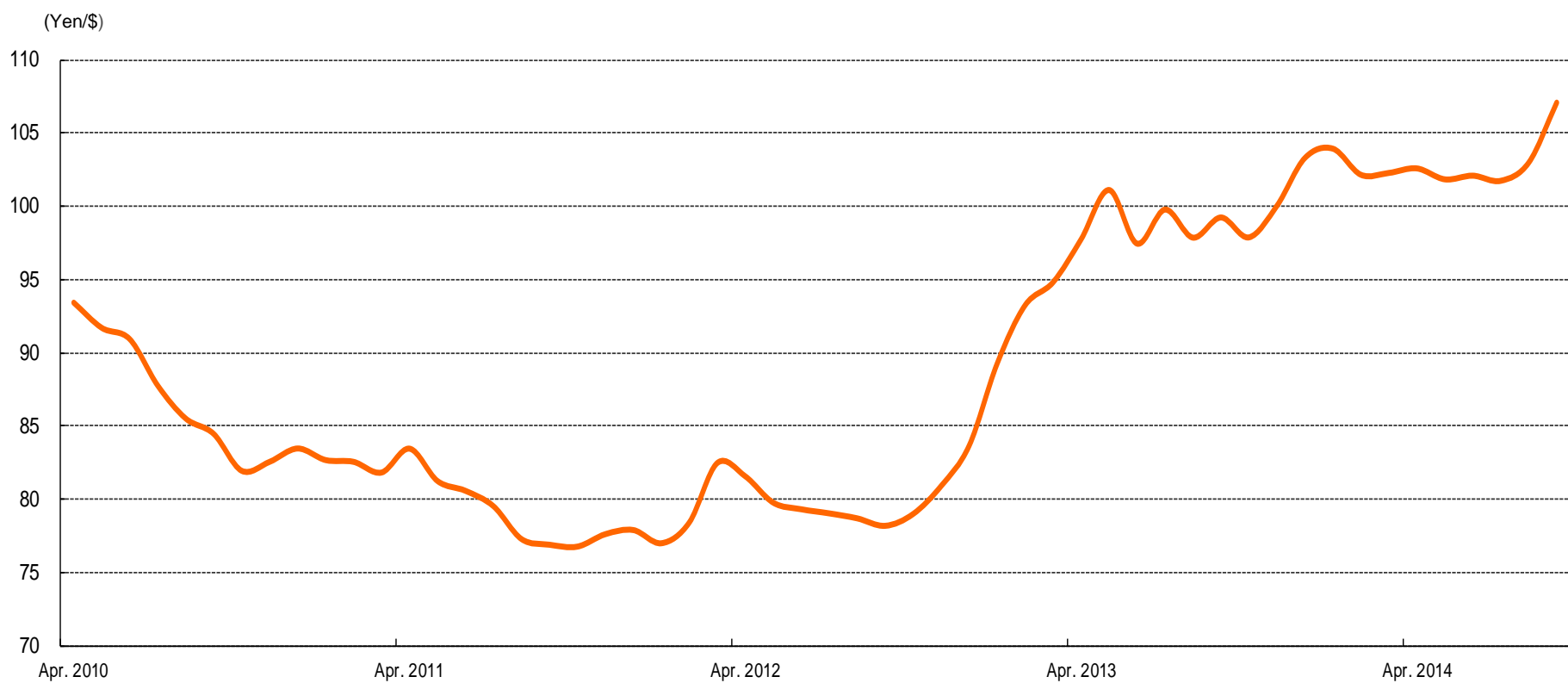






# Historical Exchange Rate

| Average Price | (Yen/\$) |        |        |        |    |     |     |     |        |     |
|---------------|----------|--------|--------|--------|----|-----|-----|-----|--------|-----|
|               | FY2010   | FY2011 | FY2012 | FY2013 |    |     |     |     | FY2014 |     |
|               |          |        |        | 1Q     | 2Q | 3Q  | 4Q  | FY  | 1Q     | 2Q  |
| Exchange Rate | 86       | 79     | 83     | 99     | 99 | 100 | 103 | 100 | 102    | 104 |



A thick, teal-colored curved line that starts on the left, rises to a peak in the middle, and then descends towards the right.

# Strategies of Energy Business

# Strategy and Action Plan

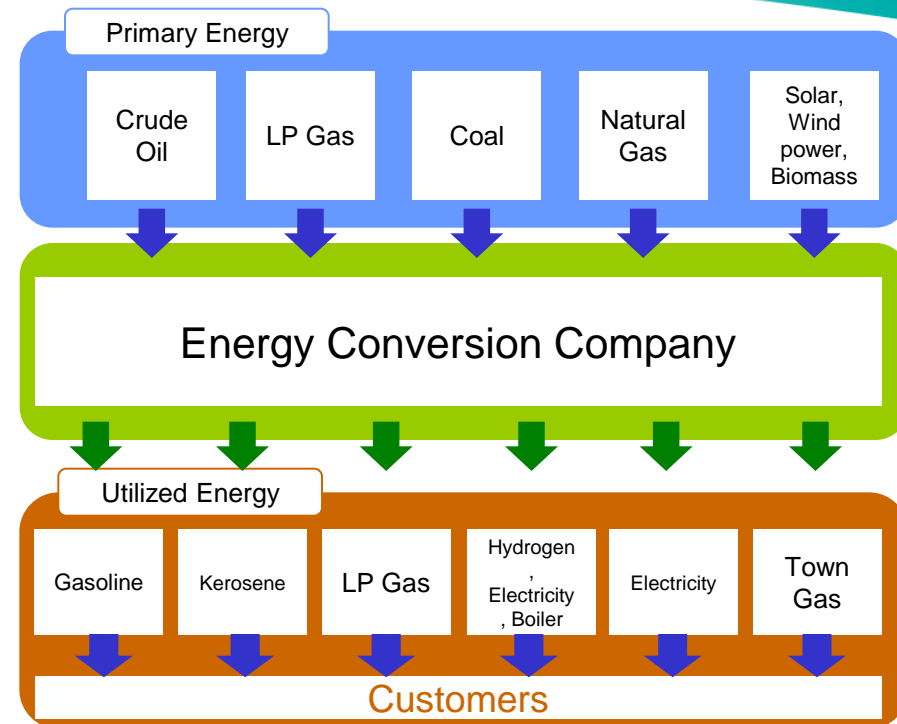
## Petroleum Refining & Marketing/Energy Conversion



|                      |  |
|----------------------|--|
| Business Environment | Domestic petroleum demand decline and competition with import products continue  |
| Basic Strategy       | <b>Strengthening profitability of refining &amp; marketing</b>   |
|                      | <ul style="list-style-type: none"> <li>➤ Strengthening global competitiveness of refineries           <ul style="list-style-type: none"> <li>• Safe and Stable operation</li> <li>• Cost reduction (Energy saving, Utilizing for bottom oil)</li> <li>• Conversion to chemical factory</li> </ul> </li> <li>➤ Establishing strong supply chain           <ul style="list-style-type: none"> <li>• Building strong sales network</li> <li>• Improving brand value (Introduce new Dr. Drive brand, Card strategy, etc.)</li> </ul> </li> </ul> |

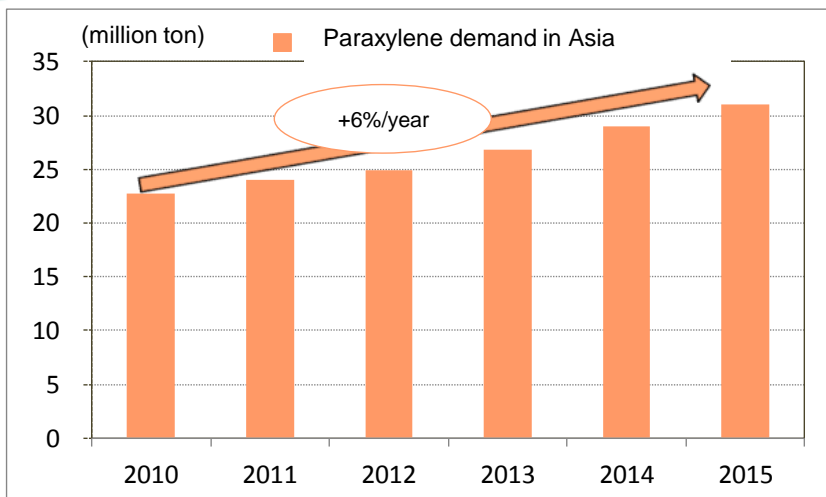
|                      |  |
|----------------------|--|
| Business Environment | Reformation of energy policy by Japanese government progress |
| Basic Strategy       | <b>Enhancing business as an energy conversion company</b>    |

- Electricity : Business expansion corresponding to electric system reformation by Japanese government
- Gas : Construction of LNG terminal (Hachinohe & Kushiro) starting operation in 2015 (Enhancing providing base, Acquiring new demand )
- Coal : Development of coking coal in Canada , Increasing domestic sales
- Solar, Fuel Cell : Mega solar project, fuel cell business (Challenge for realizing a society with independent and distributed energy system)
- Hydrogen : Bring forward demonstration test of providing infrastructure

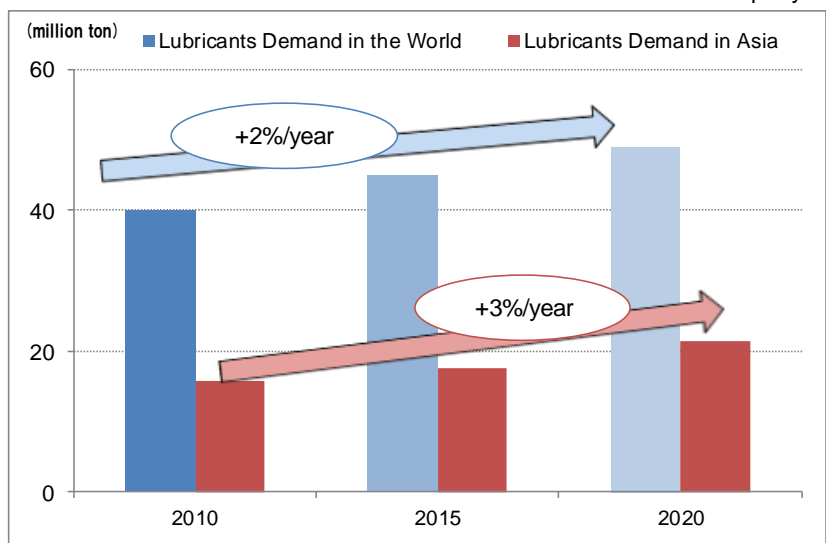


# Strategy and Action Plan

## Basic Chemicals/Lubricants/Specialty & Performance Chemicals



Source : company data



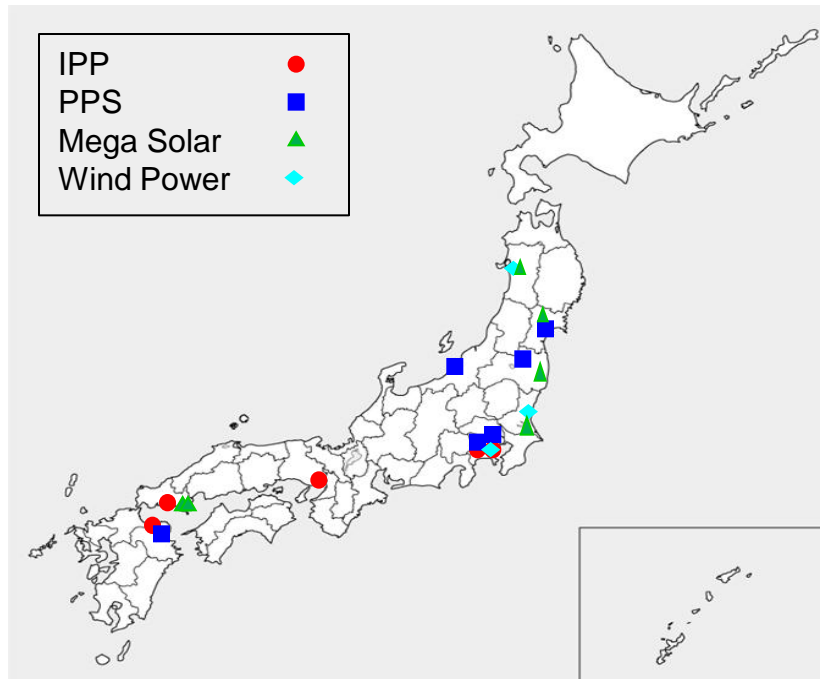
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Source : company data

|   |   |
|---|---|
| Business Environment  | Energy and materials market continues to expand centering in Asia   |
| Basic Strategy  | <b>Establishing presence in overseas market</b>   |
| ➤ Basic Chemicals   | <ul style="list-style-type: none"> <li>Paraxylene project in Korea (Starting operation in 2014)<br/>(Providing capacity of JX Group : 2,620 → 3,120 thousand ton)</li> <li>Corresponding to business environmental change in olefins and aromatics</li> </ul> |
| ➤ Lubricants  | <ul style="list-style-type: none"> <li>Enhancing business with base oil project in Korea</li> <li>Strengthening production and marketing network overseas</li> </ul>  |
| Business Environment  | Demand of high value-added products increases in emerging countries   |
| Basic Strategy  | <b>Acquiring demand of high value-added products based on original technology</b>   |
| ➤ Specialty and Performance Chemicals( Introduction of Company system from Apr. 2014) | <ul style="list-style-type: none"> <li>Expanding overseas production network</li> <li>Increasing sales volume of cell incubation and others</li> </ul>  |

# Action for Energy Conversion Company (Electricity Business)

## ✓ Location of Electricity Business (As of Oct. 2014)



## ✓ Expansion of Electricity Business

### PPS

- Started receiving electricity from Kawasaki Natural Gas Power Generation Co., Ltd, joint venture with Tokyo Gas Co., Ltd.(2008)
- Scheduled to establish the Solvent De-Asphalting equipment and the power generation facilities in the Kashima Refinery.(FY2015)
- Decided an entry to home electricity retail business.(FY2016)
- Scheduled to establish the power generation facilities in the Mizushima Refinery.(FY2018)

### Mega Solar

- Started operation of the Sendai Mega Solar (Feb. 2013)
- Started operation of the Kudamatsu Mega Solar (Mar. 2013)
- Started operation of the Kasumigaura Mega Solar (Nov. 2013)
- Started operation of the Iwaki Mega Solar (Jul. 2014)
- Started operation of the 2<sup>nd</sup> Kudamatsu Mega Solar(Sep. 2014)
- Started operation of the Akita Mega Solar (Oct. 2014)
- Scheduled to start operation of the Masaki Mega Solar (Dec. 2014)
- Scheduled to start operation of the Takamatsu Mega Solar (Dec. 2014)
- Scheduled to start operation of the Uruma Mega Solar (Mar. 2015)
- Scheduled to start operation of the Oita Mega Solar (Mar. 2015)

### Wind Power

- Started operation of Wind Power at the Akita Oil Terminal and the Kashima Refinery.(2003, 2005)
- Started operation of Ohgishima Wind Power Station.(2010)

## ✓ Power Generating Capacity of each Business

|                      |            |                   |
|----------------------|------------|-------------------|
| IPP                  | 5 stations | 740 thousand kW*  |
| PPS                  | 6 stations | 555 thousand kW   |
| Mega Solar           | 6 stations | 12 thousand kW    |
| Wind Power           | 3 stations | 5 thousand kW     |
| Total (equity basis) |            | 1,312 thousand kW |

\* Contract base

# Action for Energy Conversion Company (LNG Business)

## ✓ Hachinohe LNG Terminal Project

- Promoting construction of Hachinohe LNG Import Terminal and Kushiro LNG Satellite Terminal.
  - Taking in the demand of city gas and industrial use in the region of northern Tohoku and eastern Hokkaido.
  - Supplying natural gas to general electric utility.  
(For Hachinohe Thermal Power Plant of the Tohoku Electric Power Co., Inc.)

### 【LNG supply system of JX】

#### Hachinohe and Kushiro LNG terminals

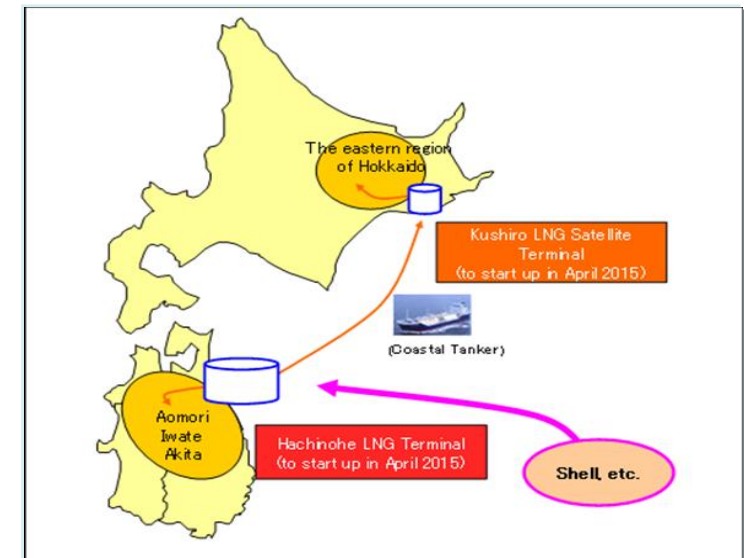
| 【Current】                   | Hachinohe (Satellite Terminal) |
|-----------------------------|--------------------------------|
| Operation start             | Mar. 2007                      |
| Tank capacity (thousand KL) | 4.5 x1 tank                    |



| 【2015~】                     | Hachinohe (Import Terminal) | Kushiro (Satellite Terminal) |
|-----------------------------|-----------------------------|------------------------------|
| Operation start             | Apr. 2015 (scheduled)       |                              |
| Tank capacity (thousand KL) | 140x2 tanks                 | 10x1 tank                    |

#### Mizushima LNG Import Terminal

|                             | Tank No.1   | Tank No.2  |
|-----------------------------|---|------------|
| Operation start             | Apr. 2006   | Apr. 2011  |
| Tank capacity (thousand KL) | 160   | 160        |
| Ownership                   | JX Nippon Oil & Energy<br>The Chugoku Electric Power Co.,Inc. | 50%<br>50% |



# Action for Energy Conversion Company (Coal Business)

## ✓ Our Coal business

### 1. Main Upstream Businesses

- Acquired the interest of Bulga mine in Australia, through an investment to Oakbridge joint venture. (Sep. 1990)
- Started production and sales of Bulga coal. (Mar. 1991)
- Acquired of the interest and dealership of Sukunka /Suska coal deposits, through an investment to Xstrata Coal British Columbia, and started coking coal joint venture with Xstrata Coal. (Mar. 2012)

### 2. Sales

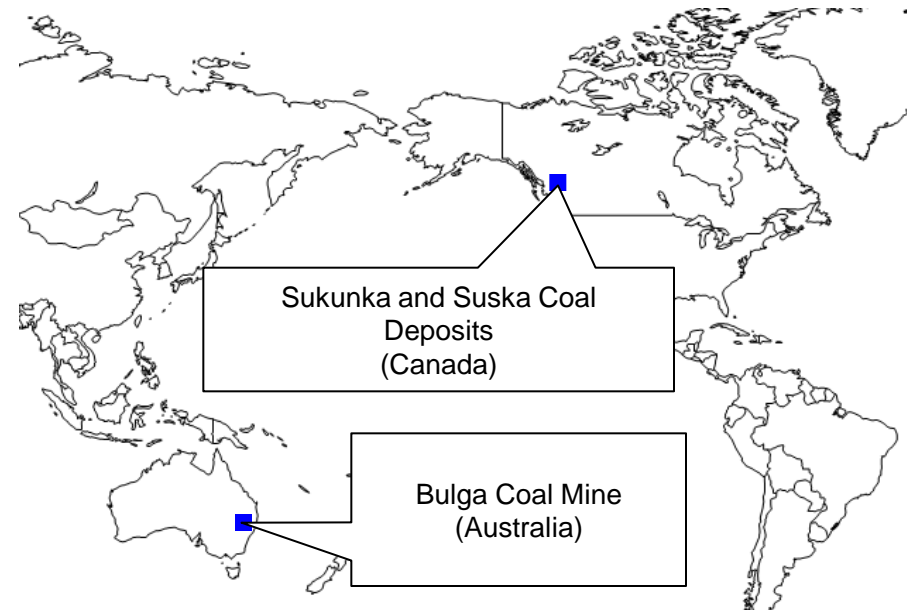
- Mainly supplying Bulga coal to customers. (Approx. 9 million tons/year)

### 3. Coal Transshipment Station

- Coal Transshipment Station was constructed on the site of former Kudamatsu Refinery, and started its operation. (May 2001)

## ✓ Our Interest of Coal Mine/Deposits

|                       | Bulga Coal Mine                                    | Sukunka and Suska Coal Deposits   |
|-----------------------|--|---|
| Location              | New South Wales, Australia                         | British Columbia, Canada  |
| Interest              | 13.3%  | 25.0%   |
| Reserves/<br>Resouces | Recoverable reserves<br>more than 300 million tons | Resources<br>Sukunka Deposit Approx. 240million tons<br>Suska Deposit Approx. 240million tons |
| Production capacity   | Approx. 11million tons/year                        | Apporox. 9.5 million tons/year<br>(scheduled)   |



# Action for Energy Conversion Company (Hydrogen Business)

## Hydrogen supply infrastructure in FY 2014

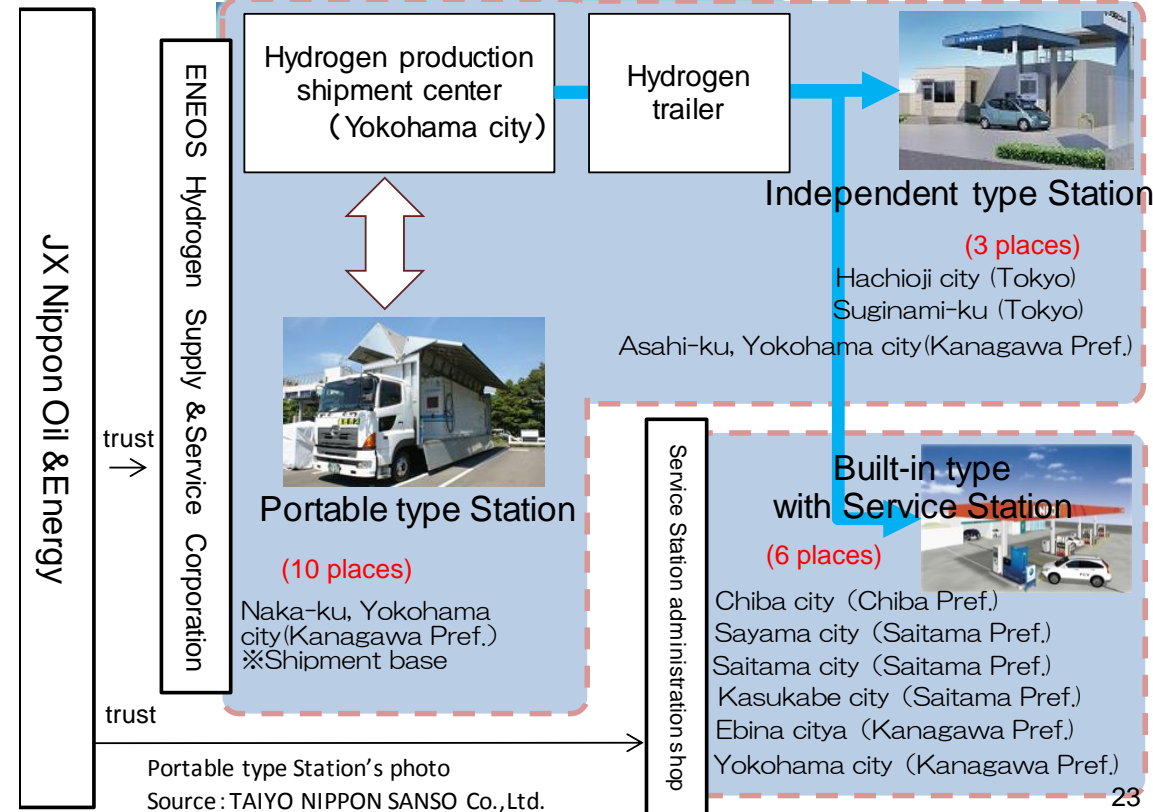
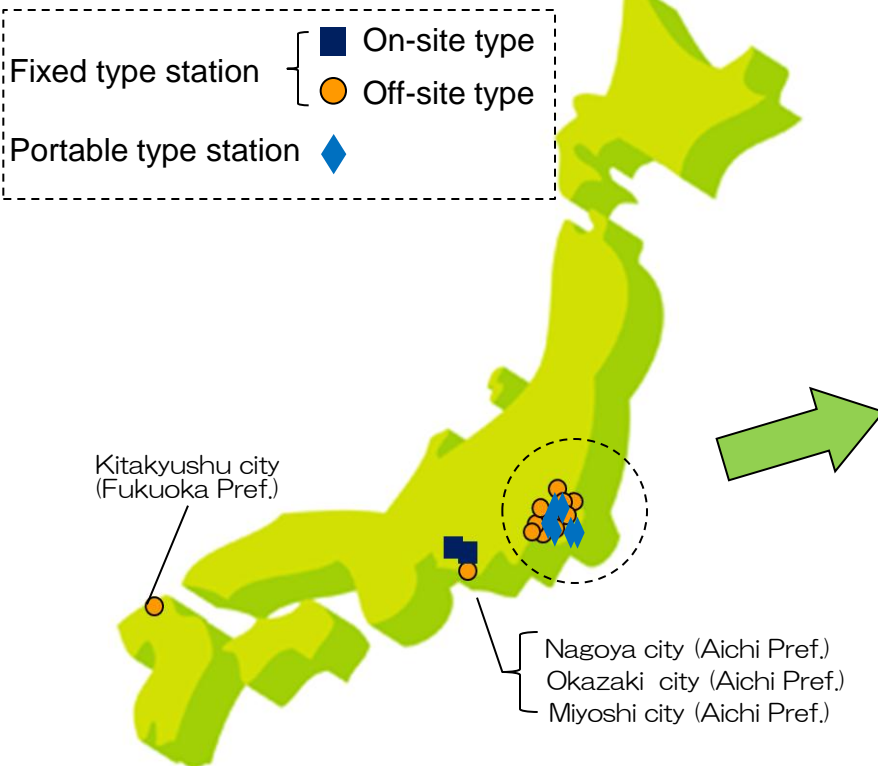
✓ Development plan of commercial hydrogen station is 23 places as of Oct, 2014.

- Fixed type station is 13 places.
- Portable type station is 10 places.

Examining development 40 places by FY2015

✓ Construction of hydrogen supply infrastructure (19 places in metropolitan area)

- Established ENEOS Hydrogen Supply & Service Corporation. (Oct.2014)
- Constructing the effective hydrogen supply system in the early stage of the fuel cell-powered car spread.





# Enhance Overseas Businesses (Paraxylene)

## Main use of Paraxylene



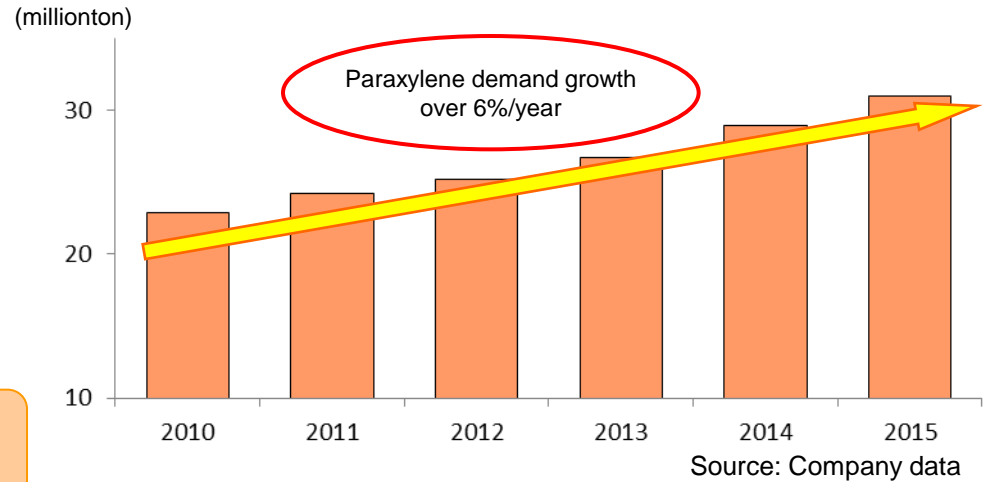
Polyester fiber



PET bottles

## Outlook for Paraxylene Demand in Asia

Group's current supply capacity of Paraxylene  
3,120 thousand tons /year = **No.1 in Asia**



## Outline of a paraxylene joint venture project with SK Group of South Korea

Location : Ulsan, Korea

Capacity : 1,000 thousand tons / year **One of the world's largest capacities**

Production Start : June 2014

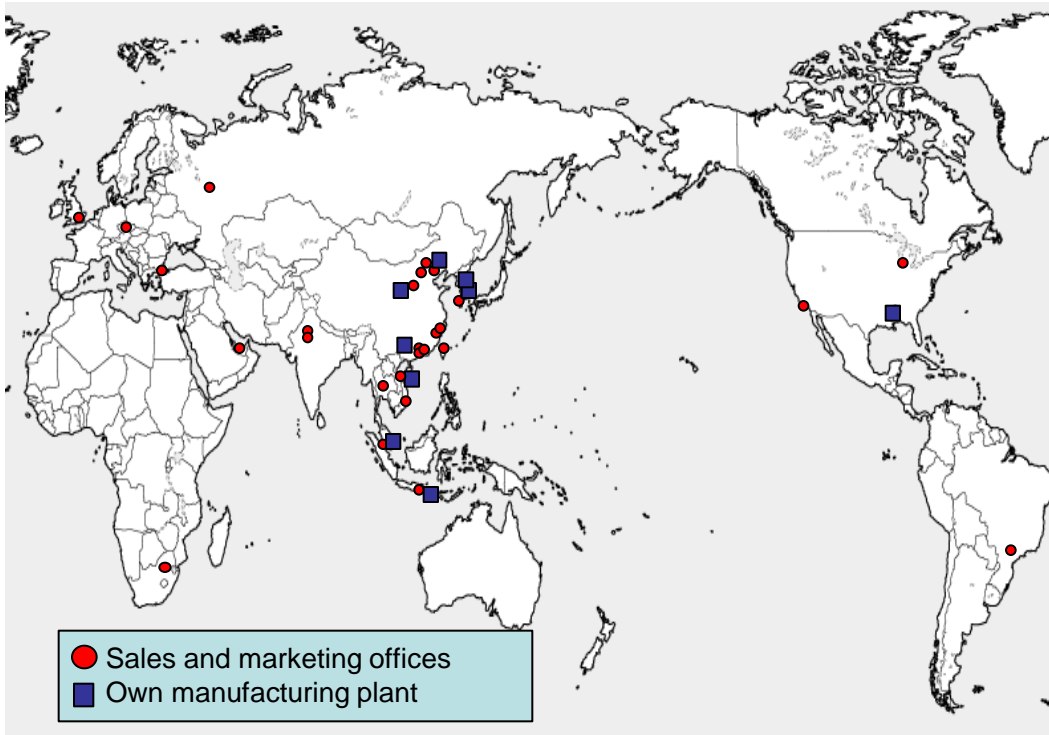
Investment : approx. 80 billion JPY

Ownership :

|                        |              |
|------------------------|--------------|
| JX Nippon Oil & Energy | 50% -1 share |
| SK Global Chemical     | 50% +1 share |

# Enhance Overseas Businesses (Lubricants)

## ✓ Location of Overseas Lubricants Business (As of Oct. 2014)



- Expanding overseas business, especially in Asia.
 

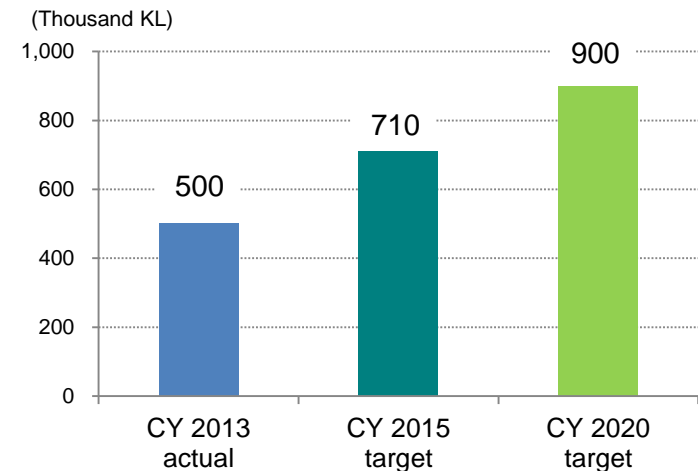
|   |    |
|---|----|
| Sales and marketing offices                 | 27 |
| Manufacturing plant                         | 47 |
| (Own manufacturing plant:9, Contractors:38) |    |



## ✓ Expansion of Overseas Lubricants Business

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

## ✓ Medium-Term Target of Overseas Lubricants Sales





# Strategies of Oil and Natural Gas E&P Business

# Strategy and Action Plan

## Expanding Reserves and Production Volume Mainly through Exploration



### Business Environment

- Crude oil and natural gas demand increases firmly centered on emerging countries.
- Resources and energy prices stay high but volatile.
- Competition for natural resources escalates.
- Development technologies become more challenging.

### Basic Strategy 1

### Expanding reserves and production volume mainly through exploration

Toward production volume of 200 thousand BD in 2020

- Shifting developing projects to production and projects before FID to developing

(Started production)

- Papua New Guinea LNG project

(On developing)

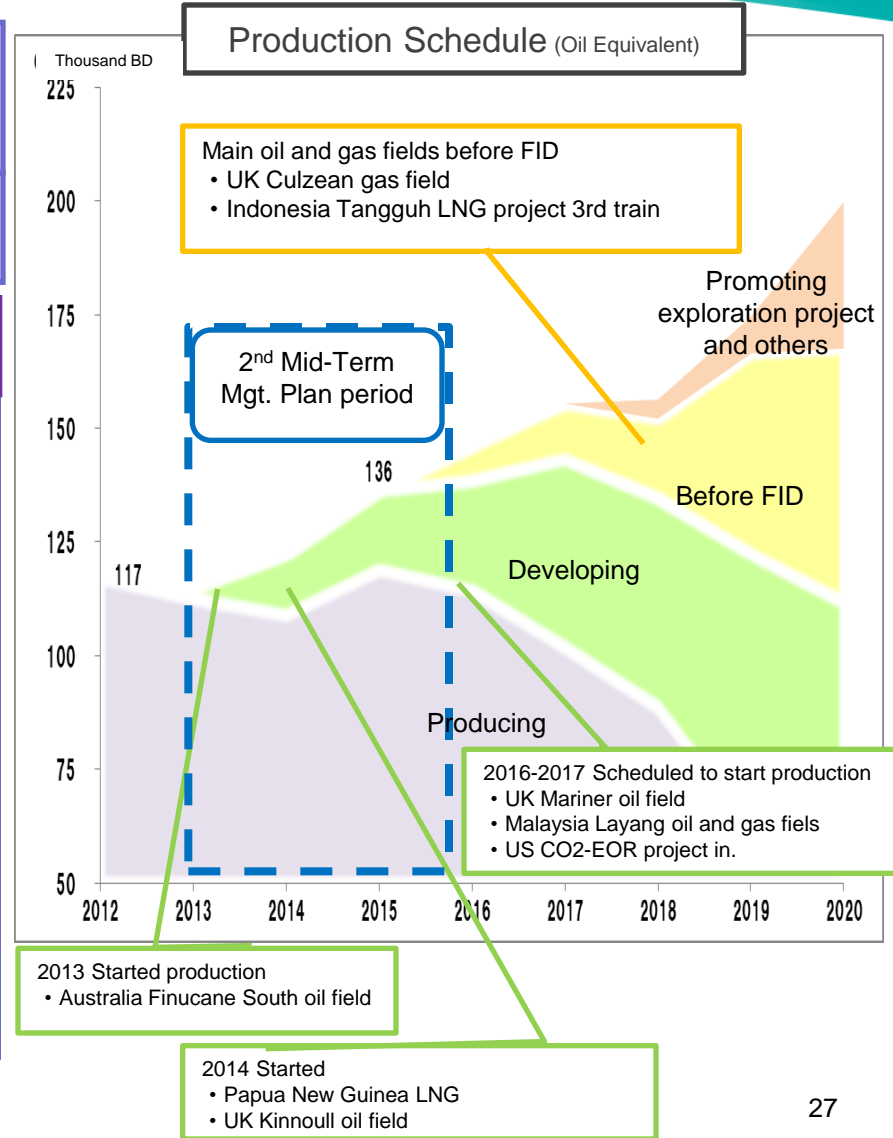
- UK Mariner oil field

(Before FID)

- UK Culzean gas field
- Indonesia Tangguh LNG project 3<sup>rd</sup> train

- Promoting large exploration operator projects (Investing 90billion yen in 3years)

- Malaysia : Deepwater Block R offshore Sabah
- Qatar : Block A



# Strategy and Action Plan

## Focusing on Core Business Area and Technology/Restructuring Business Portfolio

### Basic Strategy 2

#### Establishing superiority by focusing core business area and technology

Aiming to secure independence and increase access to business chance by allocating management resources to core and core candidate countries and accumulating technology through operator projects

#### Core Area

- Core countries: Malaysia, Vietnam, UK
  - Continuing exploration, development and resource acquisition utilizing knowledge and relationship with national petroleum companies etc.
- Core candidates : UAE/Qatar, Myanmar, Australia
  - To be developed as core countries acquiring business chance aiming for operatorship and strengthening business base

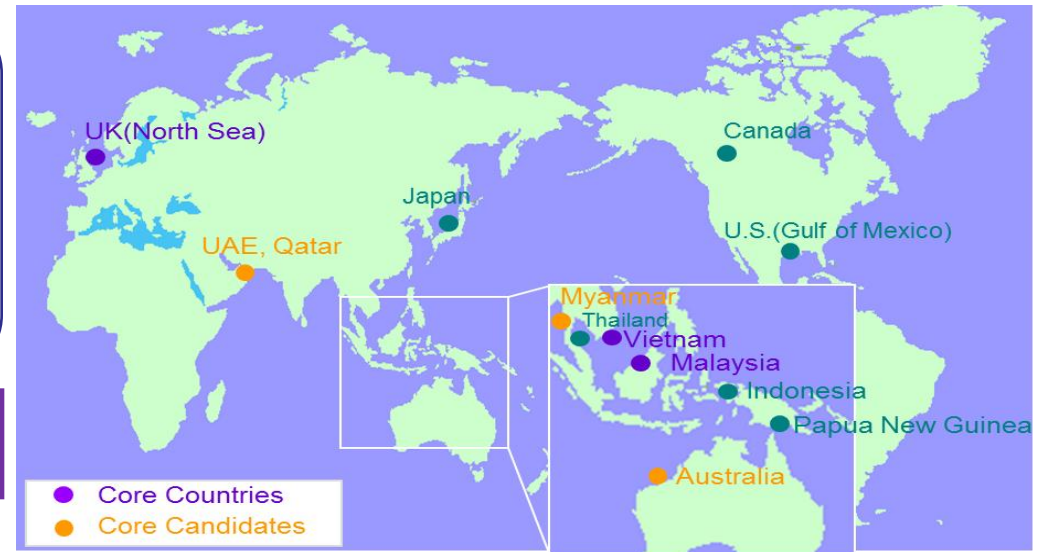
#### Core Technology

- Deepwater
  - Malaysia Deepwater Block R offshore Sabah
  - UK West of Shetland offshore
- Enhanced Oil Recovery
  - Vietnam Rang Dong Oil Field HCG-EOR
  - US CO2-EOR
- Tight Oil, Tight Gas, Heavy Oil
  - UK Mariner oil field

### Basic Strategy 3

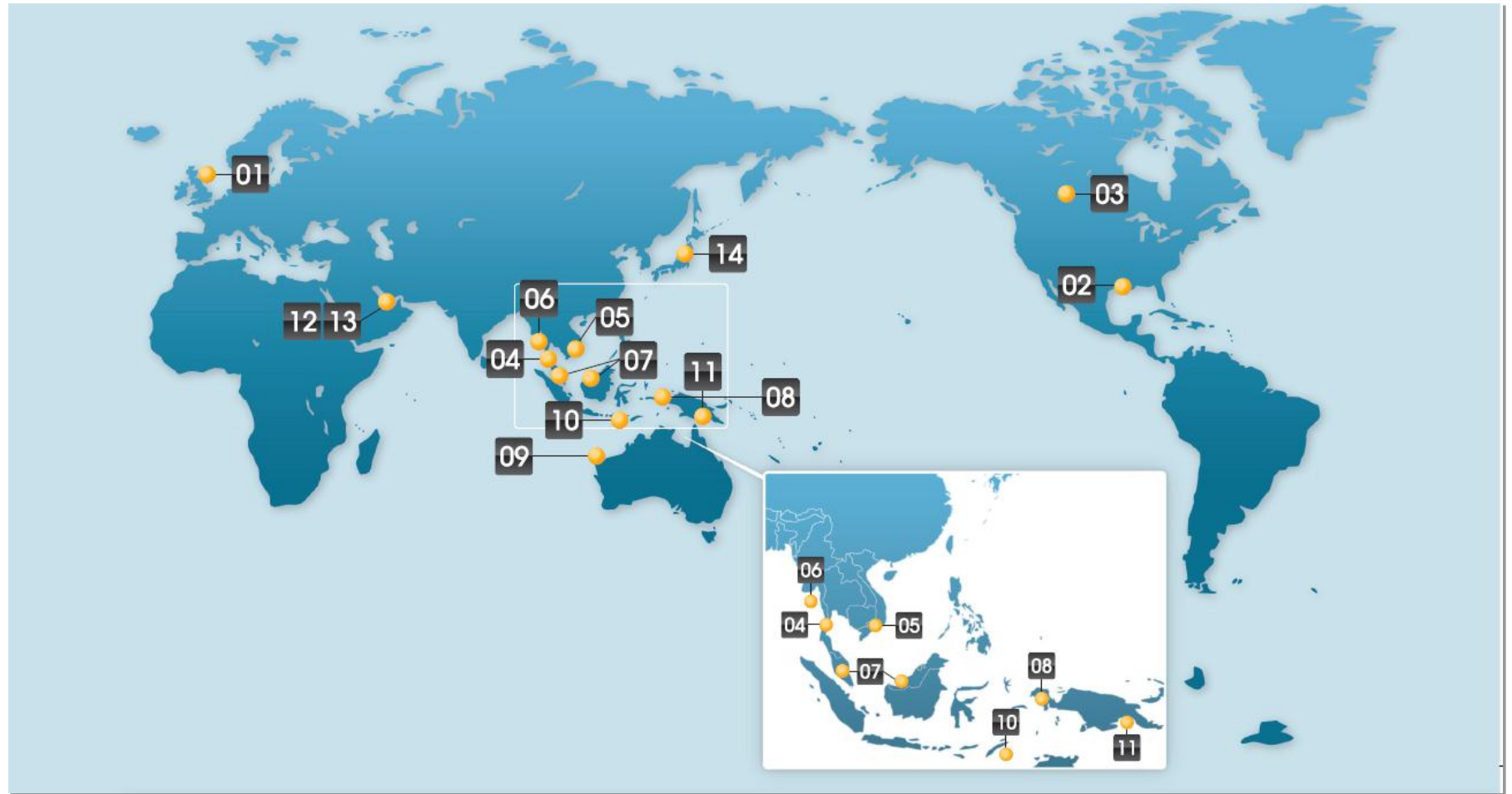
#### Restructuring business portfolio responding to business environmental change

Rearranging asset portfolio timely





# Business Area





# Business Activities

|       | ▼ Project Company       | In Production ●  | Under Development ● | Under Exploration ● |
|-------|-------------------------|--|---------------------|---------------------|
| 01    | The North Sea           | JX Nippon Exploration and Production (U.K.) Ltd.   | ●                   | ● ●                 |
| 02    | The U.S. Gulf of Mexico | JX Nippon Oil Exploration (U.S.A.) Ltd.<br>JX Nippon Oil Exploration (EOR) Ltd. / Petra Nova Parish Holdings LLC   | ●                   | ●                   |
| 03    | Canada                  | Japan Canada Oil Company / Mocal Energy  | ●                   |                     |
| 04    | Thailand                | JX Nippon Oil & Gas Exploration Corp.  |                     | ●                   |
| 05    | Vietnam                 | Japan Vietnam Petroleum Co., Ltd.<br>JX Nippon Oil & Gas Exploration Corp.   | ●                   | ● ●                 |
| 06    | Myanmar                 | Nippon Oil Exploration (Myanmar) Ltd.<br>JX Nippon Oil & Gas Exploration (Myanmar) Ltd.  | ●                   | ● ●                 |
| 07    | Malaysia                | JX Nippon Oil & Gas Exploration (Malaysia) Ltd.<br>JX Nippon Oil & Gas Exploration (Sarawak) Ltd.<br>JX Nippon Oil & Gas Exploration (Peninsular Malaysia) Ltd.<br>JX Nippon Oil & Gas Exploration (Onshore Sarawak) Ltd.<br>JX Nippon Oil & Gas Exploration (Deepwater Sabah) Ltd.<br>JX Nippon Oil & Gas Exploration (Offshore Malaysia) Sdn. Bhd. | ● ●                 | ● ● ● ● ● ●         |
| 08    | Indonesia               | Nippon Oil Exploration (Berau) Ltd.  | ●                   | ●                   |
| 09    | Australia               | JX Nippon Oil & Gas Exploration (Australia) Pty Ltd.   | ●                   | ●                   |
| 10    | JPDA *                  | Japan Energy E&P JPDA Pty Ltd.   |                     | ●                   |
| 11    | Papua New Guinea        | Merlin Petroleum Company / Southern Highlands Petroleum Co., Ltd.<br>Nippon Oil Exploration (Niugini) Ltd. / Murray Petroleum Co., Ltd.<br>Nippon Papua New Guinea LNG LLC   | ●                   | ● ●                 |
| 12 13 | U A E · Qatar           | Abu Dhabi Oil Co., Ltd.<br>United Petroleum Development Co., Ltd.<br>JX Nippon Oil & Gas Exploration (Qatar) Ltd.  | ● ●                 | ● ● ●               |
| 14    | Japan                   | JX Nippon Oil & Gas Exploration Corp.  | ●                   | ● ●                 |

\* Joint Petroleum Development Area between Australia and East Timor



# Outline of Oil and Natural Gas E&P Projects

|       | Project Name/Company   | Sales Volume(Jan.-Jun. 2014) (1,000BOED) |        |          | Reserves(million BOE) *1 *2 |                       |                       | Reference pages |
|-------|--|--|--------|----------|-----------------------------|-----------------------|-----------------------|-----------------|
|       |  | * 1                                      | Oil    | Gas      | As of the end of 2013       | As of the end of 2012 | As of the end of 2011 |                 |
| 1     | (North Sea, U.K.)<br>JX Nippon Exploration and Production (U.K). Limited   | 9  | 8      | 1        | 184                         | 126                   | 47                    | 58 ~ 60         |
| 2     | (Gulf of Mexico(U.S.A.))<br>JX Nippon Oil Exploration U.S.A. Limited   | 3  | 2      | 1        | 16                          | 23                    | 25                    | 62 ~ 63         |
| 3     | (Canada)<br>Japan Canada Oil Company Limited   | 12                                       | 12     | 0        | 260                         | 253                   | 251                   | 64              |
| 5     | (Vietnam and other)<br>Japan Vietnam Petroleum Company, Limited, other   | 8  | 7      | 1        |                             |                       |                       | 66 ~ 67         |
| 6     | (Myanmar)<br>Nippon Oil Exploration (Myanmar) Limited  | 8  | 1      | 7        |                             |                       |                       | 68 ~ 69         |
| 7     | (Malaysia)<br>JX Nippon Oil & Gas Exploration (Malaysia) Limited<br>JX Nippon Oil & Gas Exploration (Sarawak) Limited        | 20<br>13                                 | 4<br>1 | 16<br>12 |                             |                       |                       | 70 ~ 73         |
| 8     | (Indonesia)<br>Nippon Oil Exploration (Berau) Limited  | 19                                       | 0      | 19       | <Sub Total><br>196          | <Sub Total><br>233    | <Sub Total><br>259    | 74              |
| 9     | (Australia and other)<br>JX Nippon Oil & Gas Exploration (Australia) Pty Ltd., other   | 2  | 2      | 0        |                             |                       |                       | 76 ~ 78         |
| 11    | (Papua New Guinea)<br>Merlin Southern Highlands Petroleum Co., Ltd.  | 6  | 5      | 1        | <Sub Total><br>95           | <Sub Total><br>99     | <Sub Total><br>99     | 80 ~ 81         |
| 12,13 | (United Arab Emirates, Qatar and others) * 3<br>Abudhabi Oil Co., Ltd.,<br>United Petroleum Development Co., Ltd. and others | 12                                       | 11     | 1        | 57                          | 66                    | 69                    | 82 ~ 83         |
| Total |  | 112                                      | 53     | 59       | 808                         | 800                   | 749                   |                 |

\*1 Project company basis.

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

\*3 JX Group's equity basis



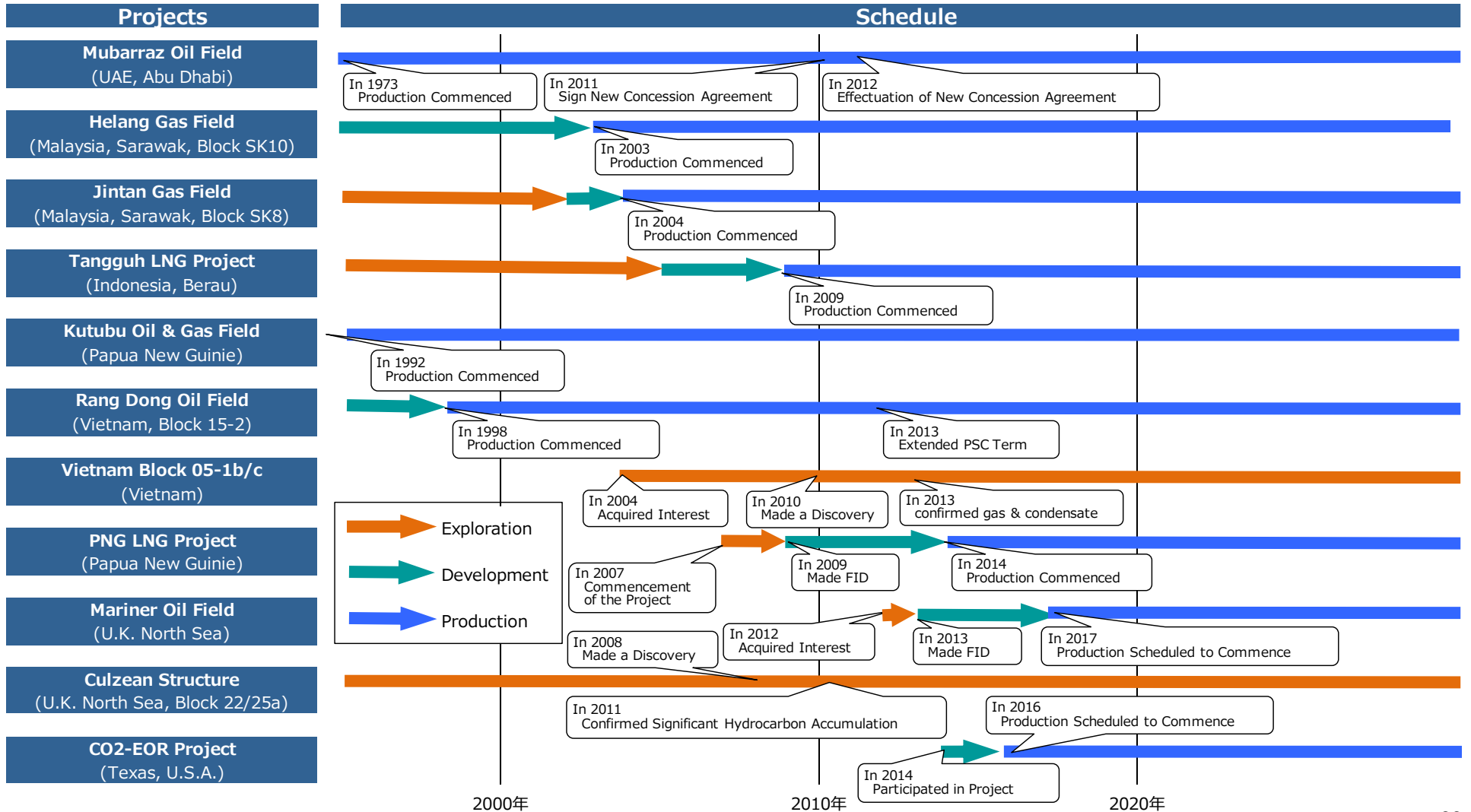
# Maintain and Expand Production Volume over the Medium/Long Term

## Latest Results

|           | Country(Block)                       | Type        | Acquisition of Working Interest | Discovery of oil & gas strata | Final Investment Decision | Renewal of Contract | Commencement of Production |
|-----------|--------------------------------------|-------------|---------------------------------|-------------------------------|---------------------------|---------------------|----------------------------|
| May. 2013 | Australia (Finucane South Oil Field) | Crude Oil   |                                 |                               |                           |                     | ●                          |
| Jun. 2013 | Australia(WA-320-P)<br>(WA-155-P2)   | Natural Gas | ●                               |                               |                           |                     |                            |
| Jun. 2013 | Vietnam(05-1b/c)                     | Oil / Gas   |                                 | ●                             |                           |                     |                            |
| Jul. 2013 | Australia(WA-49-R)                   | Natural Gas |                                 | ●                             |                           |                     |                            |
| Sep. 2013 | Malaysia(Deepwater 2F)               | Natural Gas | ●                               |                               |                           | 2020~2025           |                            |
| Nov. 2013 | Vietnam(15-2)                        | Crude Oil   |                                 |                               |                           | ●                   |                            |
| Dec. 2013 | Malaysia(Deepwater 3F)               | Crude Oil   | ●                               |                               |                           |                     |                            |
| May. 2014 | Malaysia<br>(Layang Oil/Gas Field)   | Oil / Gas   |                                 |                               | ●                         |                     |                            |
| May. 2014 | PNG LNG Project                      | Natural Gas |                                 |                               |                           |                     | ●                          |
| Jul. 2014 | USA ( CO2-EOR )                      | Crude Oil   | ●                               |                               |                           |                     |                            |
| Aug. 2014 | Australia(WA-435/437-P)              | Oil / Gas   |                                 | ●                             |                           |                     |                            |
| Aug. 2014 | Vietnam(05-1b/c)                     | Oil / Gas   |                                 | ●                             |                           |                     |                            |



# Production Schedule of Principal E&P Projects





# Strategies of Metals Business

# Strategy and Action Plan Resource Development

|                             |   |
|-----------------------------|---|
| <b>Business Environment</b> | <ul style="list-style-type: none"> <li>Copper demand increases centered on Asia.</li> <li>Copper price stays at high level</li> </ul> |
| <b>Basic Strategy</b>       | <b>Establishing highly profitable structure by enhancing copper mine interest</b>   |

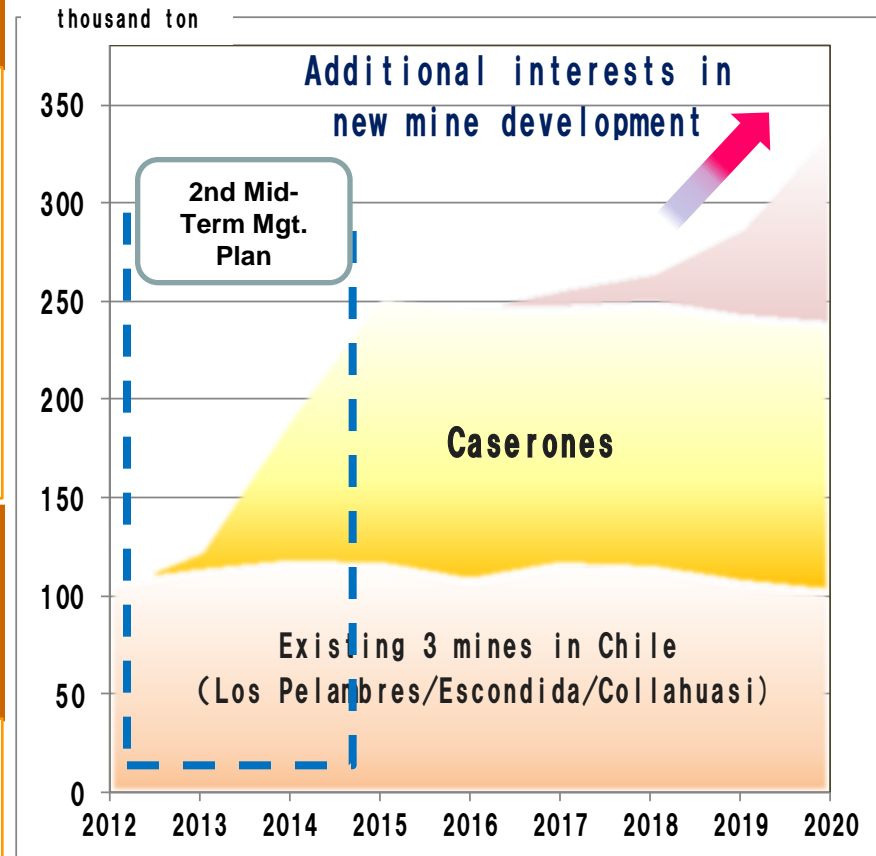
- Aiming 350 thousand ton per year of copper mine interest
  - Caserones : Jan. 2014 - Start production of copper concentrate
  - Reconsidering Quechua (Peru) development
  - Promoting exploring Frontera(Chile)

|           | 2006 | 07                | 08         | 09         | 10  | 11          | 12                | 13 | 14               | 15                        | 16         |
|-----------|------|-------------------|------------|------------|-----|-------------|-------------------|----|------------------|---------------------------|------------|
| Caserones |      | ●                 | ●          |            | ●   |             |                   |    | →                |                           |            |
|           |      | Acquired interest | Started FS |            | FID |             |                   |    | Start production |                           | Until 2040 |
| Quechua   |      | ●                 |            | ●          |     | →           |                   |    |                  |                           |            |
|           |      | Acquired interest |            | Started FS |     | Finished FS |                   |    |                  | (Considering development) |            |
| Frontera  |      |                   |            |            |     |             | ●                 |    |                  |                           |            |
|           |      |                   |            |            |     |             | Acquired interest |    |                  | (Additional exploring)    |            |

|                             |  |
|-----------------------------|--|
| <b>Business Environment</b> | Capital intensification and oligopolization of resource developers proceeds more challenging technology and funds for mine development |
| <b>Basic Strategy</b>       | <b>Acquiring mining interest utilizing original technology</b>   |

- Developing next-generation smelting technology
  - Nikko Chloride Process (N-Chlo Process): Studying applying outcome of pilot plant in Australia to gold concentrate
  - Bio mining :Continuing study at Radomiro Tomic copper mine in Chile

Copper mine interest



# Strategy and Action Plan

## Smelting & Refining/Electronic Materials/Recycling & Environmental Services

### Smelting & Refining

**Business Environment** Drastic improvement of TC/RC is hardly expected though mine development proceeds.

**Basic Strategy** **Establish business structure that has world top-class cost competitiveness**

- Safe and stable operation
- Improving smelting margin
  - Improving production efficiency using copper concentrate from Caserones.
  - Using high margin materials.
  - Starting 2 operation of 2<sup>nd</sup> copper concentrate and sulfuric acid careers.

### Electronic Materials

**Business Environment** Electronic materials demand increases in cutting-edge IT, automobile, medical fields etc.

**Basic Strategy** **Securing world's top share in each product market**

- Realizing early monetization of integrated connector production business (2013.4 Kakegawa Works start operation) and cathode materials business for lithium-ion batteries
- Improving profitability by developing new fields and materials
  - Ultra-thin electro-deposited copper foil, High-functional precision rolled products, Sputtering target for OLED, Sputtering targets for next generation LSIs, Materials for ray sensor

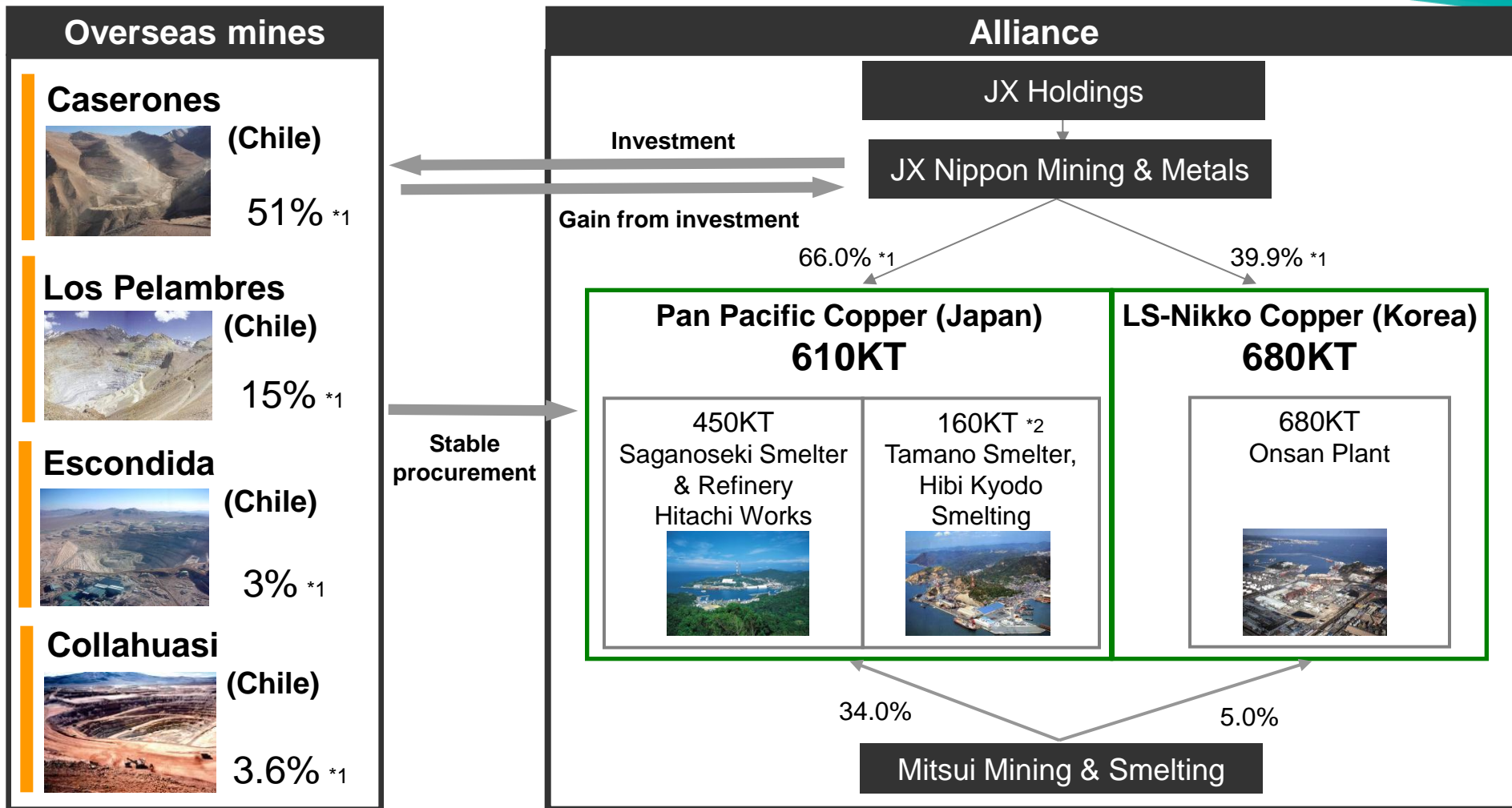
### Recycling & Environmental Services

**Business Environment** Demand for related materials and resource recycling expands in line with growing concerns for eco social needs

**Basic Strategy** **Building international resource recycling business with environmental-friendly zero emission system**

- Enhancing collecting ability of recycled materials overseas : Development to US market
- Enhancing new business : Recycling lithium-ion batteries. Detoxication of materials containing low-concentrated PCB
- Consolidating production site metal by metal and cost reduction

# Copper Business



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

\*2. Total Capacity is 260KT. PPC has 63.51% equity.



# Overseas Copper Mine Development ①

## Caserones Copper Mine (Chile)



Acquisition date **May 2006**

Acquisition price **\$137 million**

Initial investment **\$ 4.20 billion**

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

Ownership (As of Sep. 2014)

**Pan Pacific Copper (PPC)\* 77.37%**

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

Mitsui & Co., Ltd. 22.63%

Mine life **From 2013 to 2040 (28 years )**

Total production (28years)

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

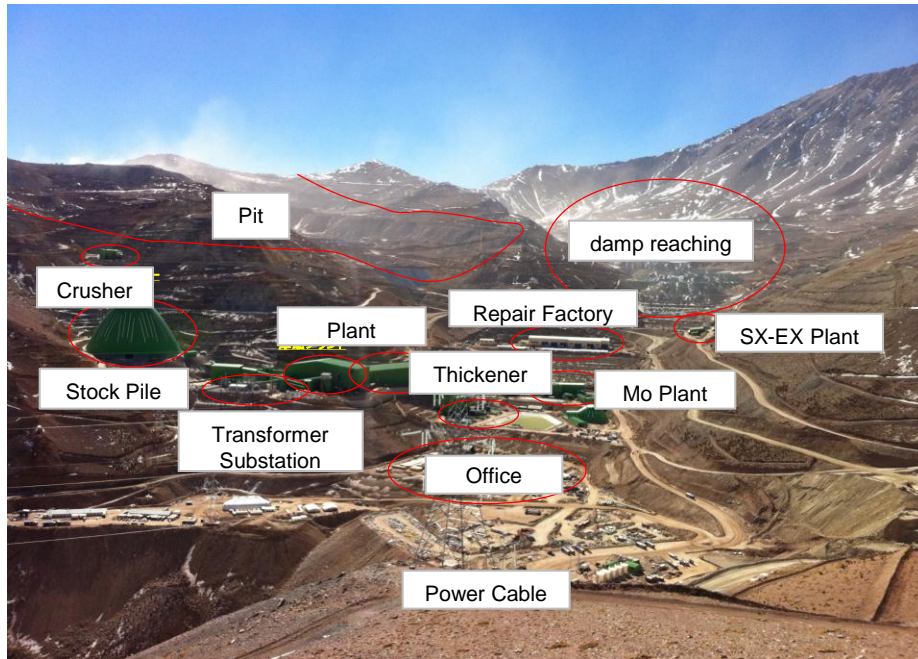
From SX-EW Process 410kt

Molybdenum : 87kt

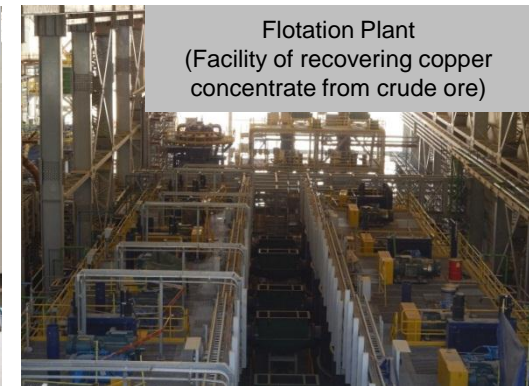
Production plan

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

In May. 2014, started to Copper Concentrate Production



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



### Ownership

NGEx Resources Inc. (Canada) : 60%

Pan Pacific Copper (PPC) : 40%

\*PPC is Jointly established by JX Nippon Mining(66%) and Mistui Mining & Smelting(34%)

September 2012, PPC acquired 40% exploration rights from JOGMEC (Japan Oil, Gas and Metals National Corporation)

### Exploration results for Los Helados

Existence of copper-gold deposit had been confirmed at the time of PPC's acquisition in 2012 through exploratory drilling since 2004.

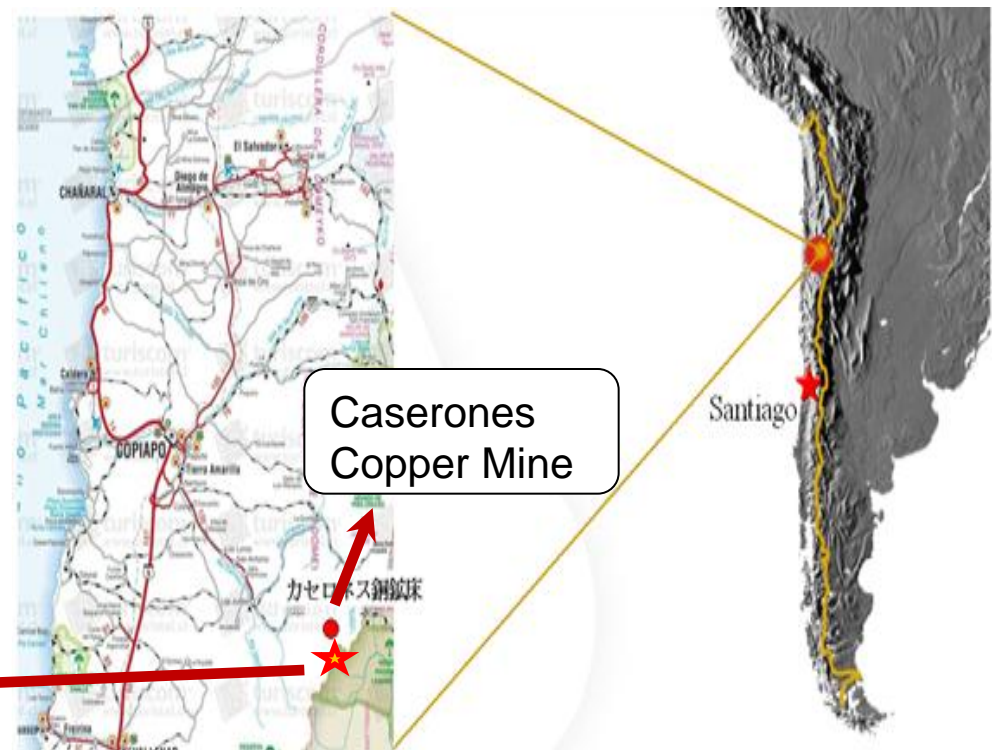
Exploratory works continued after 2012 and preliminary engineering study and economical evaluation have been completed.

Frontera Area Dimension : 24,000ha  
Altitude : 4,400-4,900m

### Main deposits


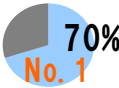
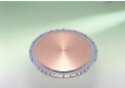
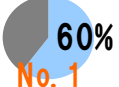
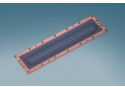
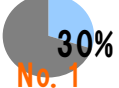

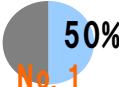

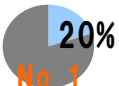

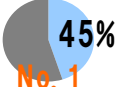

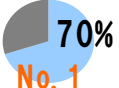
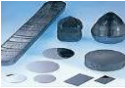
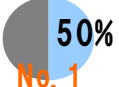
Los Helados (Chile, 20km south of the Caserones Copper Mine )

\*Filo del Sol(Argentina) : October 2014, PPC agreed to transfer all of its exploration rights to NGEx





# Electronic Materials

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

\* Flat Panel Displays

# Electronic Materials (Kakegawa Works)

## ✓ Expansion of Automotive Related Business

- Eco-friendly car market which is applying full of environmental technology has a high potential of growth in near future.
- Demand for connectors used in electric components of eco- friendly car is expected to expand further.



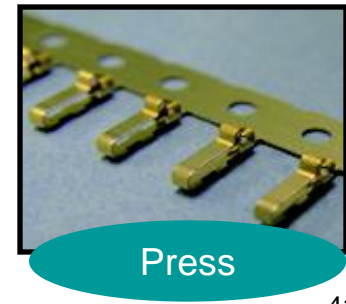
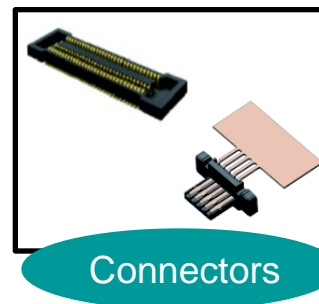
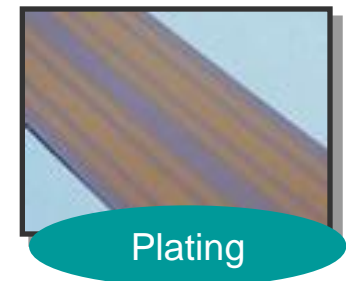
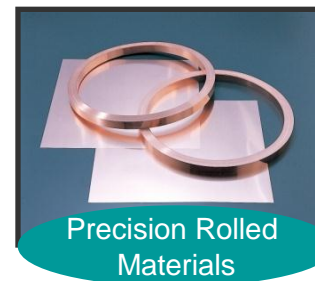
## ✓ OEM Construction of Integrated Plant of Connector (Kakegawa Works)

- Decided to construct a new plant in Kakegawa with integrated production system (press, plating and assembly) for connector (Feb. 2011).
- Started operation (Apr. 2013) .

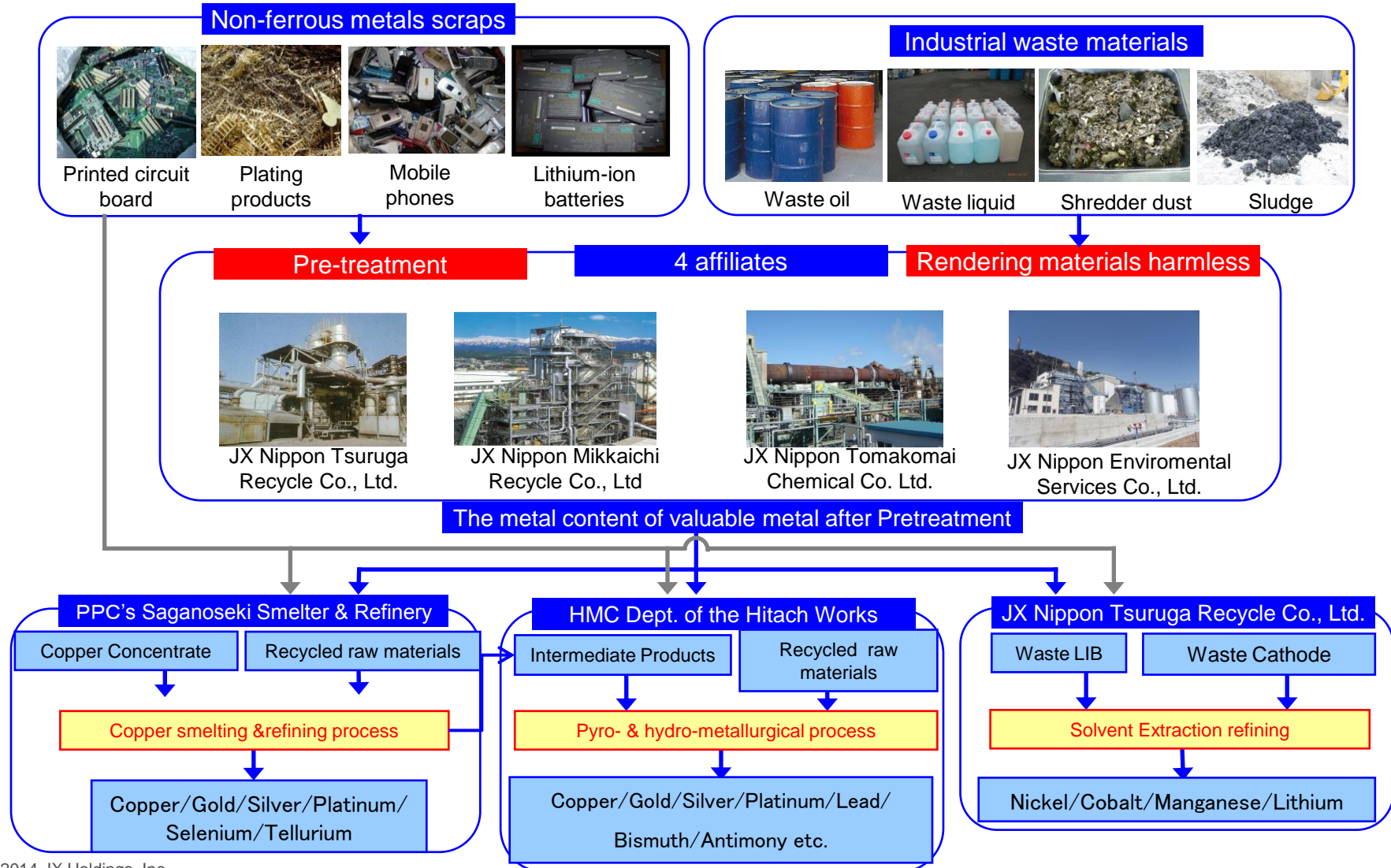


## ✓ Integrated Production System of Connector and Precision Materials

| Process<br>Use・Product        | Press          | Plating                           | Assembly   |
|-------------------------------|----------------|-----------------------------------|------------|
| Connector for Automobile etc. | Kakegawa Works |                                   |            |
| Connector for IT etc.         | Nasu Works     | Esashi Works<br>Tatebayashi Works | Nasu Works |



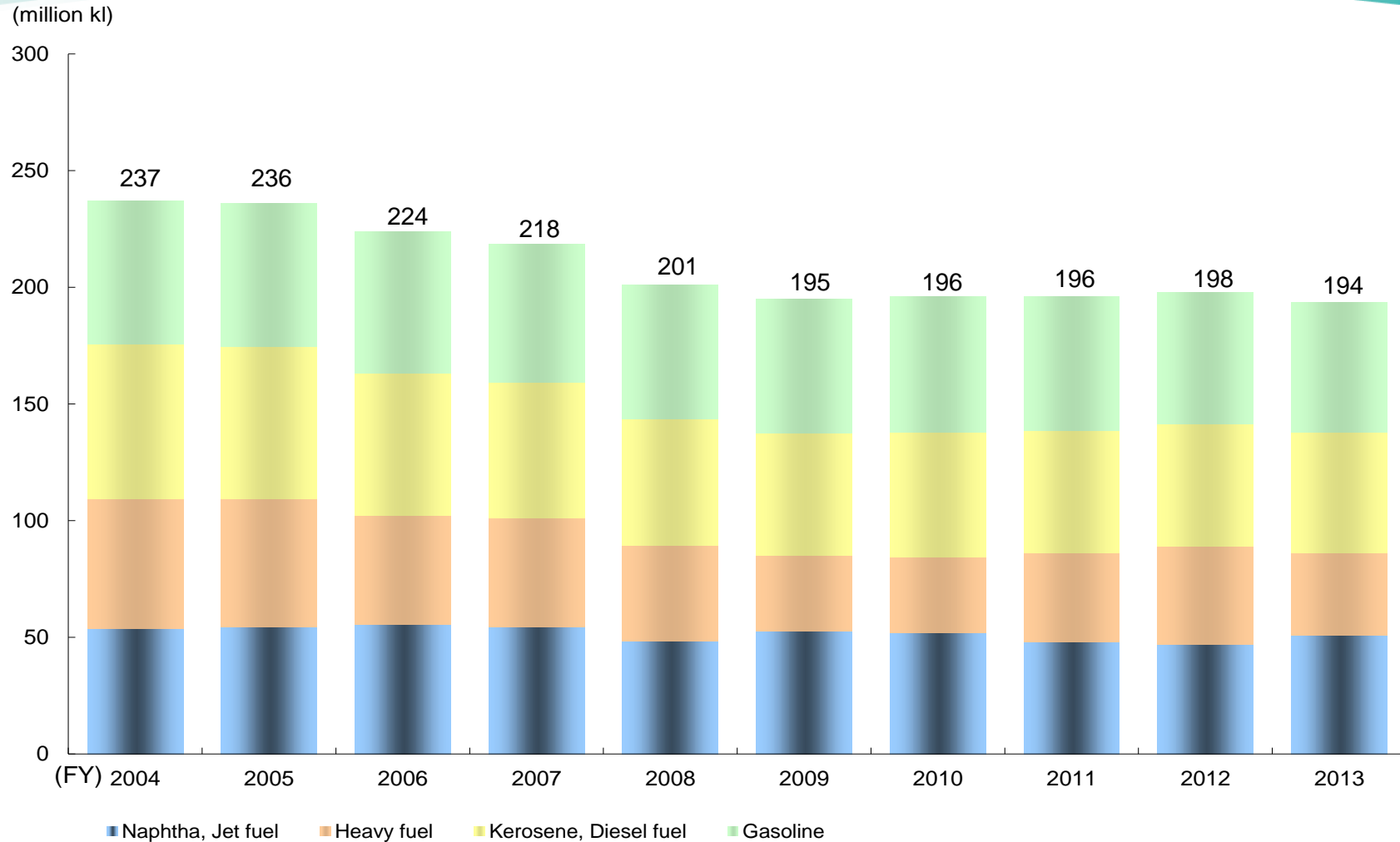
# Recycling and Environmental Services



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# Business Environment and Data - Energy Business -

# Demand for Petroleum Products ( Japan )



Note: Excluding Crude Oil for electric power plants.

Source: Petroleum Association of Japan and Company data

# Capacity Reduction Plan, Integration Synergies, Enhanced Efficiency of Refineries



## ✓ Capacity Reduction Plan

(JX)

Dec.2008. Apr. 2014.  
1,790 ⇒ 1,210 thousand BD

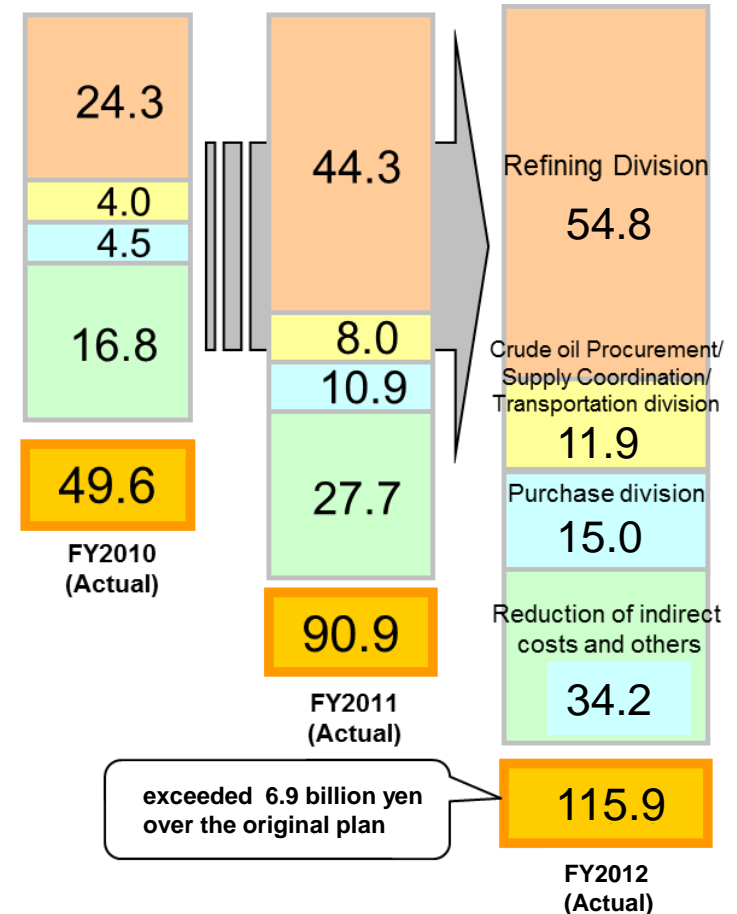
(Japan)

Dec.2008. Apr. 2014.  
4,830 ⇒ 3,730 thousand BD

| Refinery       | Due Date      | Reduction Capacity                    | Completion |
|----------------|---------------|---------------------------------------|------------|
| STEP1 Toyama   | March, 2009   | (60) thousand B/D                     | ✓          |
| Kashima        | May, 2010     | (21)                                  | ✓          |
| Oita           | May, 2010     | (24)                                  | ✓          |
| Mizushima      | June, 2010    | (110)                                 | ✓          |
| Osaka          | October, 2010 | (115) Convert to exportation refinery | ✓          |
| Negishi        | October, 2010 | (70)                                  | ✓          |
| Subtotal       |               | (400)                                 |            |
| STEP 2 Muroran | March, 2014   | (180)                                 | ✓          |
| Total          |               | (580)                                 |            |

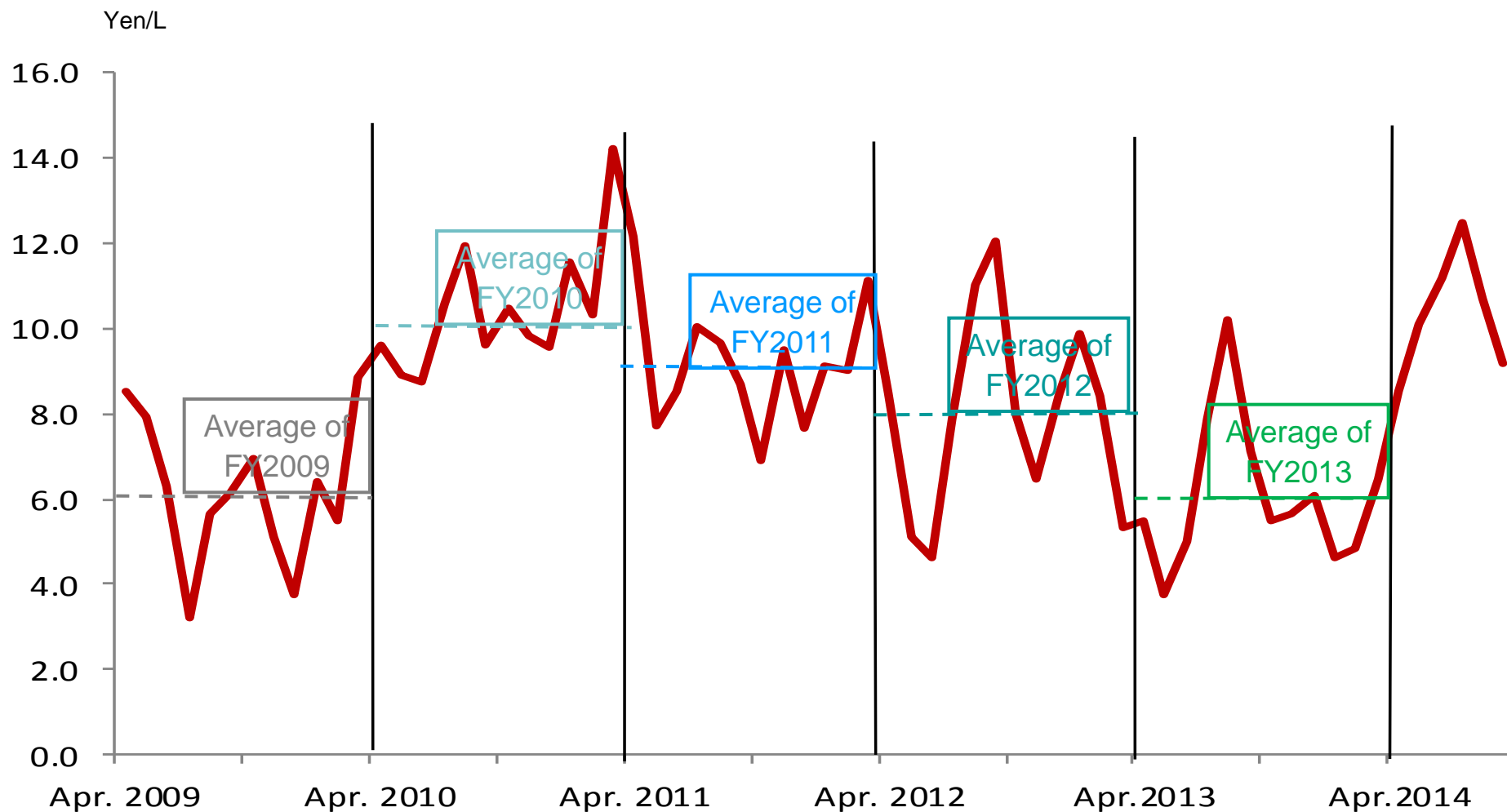
Corresponded to Sophistication of Energy Supply Structure Act

## ✓ Integration Synergies and Enhanced Efficiency of Refineries



(billion yen; Accumulated effect vs. FY2009)

## Margins\* of Gasoline, Kerosene, Diesel Fuel and Fuel Oil A



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

# JX Group's Market Share and Demand in Japan, Historical CDU<sup>\*1</sup> Utilization Rate

## Domestic Market Share

|                                   | FY2013 1H<br>(%) | FY2013<br>(%) | FY2014 1H<br>(%) |
|-----------------------------------|------------------|---------------|------------------|
| a) Gasoline                       | 34.4             | 34.1          | 33.5             |
| b) Kerosene                       | 44.0             | 41.5          | 35.8             |
| c) Diesel Fuel                    | 38.8             | 38.7          | 36.0             |
| d) Fuel Oil A                     | 44.7             | 44.3          | 37.9             |
| a+b+c+d                           | 37.5             | 37.6          | 34.9             |
| Total Domestic Fuel <sup>*2</sup> | 36.5             | 36.9          | 34.0             |

## Domestic Demand

|                                   | FY2013 1H<br>(1,000KL) | FY2014 1H<br>(1,000KL) | Changes<br>vs. FY2013 1H<br>(%) |
|-----------------------------------|------------------------|------------------------|---------------------------------|
| a) Gasoline                       | 28,205                 | 26,654                 | 94.5                            |
| b) Kerosene                       | 4,244                  | 3,642                  | 85.8                            |
| c) Diesel Fuel                    | 16,545                 | 16,442                 | 99.4                            |
| d) Fuel Oil A                     | 5,668                  | 5,301                  | 93.5                            |
| a+b+c+d                           | 54,662                 | 52,038                 | 95.2                            |
| Total Domestic Fuel <sup>*2</sup> | 89,106                 | 82,881                 | 93.0                            |

## CDU<sup>\*1</sup> Utilization Rate (Excluding the impact of periodic repair and earthquake)

|                        | FY2011 | FY2012 | FY2013 | FY2014 1Q | FY2014 2Q |
|------------------------|--------|--------|--------|-----------|-----------|
| JX Group <sup>*3</sup> | 88%    | 88%    | 89%    | 93%       | 88%       |

\*1 Crude Distillation Unit

\*2 Excluding crude oil for electric power plants

\*3 Excluding condensate splitters of Mizushima and Kashima

Source: Petroleum Association of Japan and Company data



# Number of Service Stations (Fixed-Type)

(As of the end of fiscal years)

|   | FY2011            | FY2012            | FY2013            | FY2014.9 <sup>*7</sup> |
|---|-------------------|-------------------|-------------------|------------------------|
| JX Group                                | 11,730            | 11,283            | 11,017            | 10,912                 |
| EMG <sup>*1</sup>                       | 3,773             | 3,475             | 3,379             | 3,614 <sup>*2</sup>    |
| Idemitsu Kosan                          | 3,997             | 3,861             | 3,786             | 3,786                  |
| Showa Shell Sekiyu                      | 3,760             | 3,555             | 3,442             | 3,407                  |
| Cosmo Oil                               | 3,498             | 3,325             | 3,228             | 3,219                  |
| Others <sup>*3</sup>                    | 1,160             | 1,130             | 1,096             | 839 <sup>*4</sup>      |
| Oil Companies                           | 27,918<br>(75.7%) | 26,629<br>(74.8%) | 25,948<br>(74.6%) | 25,777<br>(74.5%)      |
| Private Brands and Others <sup>*5</sup> | 8,982<br>(24.3%)  | 8,971<br>(25.2%)  | 8,852<br>(25.4%)  | 8,823<br>(25.5%)       |
| Total <sup>*5</sup>                     | 36,900            | 35,600            | 34,800            | 34,600                 |

**Notes:**

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

\*2. Figures are total of Esso, Mobil, Tonen General Sekiyu and Mitsui Oil &amp; Gas.

\*3. Figures are total of Taiyo Petroleum, Mitsui Oil &amp; Gas and Kygnus Sekiyu.

\*4. Figures are total of Taiyo Petroleum and Kygnus Sekiyu.

\*5. Estimated by JX Holdings.

\*6. Figures include only self-service retail outlets that are affiliated to oil companies.

\*7. Data except for JX group is as of the end of Jun 2014.

**<Number of Company-Owned Service Stations>**

|          | FY2011 | FY2012 | FY2013 | FY2014.9 |
|----------|--------|--------|--------|----------|
| JX Group | 2,573  | 2,487  | 2,433  | 2,424    |

**<Number of Self-Service Stations>**

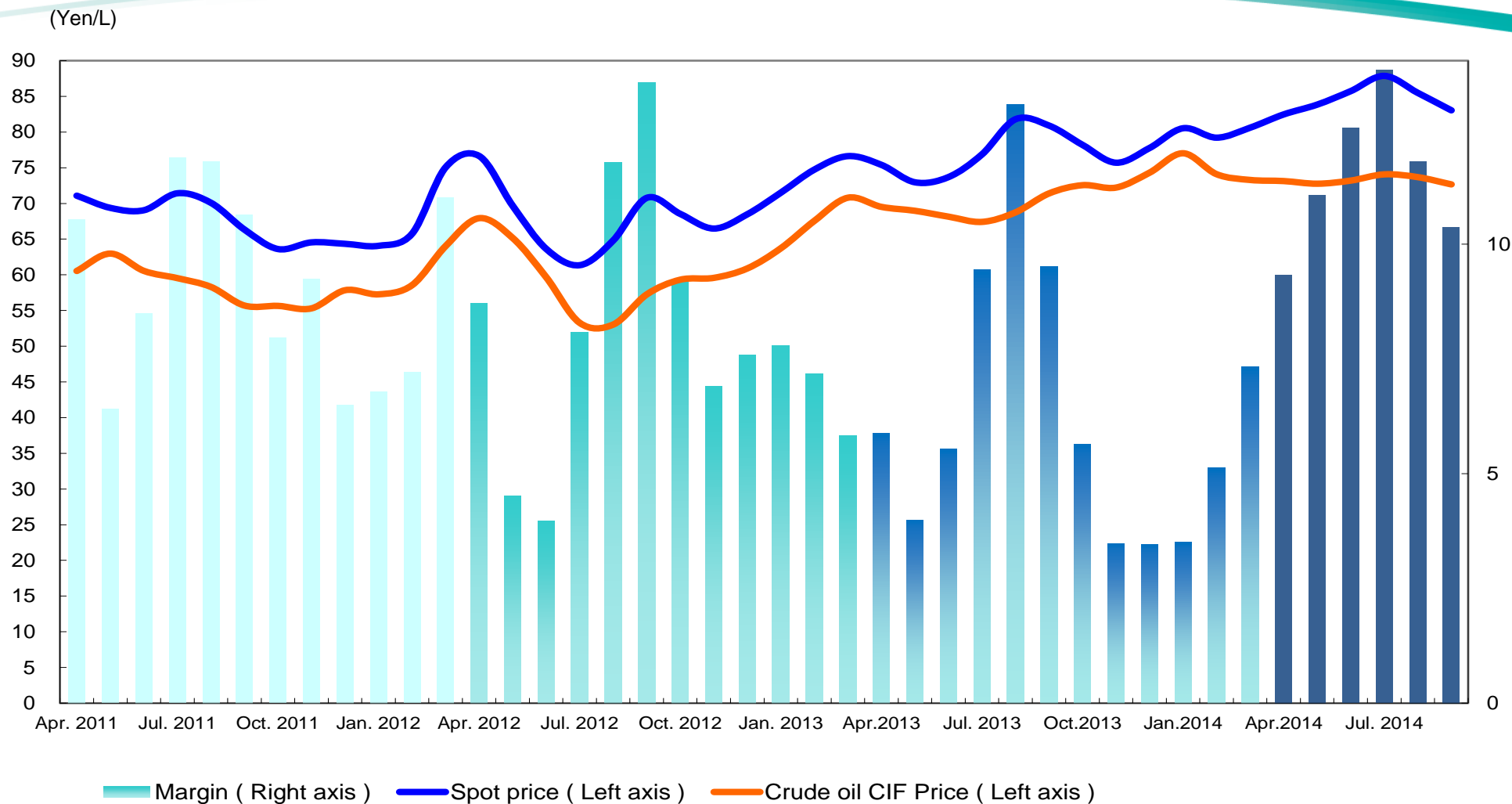
|                               | FY2011 | FY2012 | FY2013 | FY2014.9 <sup>*7</sup> |
|-------------------------------|--------|--------|--------|------------------------|
| JX Group                      | 2,423  | 2,535  | 2,654  | 2,711                  |
| Total for Japan <sup>*6</sup> | 7,001  | 7,172  | 7,415  | 7,505                  |

# Sales Volume by Product

|  | FY2013 1H       | FY2014 1H       | variation       | Changes vs.<br>FY 2013 1H |
|--|-----------------|-----------------|-----------------|---------------------------|
|  | ten thousand KL | ten thousand KL | ten thousand KL |                           |
| <b>Gasoline</b>                                  | 970             | 892             | -78             | -8.0%                     |
| Premium  | 120             | 106             | -14             | -11.7%                    |
| Regular  | 846             | 781             | -65             | -7.7%                     |
| <b>Naphtha</b>                                   | 190             | 155             | -35             | -18.4%                    |
| <b>JET</b>                                       | 84              | 86              | 2               | 2.4%                      |
| <b>Kerosene</b>                                  | 164             | 108             | -56             | -34.1%                    |
| <b>Diesel Fuel</b>                               | 641             | 592             | -49             | -7.6%                     |
| <b>Fuel Oil A</b>                                | 253             | 201             | -52             | -20.6%                    |
| <b>Heavy Fuel Oil C</b>                          | 365             | 317             | -48             | -13.2%                    |
| For Electric Power                               | 256             | 217             | -39             | -15.2%                    |
| For General Use                                  | 109             | 100             | -9              | -8.3%                     |
| <b>Total Domestic Fuel</b>                       | <b>2,667</b>    | <b>2,351</b>    | <b>-316</b>     | <b>-11.8%</b>             |
| <b>Crude Oil</b>                                 | 189             | 121             | -68             | -36.0%                    |
| <b>Lubricants &amp; Specialities</b>             | 139             | 143             | 4               | 2.9%                      |
| <b>Petrochemicals (ten thousand ton)</b>         | 312             | 270             | -42             | -13.5%                    |
| <b>Exported Fuel</b>                             | 612             | 435             | -177            | -28.9%                    |
| <b>LPG (ten thousand ton)</b>                    | 17              | 14              | -3              | -17.6%                    |
| <b>Coal (ten thousand ton)</b>                   | 344             | 339             | -5              | -1.5%                     |
| <b>Total Excluding Barter Trade &amp; Others</b> | <b>4,280</b>    | <b>3,673</b>    | <b>-607</b>     | <b>-14.2%</b>             |
| <b>Barter Trade &amp; Others</b>                 | 930             | 922             | -8              | -0.9%                     |
| <b>Total</b>                                     | <b>5,210</b>    | <b>4,595</b>    | <b>-615</b>     | <b>-11.8%</b>             |



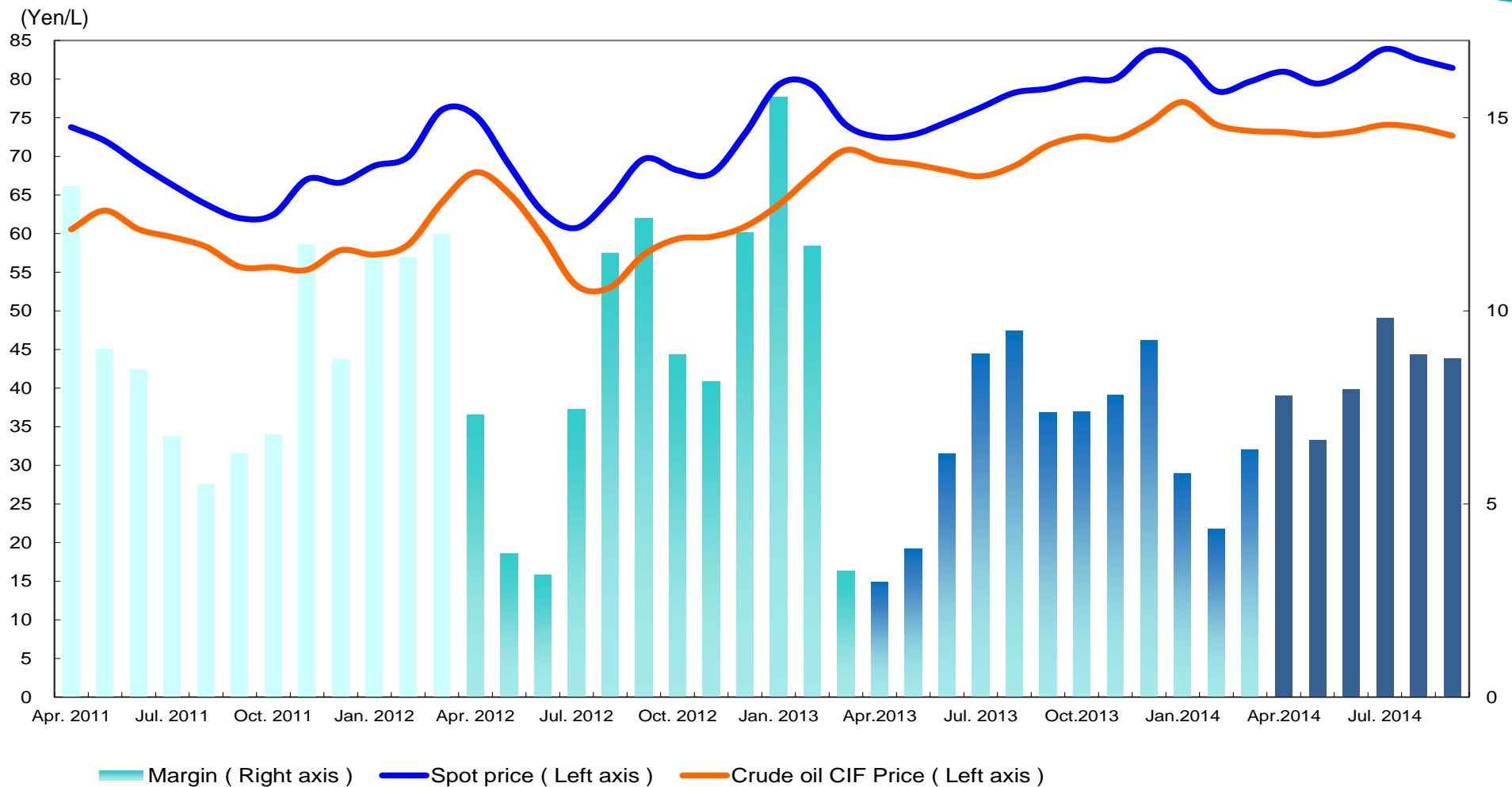
# Domestic Market Margin\* (Gasoline)



\* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest) Source : Trade statistics (Ministry of Finance, Japan)



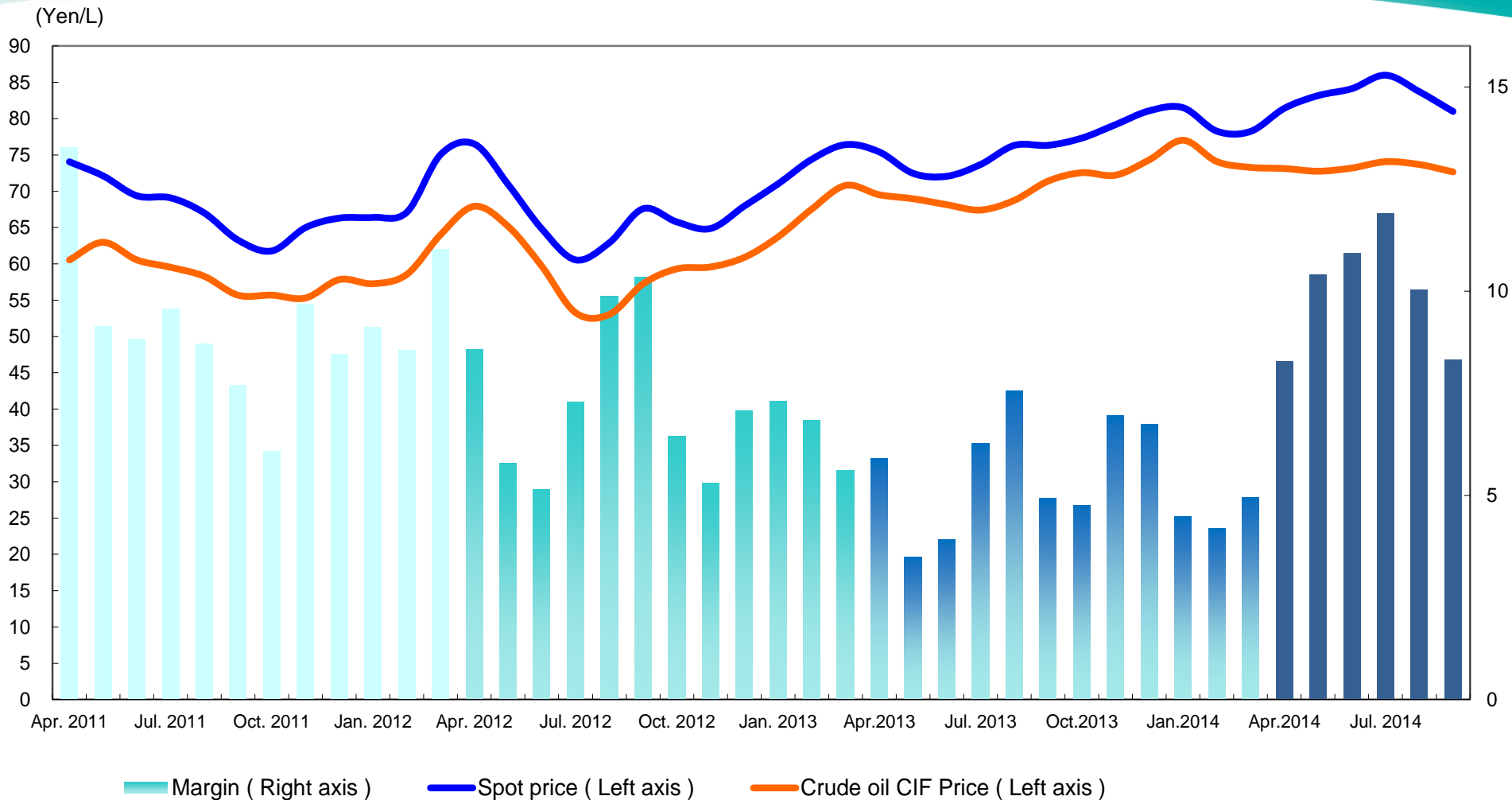
# Domestic Market Margin\* (Kerosene)



\* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)    Source : Trade statistics (Ministry of Finance, Japan)



# Domestic Market Margin\* (Diesel Fuel)

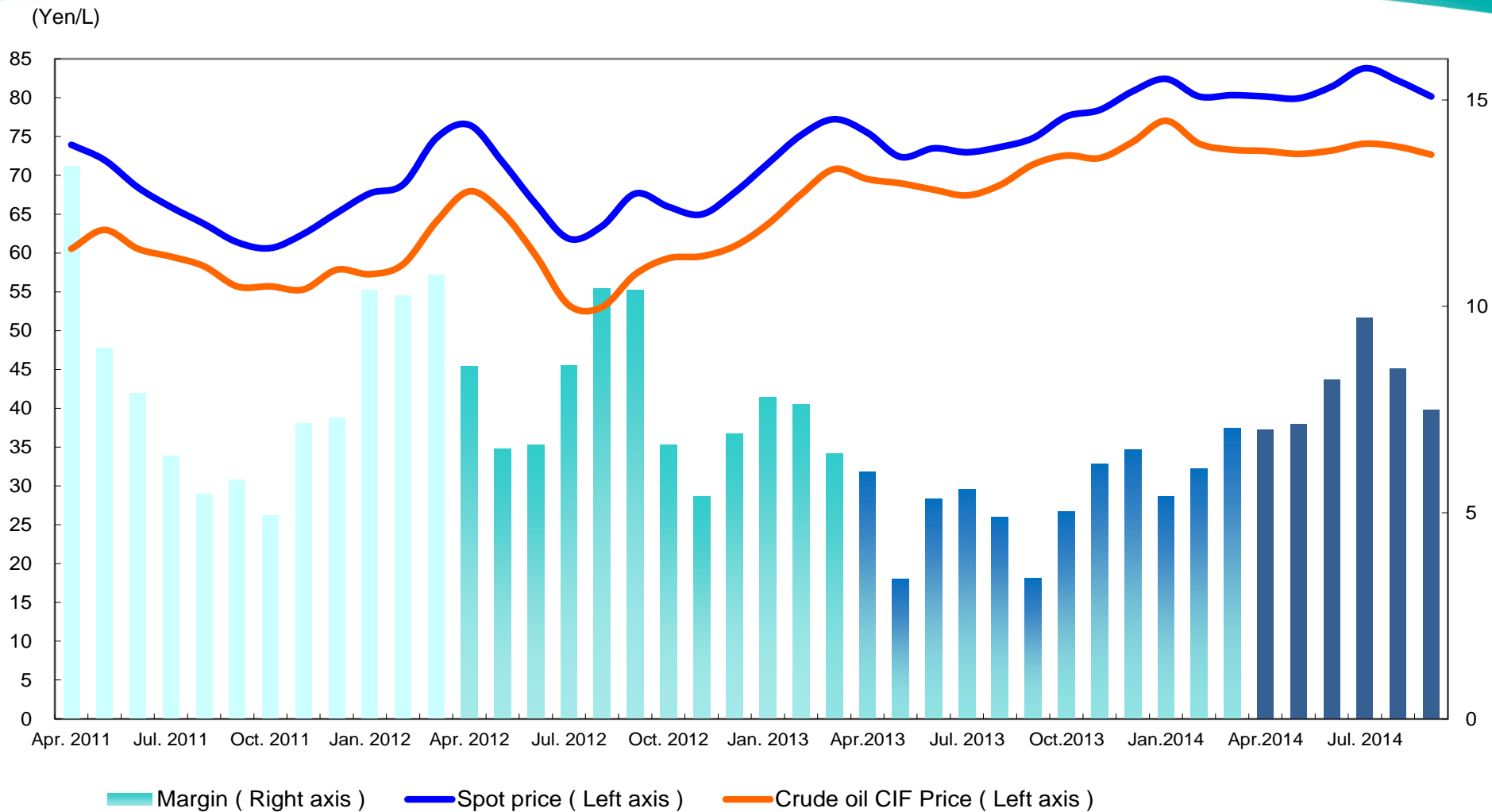


\* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)



# Domestic Market Margin\* (Fuel Oil A)

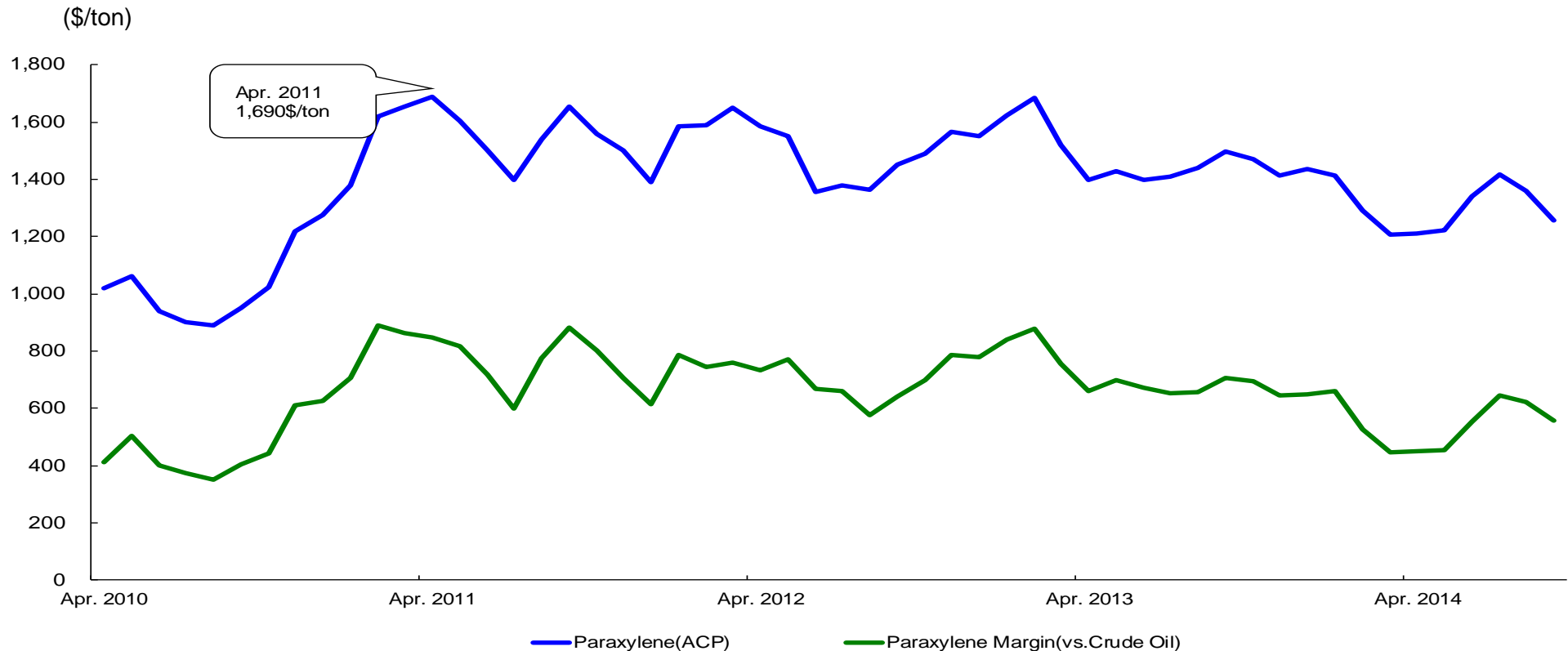


\* Margin = Spot Price – All Japan Crude Oil CIF (including petroleum tax and interest)

Source : Trade statistics (Ministry of Finance, Japan)

# Paraxylene Price and Margin (vs. Crude Oil)

| Average Price          | FY2010 | FY2011 | FY2012 | FY2013 |       |       |       |       | FY2014 |       |
|------------------------|--------|--------|--------|--------|-------|-------|-------|-------|--------|-------|
|                        |        |        |        | 1 Q    | 2Q    | 3Q    | 4Q    | FY    | 1 Q    | 2Q    |
| Asian Contract Price   | 1,162  | 1,555  | 1,510  | 1,409  | 1,449 | 1,440 | 1,304 | 1,401 | 1,259  | 1,345 |
| Margin (vs. Crude Oil) | 550    | 754    | 732    | 676    | 673   | 663   | 544   | 639   | 487    | 608   |

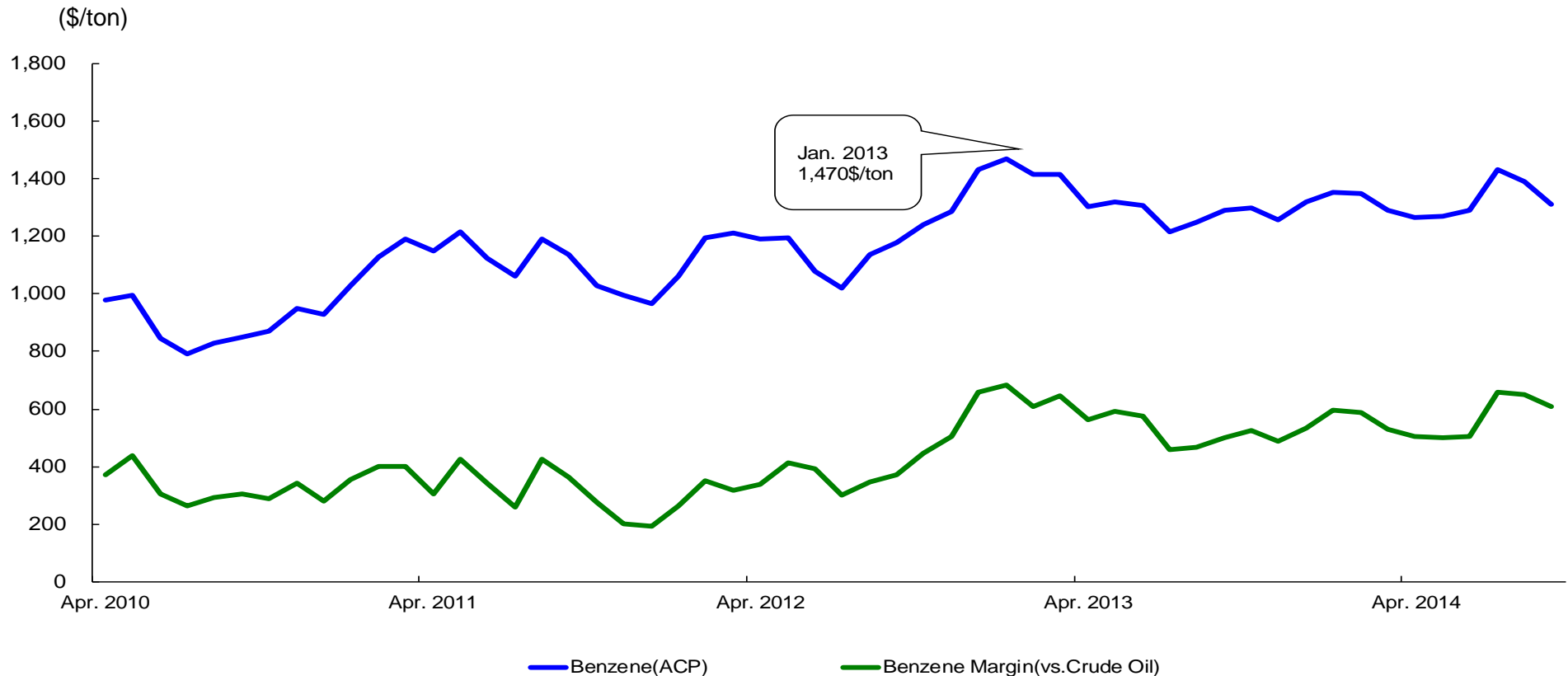


\* In case of ACP undecided, average price of spot market is adopted.



# Benzene Price and Margin (vs. Crude Oil)

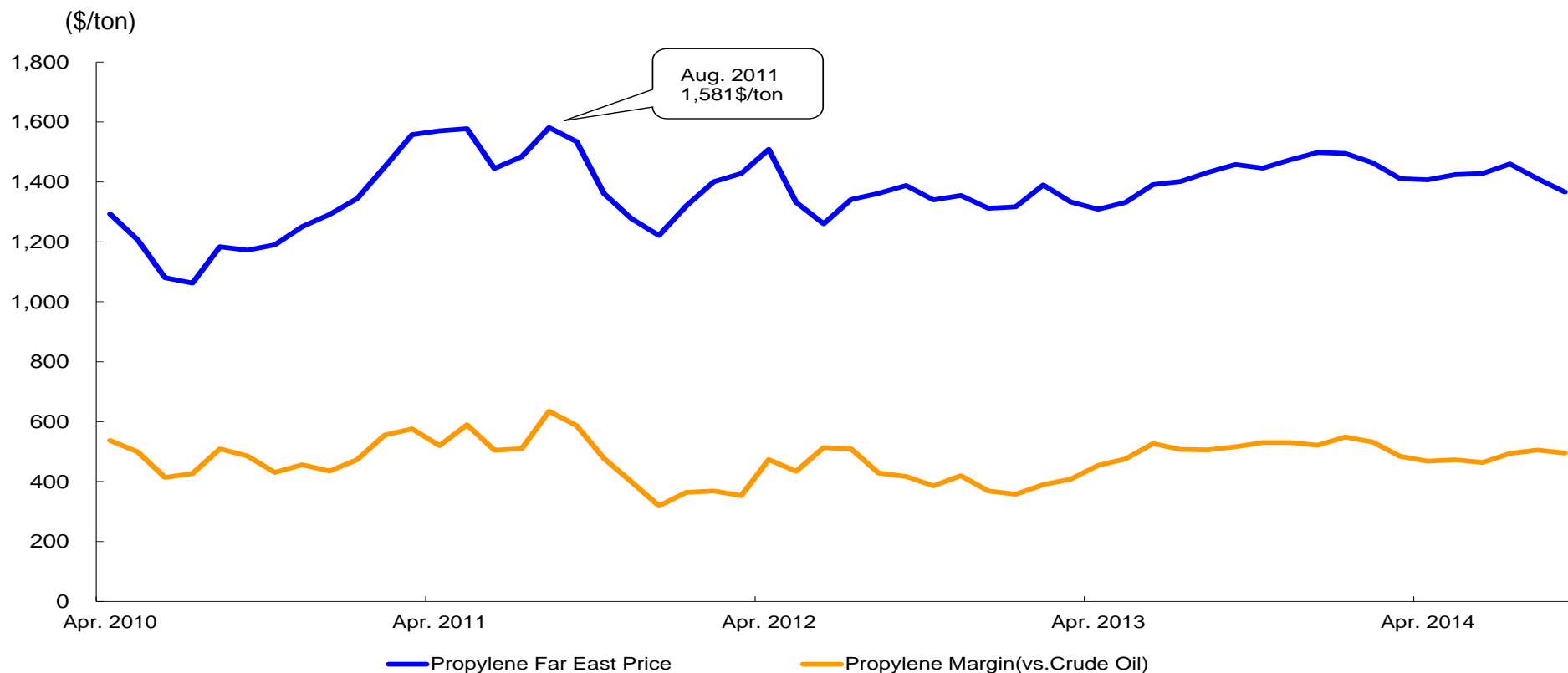
| Average Price          | FY2010 | FY2011 | FY2012 | FY2013 |       |       |       |       | FY2014 |       |
|------------------------|--------|--------|--------|--------|-------|-------|-------|-------|--------|-------|
|                        |        |        |        | 1 Q    | 2 Q   | 3 Q   | 4 Q   | FY    | 1 Q    | 2 Q   |
| Asian Contract Price   | 948    | 1,111  | 1,255  | 1,309  | 1,252 | 1,293 | 1,331 | 1,296 | 1,274  | 1,377 |
| Margin (vs. Crude Oil) | 336    | 310    | 476    | 576    | 475   | 516   | 571   | 535   | 503    | 639   |





# Propylene Price and Margin (vs. Naphtha)

| Average Price        | FY2010 | FY2011 | FY2012 | FY2013 |       |       |       |       | FY2014 |       |
|----------------------|--------|--------|--------|--------|-------|-------|-------|-------|--------|-------|
|                      |        |        |        | 1Q     | 2Q    | 3Q    | 4Q    | FY    | 1Q     | 2Q    |
| Far East Spot Price  | 1,258  | 1,383  | 1,353  | 1,344  | 1,430 | 1,473 | 1,457 | 1,426 | 1,420  | 1,412 |
| Margin (vs. Naphtha) | 484    | 362    | 426    | 486    | 510   | 527   | 522   | 511   | 468    | 498   |



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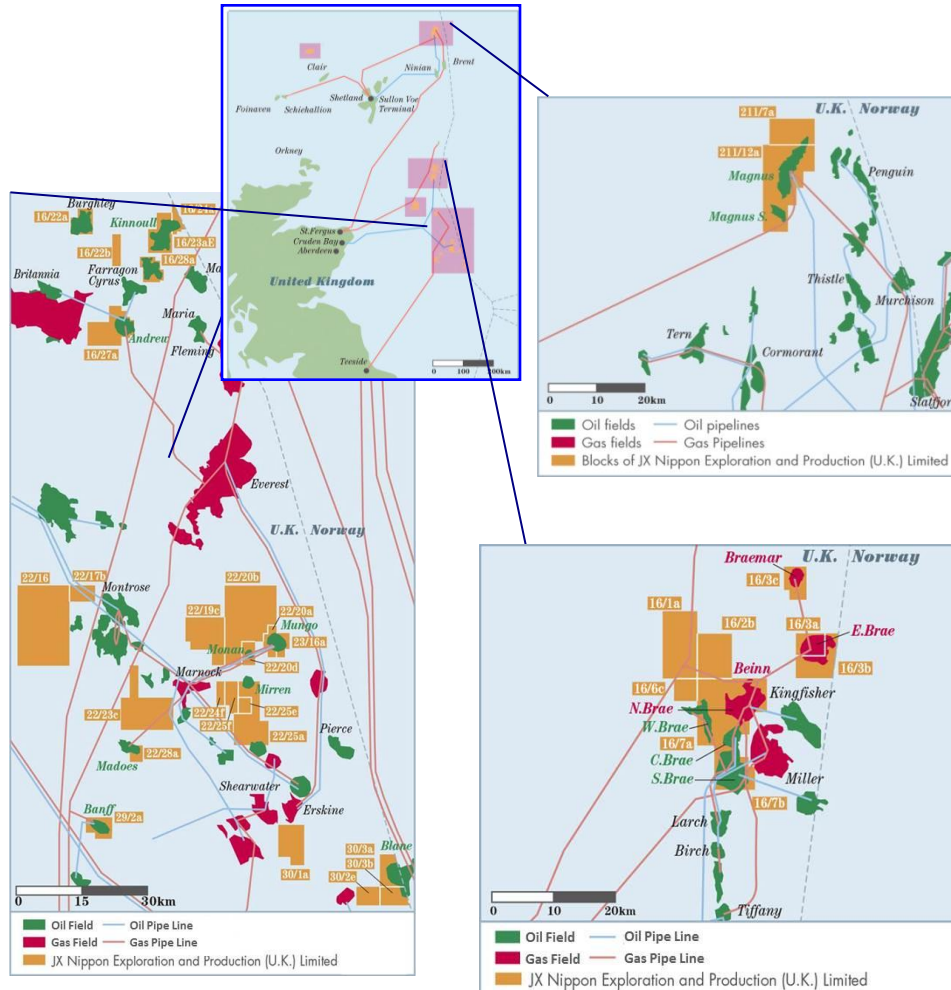
Business Environment  
- Oil and Natural Gas E&P Business -

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

## U.K. North Sea ①

Production

Development



|                                   |  |                    |
|-----------------------------------|--|--------------------|
|                                   | Brae, Andrew, Blane and other fields             | Kinnoull Oil Field |
| Company Holding the Acreages      | JX Nippon Exploration and Production (U.K.) Ltd. |                    |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (100%)           |                    |
| Project Status                    | Exploration/Development/Production               | Development        |
| Interest                          | 4.0% ~ 100.0%                                    | 22.94%             |
| Partners                          | BP, Shell, Marathon, Others                      | BP(77.06%)         |
| Operator                          | BP, Shell, Marathon, Others                      | BP                 |
| Sales Volumes (Jan. ~ Jun. 2014)  | 8,800 boed<br>(oil 7,500b/d, gas 8.1mmcf/d)      | —                  |

UK (North Sea) is one of core countries with many opportunities to acquire exploration, development and production assets and the infrastructure related to them. We have over 10 fields currently producing oil and gas as well as several projects underway where development is envisaged to commence within the next few years. We are striving to acquire new acreages through open bid rounds as well as pursuing farm in and other opportunities.

### Production

#### Mining Area during the production Andrew, Mungo / Monan, Brae, Mirren / Madoes, Blane Magnus Oil and Gas Fields etc

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

### Development

#### Mining Area during Development : Kinnoull Oil Field

- In August 2012, acquired interest in Kinnoull Field which is under development, by exchanging interest in Pierce Field.
- In December 2012, acquired the additional interest of oil field from ENI. In 2014 Production scheduled to commence.

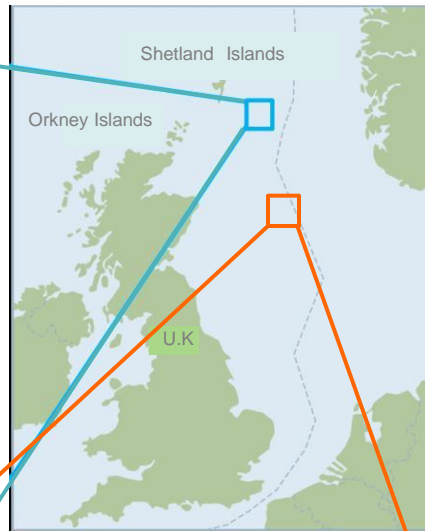
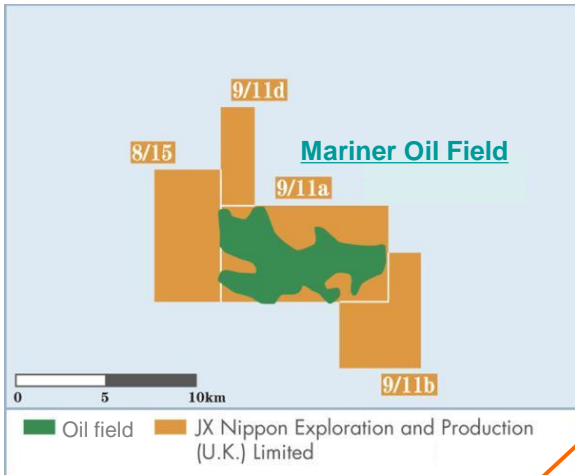
# Principal Individual E&P Project Overview ( U.K. ② )



## U.K. North Sea ②

Development

Exploration



|                                   |  |                                |
|-----------------------------------|--|--------------------------------|
|                                   | Mariner Oil Field                                    | Culzean Gas Field              |
| Company Holding the Acreages      | JX Nippon Exploration and Production (U.K.) Ltd.     |                                |
| Company Holding the Acreages      | JX Nippon Oil Exploration and Production (U.K.) Ltd. |                                |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (100%)               |                                |
| Project Status                    | Development  | Exploration                    |
| Partners                          | Statoil (65.11%)<br>Dyas (6.00%)                     | Maersk (49.99%)<br>BP (16.00%) |
| Operator                          | Statoil  | Maersk                         |

### Development

#### Mining Area during Development : Mariner Oil Field

- In December 2012, acquired the explorational interest of Mariner Oil Field from ENI.
- In February 2013, decided to develop.  
In 2017 Production scheduled to commence.

### Exploration

#### Mining Area during Exploration 22/25a (Culzean Prospect) etc

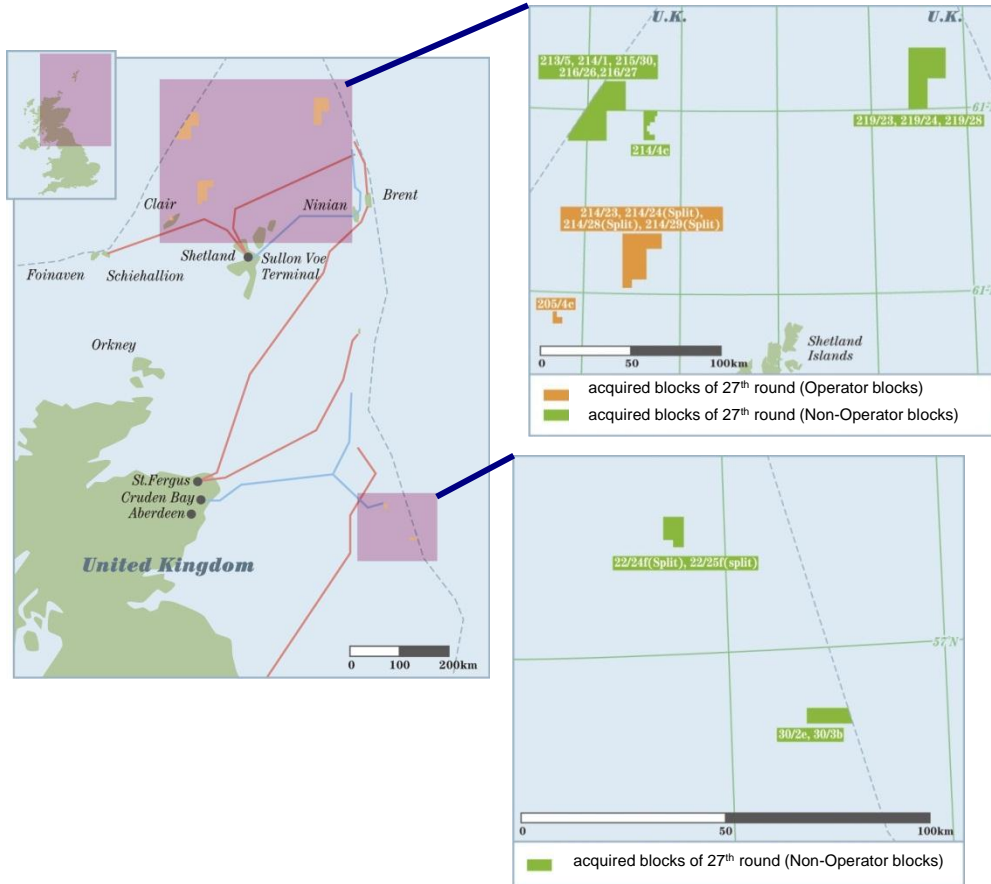
- In March 2011, confirmed the presence of a significant hydrocarbon accumulation.
- In December 2012, acquired the additional interest from ENI.

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

## U.K. North Sea ③

Exploration

New blocks are acquired in 2012 by 27<sup>th</sup> round of governmental open tender .



### Project Company

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

(100%)

(%) = JX Grpop Shareholding

### Operator Blocks

West of Shatlands Area

205/4c

214/23, 214/24a, 214/28a, 214/29b

### Non-Operator Blocks

North Sea Central Area

22/24f, 22/25f, 30/2e, 30/3b

West of Shatlands Area

213/5, 214/1, 214/4c, 215/30

216/26, 216/27

219/23, 219/24, 219/28

### Operators

GDF Suez, OMV, Mearsk



## Next Page

Oil and Natural Gas E&P Business

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



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

## Gulf of Mexico

### Production



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

|                                   | K2<br>(offshore)  | Orchard North<br>(onshore) | MP140,ST179,<br>WC265/266<br>(offshore)  |
|-----------------------------------|---|----------------------------|--|
| Company holding the Acreage       | JX Nippon Oil Exploration(U.S.A.) Ltd.  |                            |  |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration(100%)   |                            |  |
| Project Status                    | Production  | Production                 | Production                               |
| Interest                          | 11.6%   | 50.0%                      | 35.0%~62.5%                              |
| Partners                          | Anadarko(41.8%)<br>ENI(13.4%)<br>ConocoPhillips(12.4%)<br>MCX(11.6%)<br>EcoPetrol(9.2%) | Hilcorp (50.0%)            | Fieldwood<br>Dynamic<br>Ranger<br>Tarpon |
| Operator                          | Anadarko  | Hilcorp                    | Fieldwood, Others                        |
| Sales Volumes(Jan.~Jun. 2014)     | 3,000 boed (Oil 1,900b/d、 Gas 6.4mmcf/d)  |                            |  |

### Production

#### Mining Area during the productionK2, Orchard North, MP140, ST179, WC265/266

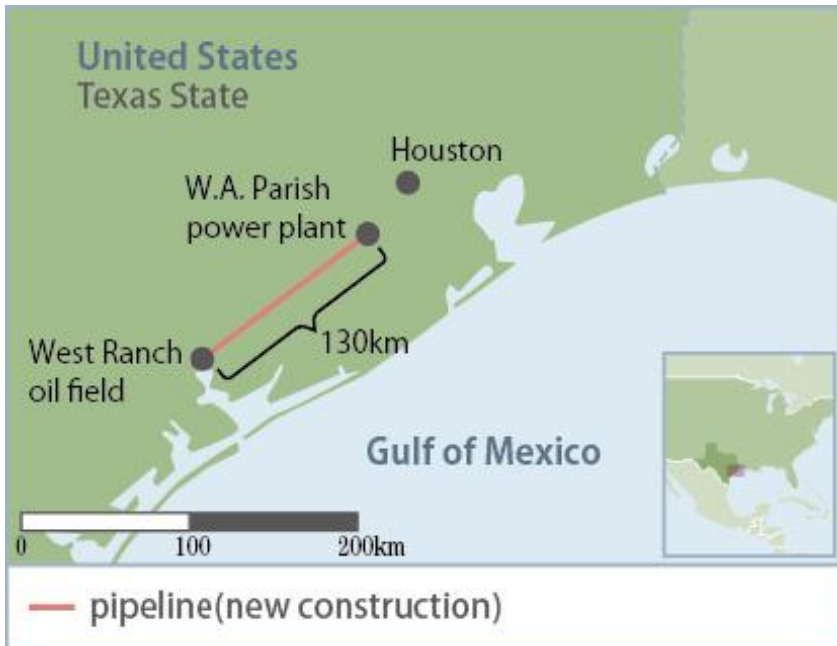
- In 1990, began exploration, development, and production operations at an onshore field in Texas and offshore blocks in both deep as well as shallow waters in the Gulf of Mexico.
- In addition to continuing such existing operations as those in the Orchard North Gas Field, Aconcagua Gas Field, and Virgo Gas Field, purchased interests in certain producing assets in the Gulf of Mexico from Devon in 2005 and from Anadarko in 2007.
- In September 2010, sold some assets of shallow water and deep water areas.



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

Texas

Development



Constructing carbon capture system that captures 90% of carbon dioxide (CO<sub>2</sub>) in the processed flue gas from an existing unit at the WA Parish power plant, and by pressing captured carbon dioxide in West Ranch oil field, trying to increase crude oil production.

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

|                                    | CO <sub>2</sub> -EOR Project                     |
|------------------------------------|--|
| Operating Company of JX NOEX       | JX Nippon Oil Exploration (EOR) Ltd.             |
| Shareholders (Holding Percentages) | JX Nippon Oil Exploration (U.S.A.) Ltd. ( 100% ) |
| Project Status                     | Development                                      |
| Interest                           | 50.0%  |
| Project Company                    | Petra Nova Parish Holdings LLC *                 |

\* A company half-funded by JX Nippon Oil Exploration (EOR) Ltd. and NRG Energy Inc. Group

Development

## CO<sub>2</sub>-EOR Project

- In July 2014, participated in CO<sub>2</sub>-EOR business.
- In 4<sup>th</sup> quarter of 2014, scheduled to start production.

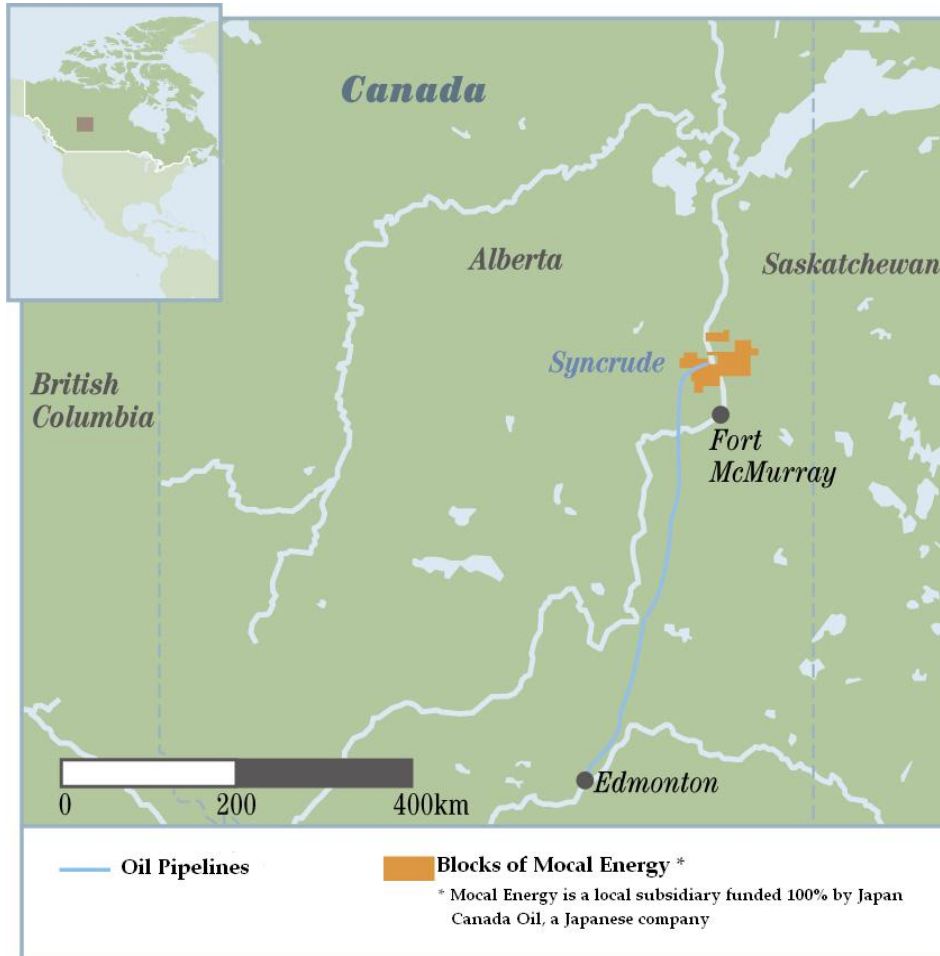


# Principal Individual E&P Project Overview (Canada)

Canada

Production

Development



|                                   |  |
|-----------------------------------|--|
|                                   | <b>Syncrude Project</b>  |
| Company Holding the Acreages      | Japan Canada Oil/Mocal Energy  |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (100%)   |
| Project Status                    | Development / Production   |
| Interest                          | 5.0%   |
| Partners                          | Canadian Oil Sands (36.7%)<br>Imperial Oil Resources (25.0%)<br>Suncor Energy (12.0%)<br>Sinopec (9.0%)<br>Nexen (7.2%)<br>Murphy Oil Company (5.0%) |
| Operator                          | Syncrude Canada  |
| Sales Volume<br>(Jan.-Jun. 2014)  | 12,400boed (oil 12,400b/d)   |

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

Production

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

## Next Page

Oil and Natural Gas E&P Business

# Principal Individual E&P Project Overview (Vietnam ①)

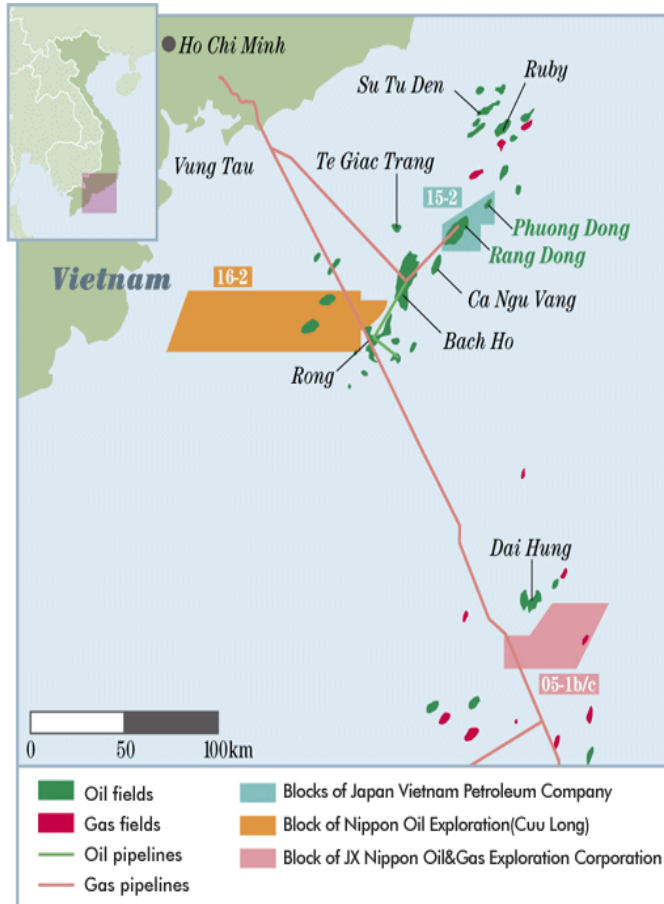
# Principal Individual E&P Project Overview (Vietnam ①)

Vietnam

Production

Development

Exploration



|                                   | Block 15-2   |                       | Block 05-1b/c                               |
|-----------------------------------|--|-----------------------|---|
|                                   | Rang Dong Oil Field  | Phuong Dong Oil Field |   |
| Company Holding the Acreages      | Japan Vietnam Petroleum Company  |                       | JX Nippon Oil & Gas Exploration             |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (97.1%)<br>Mitsubishi Corporation (2.9%) |                       | -   |
| Project Status                    | Exploration/Development/Production                                       |                       | Exploration                                 |
| Interest                          | 46.5%  | 64.5%                 | 35.0%                                       |
| Partners                          | PVEP (17.5%)<br>Perenco (36.0%)  | PVEP (35.5%)          | Idemitsu Oil & Gas (35.0%)<br>INPEX (30.0%) |
| Operator                          | Japan Vietnam Petroleum Company  |                       | Idemitsu Oil & Gas                          |
| Sales Volume (Jan.-Jun. 2014)     | 8,000 boed<br>(oil 6,500b/d, gas 8.9mmcf/d)                              |                       | -   |

## Principal Individual E&P Project Overview (Vietnam ②)

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

Production

Development

Exploration

Since the acquisition in 1992, the project has been one of our key operations. JVPC, our subsidiary, act as operator in the block.

The Rang Dong Oil Field and The Phuong Dong Oil Field feature an unconventional fractured granite basement rock reservoir that is unique in the world. Our fracture evaluation technology is highly valued and receiving worldwide recognition.

As part of our corporate activities, we have been promoting social welfare activities in Vietnam to improve the lives of the people of Vietnam, furthermore, we have been implementing a CDM project aimed at reducing greenhouse gas emissions.

- In 1992, JVPC acquired a working interest in block 15-2
- In 1994, JVPC discovered the [Rang Dong Oil Field](#) within block 15-2, and it began production in that field from 1998.
- In 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 Oil Field](#).
- In November 2013, determined on term extension of the Rang Dong Oil Field (5 years).

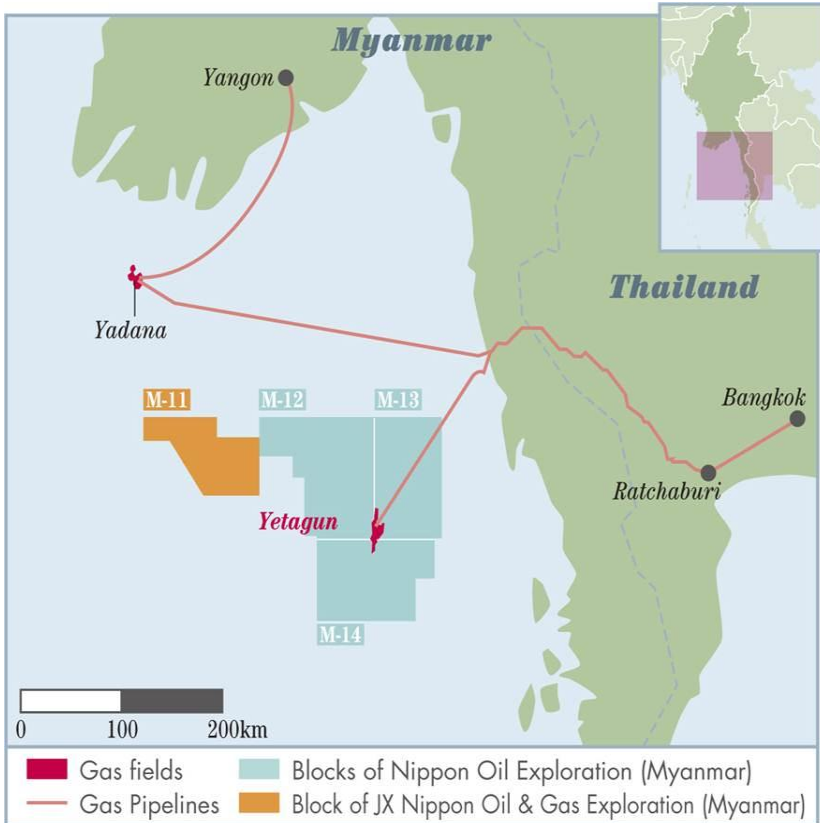
### Block 05-1b/c

Exploration

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

# Principal Individual E&P Project Overview (Myanmar ①)

Myanmar    Production    Development    Exploration



|                                   | Bolock M-12, 13, 14  | Block M-11                                   |
|-----------------------------------|--|--|
| Company Holding the Acreages      | Nippon Oil Exploration (Myanmar)   | JX Nippon Oil & Gas Exploration (Myanmar)    |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (40.0%)<br>Mitsubishi Corporation (10.0%)<br>Government of Japan (50.0%) | JX Nippon Oil & Gas Exploration (100.0%)     |
| Project Status                    | Exploration / Development / Production   | Exploration                                  |
| Interest                          | 19.3%  | 15.0%  |
| Partners                          | Petronas Carigali (40.9%)    MOGE(20.5%)<br>PTTEP International (19.3%)                                  | PTTEP International (45.0%)<br>TOTAL (40.0%) |
| Operator                          | Petronas Carigali  | PTTEP International                          |
| Sales Volume<br>(Jan.-Jun. 2014)  | 8,000boed<br>(oil 700b/d, gas 44.1mmcf/d)  | -  |

## Principal Individual E&P Project Overview (Myanmar ②)

### Block M-12,13,14

Production

Development

Exploration

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

- In 1991, NOEX Myanmar acquired a working interest in [blocks M-13/14](#) offshore Myanmar.
- The following year, acquired a working interest in [block M-12](#) and discovered the Yetagun Gas Field in that block.
- In 2000, production at the Yetagun Gas Field commenced, with the produced gas supplied to the Ratchaburi power plants in Thailand.
- In 2012, Made the Final Investment Decision on the Yetagun North Gas Field.  
Development of the gas field are underway to commence of production in October 2014.
- In December 2013, sold 10% of Nippon Oil Exploration (Myanmar)'s stock to Mitsubishi Corporation.
- In September 2014, excavated test well No.1.
- In October 2014, began production in the Yetagun Gas Field.

### Block M-11

Exploration

- In September 2012, acquired a working interest in [blocks M-11](#), offshore Myanmar.  
(Waiting for the approval of the Myanmar government)
- In January 2013, acquired the approval of the Myanmar government.
- In November 2013, excavated test well No1.



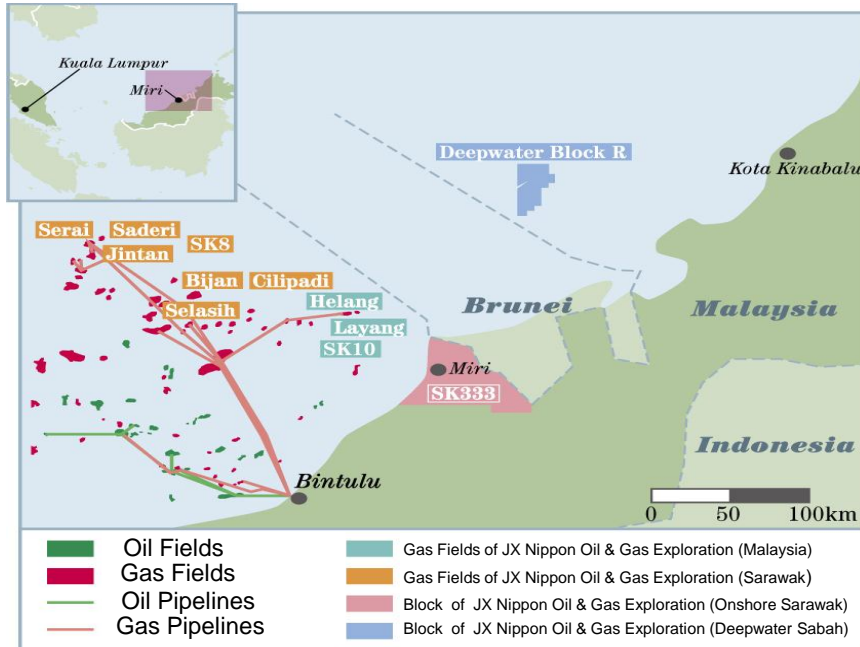
# Principal Individual E&P Project Overview (Malaysia ①)

Malaysia

Production

Development

Exploration



|                                    | SK10<br>(Herang Gas Field, Others)  | SK8<br>(Jintan, Cilipadi Gas Field, Others)   |
|------------------------------------|---|---|
| Company holding the Acreage        | JX Nippon Oil & Gas Exploration (Malaysia)  | JX Nippon Oil & Gas Exploration (Sarawak)   |
| Shareholders (Holding Percentages) | JX Nippon Oil & Gas Exploration (78.7%)<br>Inpex (15.0%)<br>Mitsubishi Corporation (6.3%) | JX Nippon Oil & Gas Exploration (76.5%)<br>Inpex (15.0%)<br>Mitsubishi Corporation (8.5%) |
| Project Status                     | Exploration/Development/Production  | Development/Production  |
| Interest                           | 75.0%   | 37.5%   |
| Partnaers                          | Petronas Carigali (25.0%)   | Shell Oil and Gas Malaysia (37.5%)<br>Petronas Carigali (25.0%)                           |
| Operator                           | JX Nippon Oil & Gas Exploration (Malaysia)  | Shell Oil and Gas Malaysia  |
| Sales Volume (Jan.-Jun. 2014)      | 19,700boed<br>(Oil 3,400b/d, Gas 97.7mmcf/d)  | 13,700boed<br>(Oil 1,500b/d, Gas 73.3mmcf/d)  |



## Principal Individual E&P Project Overview (Malaysia ②)

### Block SK10 (Helang Gas Field and others)

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

Production

Development

Exploration

#### Mining Area during the production SK10 (Helang Gas Field)

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

### Block SK8 (Jintan, Cilipadi Gas Fields and others)

Production

Development

#### Mining Area during the production SK8 (Jintan, Saderi, Cilipadi Gas Fields)

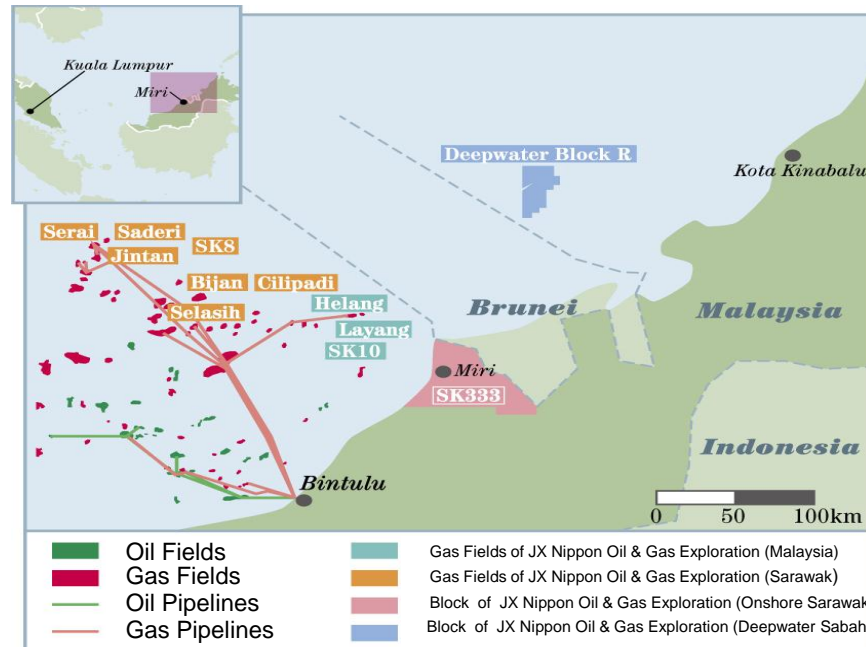
- In 1991, acquired a working interest in Block SK8 .
- From 1992 through 1994, the Jintan and other 6 gas fields were discovered in that block, and production of Jintan and Serai were commenced in 2004.
- In 2008, the Saderi Gas Field commenced production.
- In 2011, the Cilipadi Gas Field commenced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



# Principal Individual E&P Project Overview (Malaysia ③)

Malaysia

Exploration



|                                    | PM308A  | SK333   |
|------------------------------------|---|---|
| Company holding the Acreage        | JX Nippon Oil & Gas Exploration (Peninsular Malaysia)     | JX Nippon Oil & Gas Exploration (Onshore Sarawak)         |
| Shareholders (Holding Percentages) | JX Nippon Oil & Gas Exploration (32.3%)<br>JOGMEC (67.7%) | JX Nippon Oil & Gas Exploration (29.7%)<br>JOGMEC (70.3%) |
| Project Status                     | Exploration   | Exploration   |
| Interest                           | 40.0%   | 75.0%   |
| Partners                           | Lundin Malaysia(35.0%)<br>Petronas Carigali(25.0%)        | Petronas Carigali (25.0%)                                 |
| Operator                           | Lundin Malaysia   | JX Nippon Oil & Gas Exploration (Onshore Sarawak)         |

|                                    | Deepwater Block R   | Deepwater Block 2F   | Deepwater Block 3F   |
|------------------------------------|---|--|--|
| Company holding the Acreage        | JX Nippon Oil & Gas Exploration (Deepwater Sabah)             | JX Nippon Oil & Gas Exploration (Offshore Malaysia)        | JX Nippon Oil & Gas Exploration (Offshore Malaysia)        |
| Shareholders (Holding Percentages) | JX Nippon Oil & Gas Exploration (100%)                        | JX Nippon Oil & Gas Exploration (100%)                     | JX Nippon Oil & Gas Exploration (100%)                     |
| Project Status                     | Exploration   | Exploration  | Exploration  |
| Interest                           | 37.5%   | 40.0%  | 40.0%  |
| Partners                           | Inpex Offshore South Sabah(37.5%)<br>Petronas Carigali(25.0%) | Petronas Carigali (40.0%)<br>GDF Suez E&P Malaysia (20.0%) | Petronas Carigali (40.0%)<br>GDF Suez E&P Malaysia (20.0%) |
| Operator                           | JX Nippon Oil & Gas Exploration (Deepwater Sabah)             | JX Nippon Oil & Gas Exploration (Offshore Malaysia)        | Petronas Carigali  |

# Principal Individual E&P Project Overview (Malaysia ④)

## Block SK333

### Exploration

- In December 2007, acquired a working interest in [Block SK333](#) onshore Sarawak, Malaysia.
- In January 2013, discovered gas and oil in Adong Kecil West Prospect.

## Block PM308A

### Exploration

- In April 2008, acquired a working interest in [Block PM308A](#) offshore peninsular Malaysia.

## Deepwater Block R

### Exploration

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

## Deepwater Block 2F

### Exploration

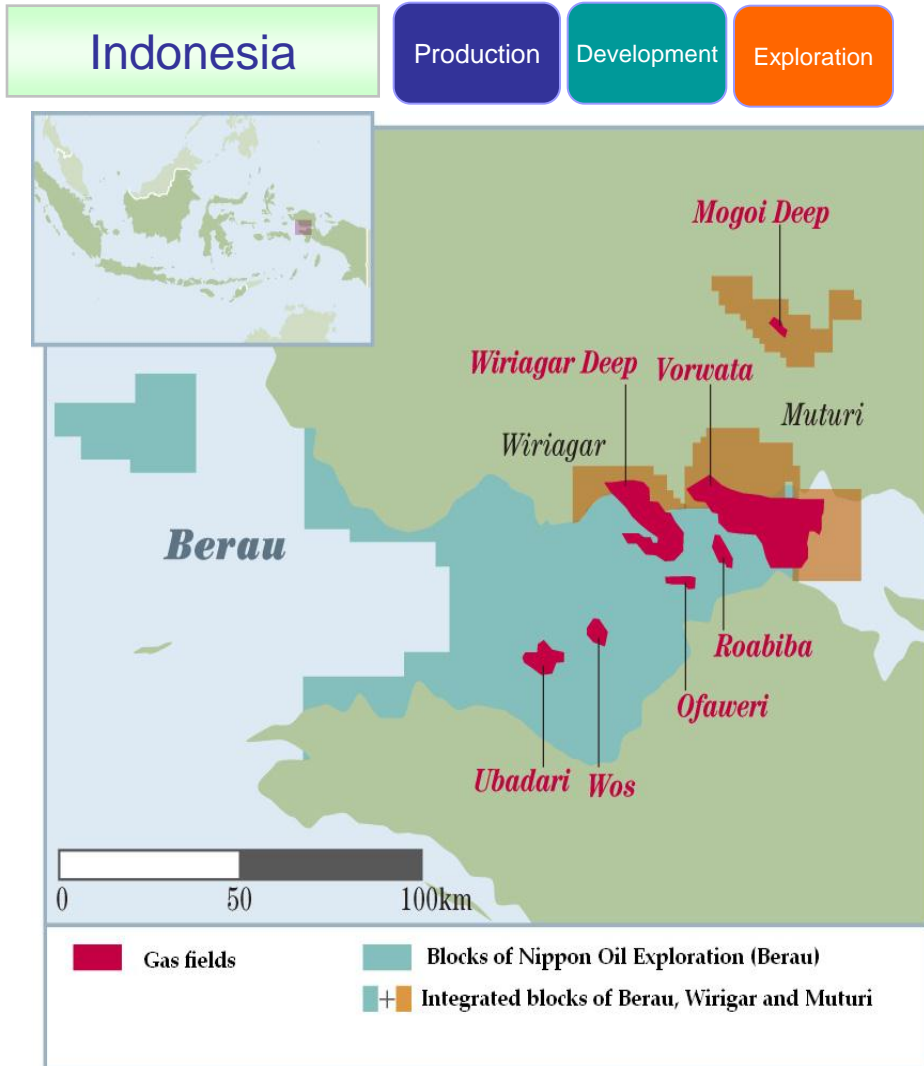
- In September 2013, acquired a working interest in [Deepwater Block 2F](#) deep sea, offshore Sarawak, Malaysia.

## Deepwater Block 3F

### Exploration

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

# Principal Individual E&P Project Overview (Indonesia)



|                                   |   |  |
|-----------------------------------|---|--|
|                                   | Tangguh LNG Project                                       |  |
| Company Holding the Acreages      | Nippon Oil Exploration (Berau)                            |  |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (51.0%)<br>JOGMEC (49.0%) |  |
| Project Status                    | Exploration/Development/Production                        |  |
| Interest                          | 12.2%(After Unitization)                                  |  |
| Partners                          | BP(37.2%)<br>CNOOC(13.9%)<br>LNG Japan (7.3%)             | MI Berau(16.3%)<br>KG Berau / KG Wiriagar (10.0%)<br>Talisman (3.1%) |
| Operator                          | BP  |  |
| Sales Volumes<br>(Jan.~Jun. 2014) | 19,200boed (oil 300b/d, gas 113.1mmcf/d)                  |  |

This is the second LNG project we have participated in, following the LNG Tiga project in Malaysia, and we are working to attain long-term and stable LNG production and revenue.

**Production**    Project during the production :  
Tangguh LNG Project

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



## Next Page

Oil and Natural Gas E&P Business

# Principal Individual E&P Project Overview (Australia①)

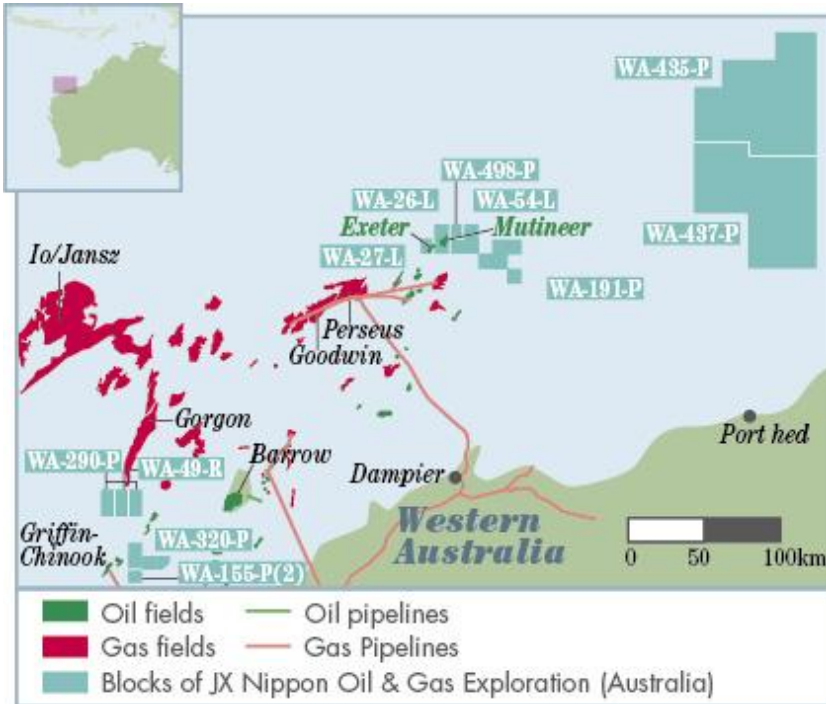


# Principal Individual E&P Project Overview (Australia①)

Australia

Production

Exploration



|                                   | Mutineer/Exeter Oil Field                           | Finucane South Oil Field Block WA-191-P |
|-----------------------------------|---|---|
| Company Holding the Acreages      | JX Nippon Oil & Gas Exploration (Australia) Pty Ltd |   |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration(100%)               |   |
| Project Status                    | Production  | Exploration/Production                  |
| Interest                          | 25.0%   | 25.0%                                   |
| Partners                          | Santos (37.5%)<br>Kufpec (37.5%)                    | Santos (37.4977%)<br>Kufpec (37.5023%)  |
| Operator                          | Santos  | Santos                                  |
| Sales Volumes (Jan. ~ Jun. 2014)  | 1,700 boed(Oil 1,700b/d)                            |   |

We are producing high-quality low-sulfur crude oil from Mutineer / Exeter oil fields. Revenue from the sales of the crude oil is used for new exploration activities within Australia and in May 2014, newly started production from Finucane South Oil Field.

Production

Exploration

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

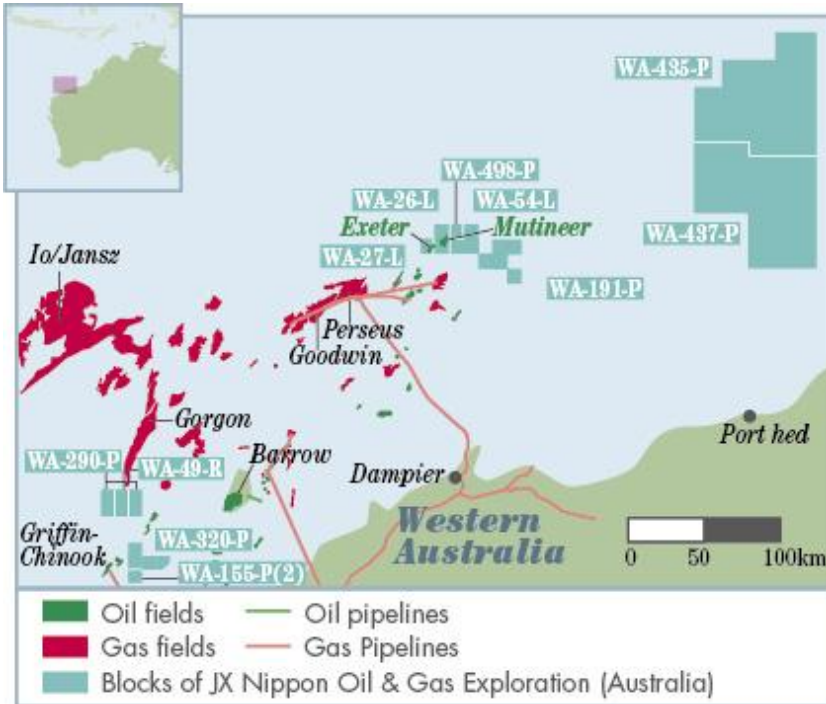


# Principal Individual E&P Project Overview (Australia②)

Australia

Production

Exploration



|                                   |  |   |   |
|-----------------------------------|--|---|---|
|                                   | WA-290-P<br>WA-49-R  | WA-435-P<br>WA-437-P                                  | WA-320-P  |
| Company Holding the Acreages      | JX Nippon Oil & Gas Exploration (Australia) Pty Ltd              |   |   |
| Shareholders(Holding Percentages) | JX Nippon Oil & Gas Exploration (100%)                           |   |   |
| Project Status                    | Exploration  | Exploration   | Exploration                                       |
| Interest                          | 15.0%  | 20.0%   | 10.0%   |
| Partners                          | Apache (30.25%)<br>Santos (24.75%)<br>OMV(20.00%)<br>Tap(10.00%) | Apache (40.0%)<br>Finder (20.0%)<br>Carnarvon (20.0%) | Apache (40.665%)<br>OMV (39.557%)<br>Tap (9.778%) |
| Operator                          | Apache   | Apache  | Apache  |

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



# Principal Individual E&P Project Overview (Australia③)

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

### Exploration

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

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

### Exploration

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

## Block WA-435-P,Block WA-437-P

### Exploration

- In October 2012, acquired working interests in Block WA-435-P and Block WA-437-P
- In August 2014, discovered oil in Block WA-435-P

## WA-498-P

### Exploration

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



## Next Page

Oil and Natural Gas E&P Business

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





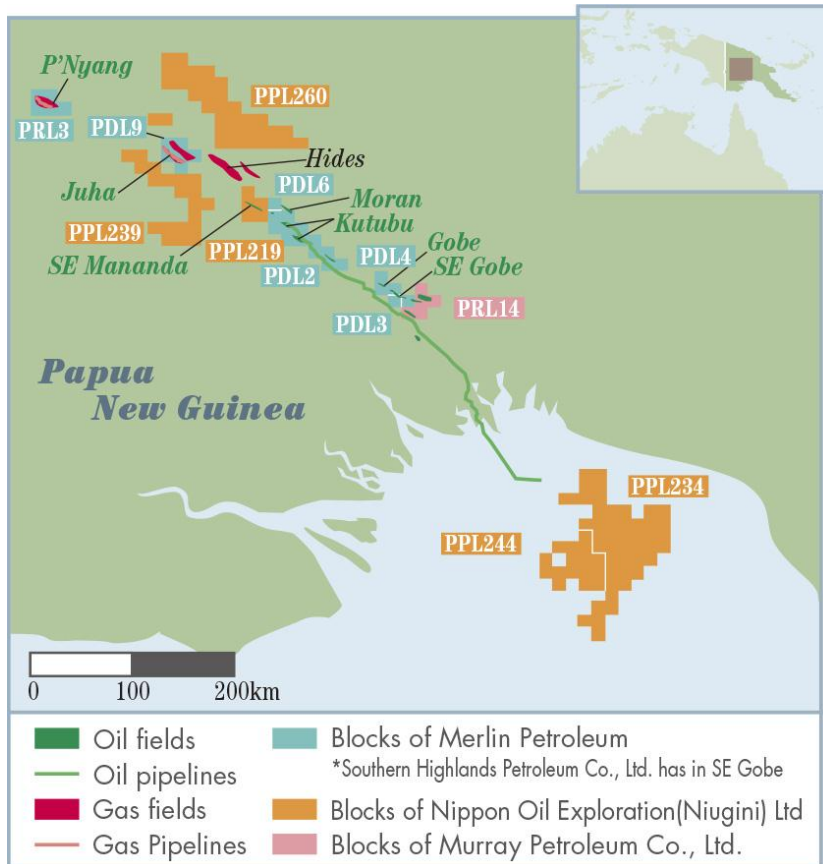
# Principal Individual E&P Project Overview (Papua New Guinea ①)

## Papua New Guinea

Production

Development

Exploration



|                               | Kutubu, Moran, Gobe oil fields, Others  | PNG LNG Project   |
|-------------------------------|---|---|
| Company Holding the Acreages  | Merlin Petroleum Company (79.0%)<br>Nippon Oil Exploration (Niugini) Pty LTD (29.8%)<br>Southern Higjland Petroleum (80.0%)<br>Murray Petroleum (29.3%) | Nippon Papua New Guinea LNG LLC (79.0%)   |
| Project Status                | Exploration / Development / Production  | Production  |
| Interest                      | 8.6%~73.5%  | 4.68%   |
| Partners                      | Oil Search<br>Santos<br>Talisman<br>Others<br>ExxonMobil  | ExxonMobil (33.20%)<br>Oil Search (29.00%)<br>Santos(13.53%)<br>PNG Government, Landowners (19.58%) |
| Operator                      | Oil Search, ExxonMobil, Others  | ExxonMobil  |
| Sales Volume (Jan.-Jun. 2014) | 5,600boed (oil 5,600b/d)  | 600 boed (gas 3.8mmcf/d)  |



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

## Kutubu, Moran, Gobe oil fields and others

### Production

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

### Exploration

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

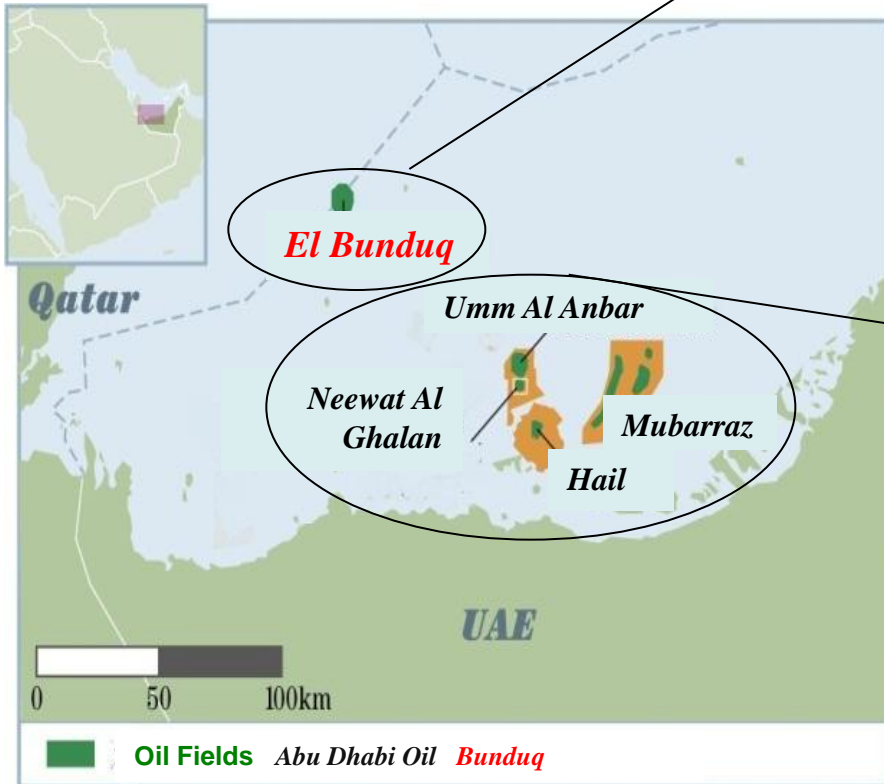
## PNG LNG Project

### Development

#### Project during the development PNG LNG Project

- We have been involved in PNG LNG Project since the beginning of the project. In December 2009, we made a Final Investment Decision on the Project, and the development work is in progress with the goal of starting shipments in 2014. PNG LNG Project has the full support of the PNG government, and we expect it to contribute to our revenues in the future.
- In December 2008, acquired the PNG LNG Project equity that AGL Energy owned.
  - In December 2009, PNG LNG Project was made a final investment decision to proceed with the development.
  - In May 2014, PNG LNG Project ships first LNG cargo.

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



|                              |   |
|------------------------------|---|
| Company Holding the Acreages | United Petroleum Development (Bunduq Company Limited)   |
| Partners                     | JX Nippon Oil & Gas Exploration (45.0%)<br>Cosmo Energy Exploration & Production Co., Ltd. (45.0%)<br>Mitsui Oil Exploration Co., Ltd (10.0%) |
| Project Status               | Exploration / Development / Production  |
| Interest                     | 97.0%   |
| Partners                     | BP (3%)   |
| Operator                     | Bunduq Company Limited  |

- 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.

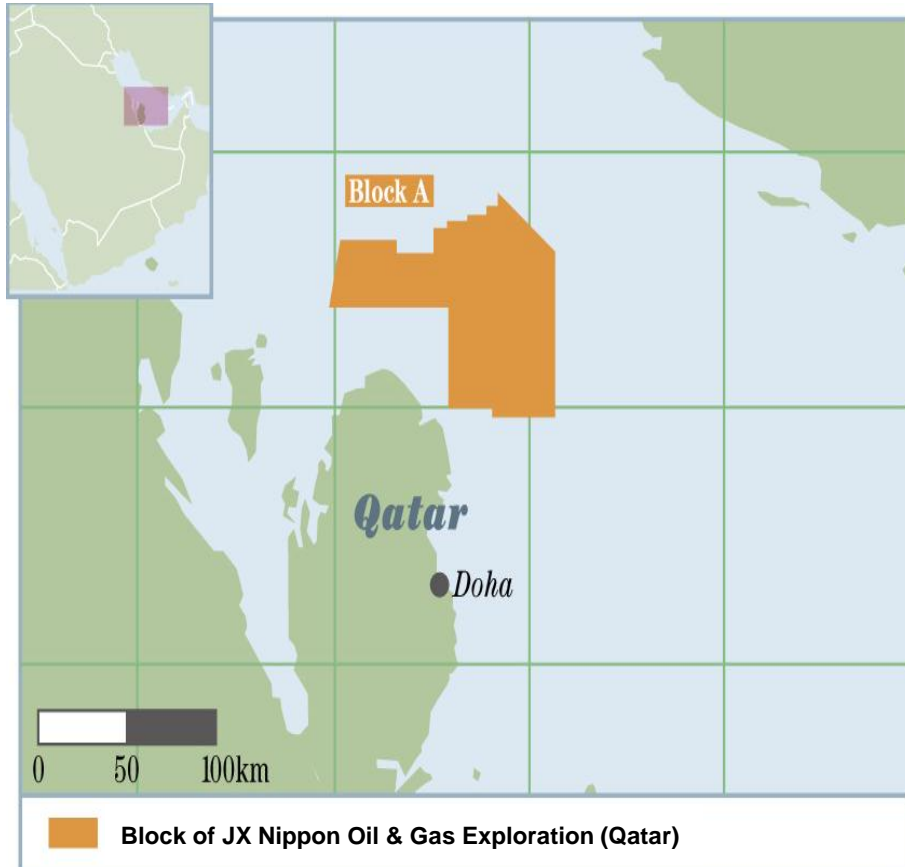
|                              |  |
|------------------------------|--|
| Company Holding the Acreages | Abu Dhabi Oil  |
| Partners                     | JX Nippon Oil & Gas Exploration (32.1%)<br>Cosmo Energy Exploration & Production Co., Ltd.(64.2%)<br>Chubu Electric Power Co., Inc.(1.9%)<br>Kansai Electric Power Co., Inc.(1.9%) |
| Project Status               | Exploration / Development / Production   |
| Interest                     | 100.0%   |
| Operator                     | Abu Dhabi Oil  |

- In 1967, acquired a working interest in block of Mubarraz.
- In 1973, oil production commenced in [Mubarraz Oil Field](#).
- In 1989, oil production commenced in [Umm Al Anbar Oil Field](#).
- In 1995, oil production commenced in [Neewat Al Ghalan Oil Field](#).
- In 2009, 3 fields achieved cumulative production volume of 300 million barrels.
- In 2011, Sign a New Concession Agreement.
- In 2012, Effectuation of New Concession Agreement.

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

Qatar

Exploration



## Project Company

JX Nippon Oil & Gas Exploration (Qatar) Limited (100%)  
(%) = JX Group Shareholding

## Interest in Individual Fields

100%

## Operator

JX Nippon Oil & Gas Exploration (Qatar) Limited

## Exploration

- In May 2011, acquired a working interest in [Block A](#) (Pre-Khuff), offshore Qatar .
- In March 2012, established interest in Block A (Pre-Khuff), offshore Qatar officially came into effect.
- In August 2014, began excavating test well No1.



# JX Group's Reserve Standards

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

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

## **Definition of Proved Reserves:**

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

## **Definition of Probable Reserves:**

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

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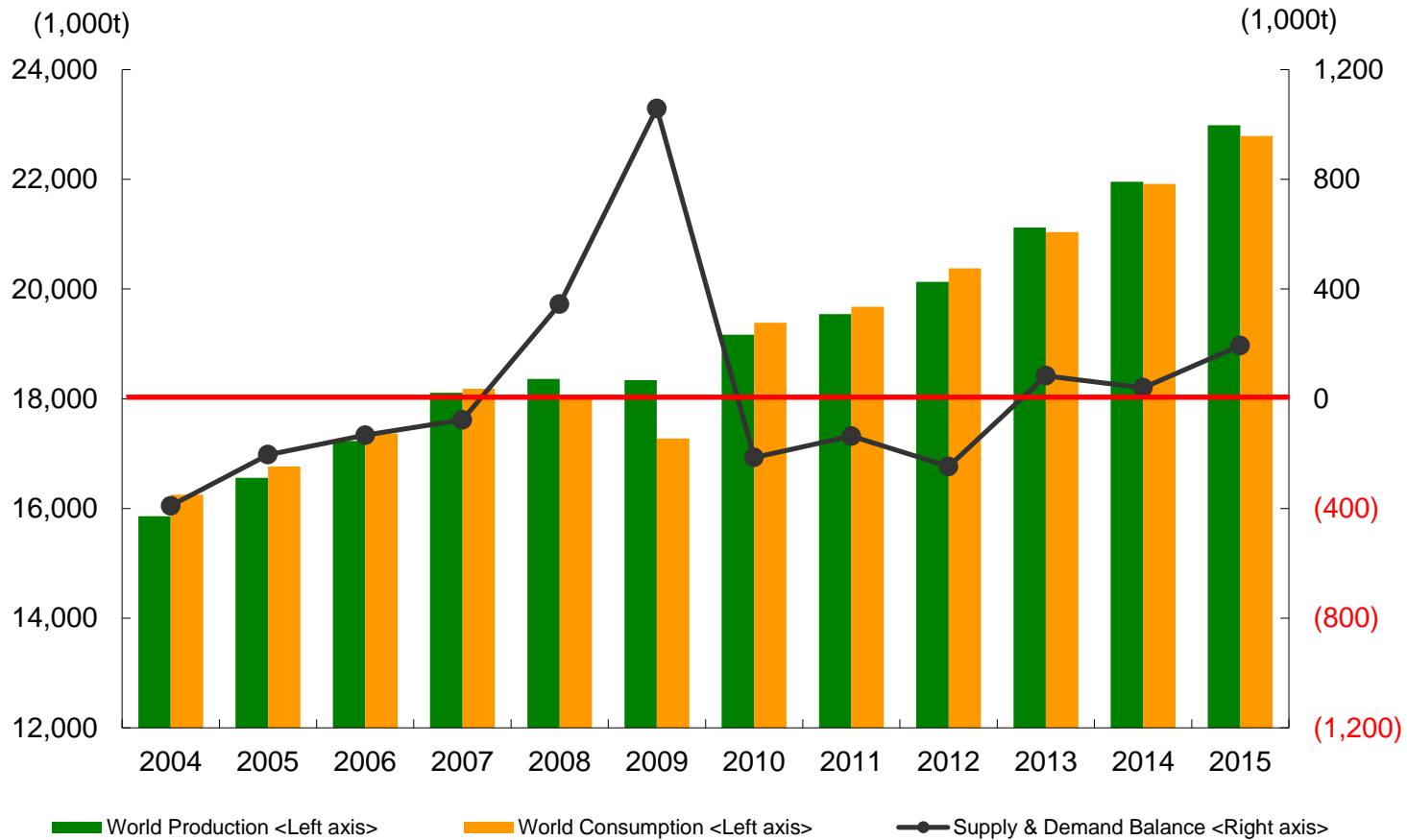
# Business Environment and Data - Metals Business -

# Copper Production of JX Group's Mines

| (Thousand Ton)    |                      | CY 2013<br>1 H       | CY 2013      | CY 2014<br>1 H |
|-------------------|----------------------|----------------------|--------------|----------------|
|                   |                      | Actual               | Actual       | Actual         |
| <b>Caserones</b>  | SX-EW copper cathode | 5                    | 16           | 10             |
|                   | <b>Los Pelambres</b> | Copper concentrate * | 204          | 405            |
| <b>Collahuasi</b> | Copper concentrate * | 137                  | 401          | 223            |
|                   | SX-EW copper cathode | 16                   | 28           | 10             |
|                   | <b>Total</b>         | <b>153</b>           | <b>429</b>   | <b>233</b>     |
| <b>Escondida</b>  | Copper concentrate * | 446                  | 859          | 427            |
|                   | SX-EW copper cathode | 155                  | 305          | 157            |
|                   | <b>Total</b>         | <b>601</b>           | <b>1,164</b> | <b>584</b>     |

\*Payable copper contained in concentrate

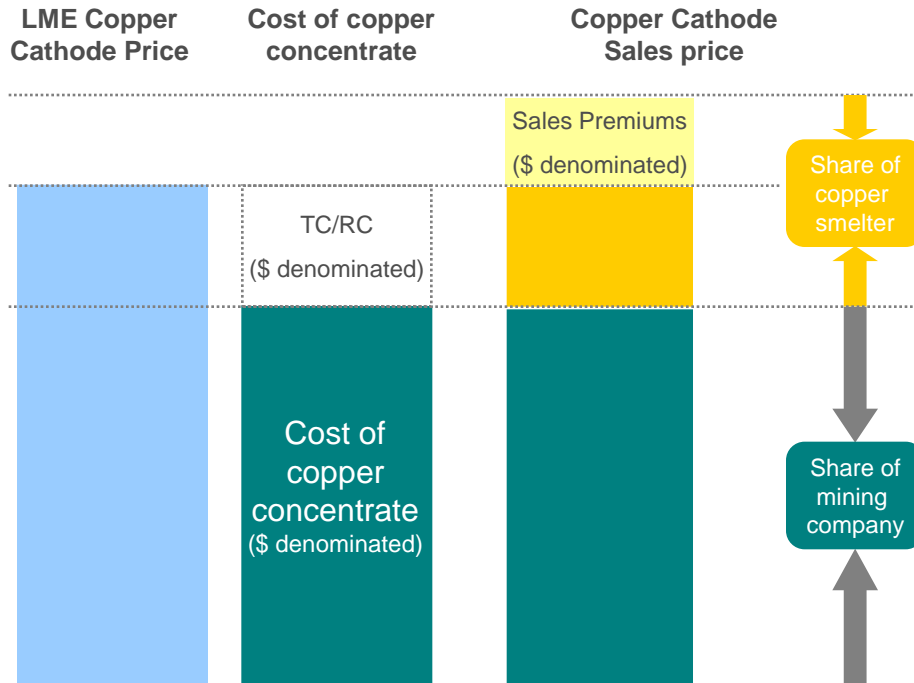
# World's Copper Cathodes Supply & Demand



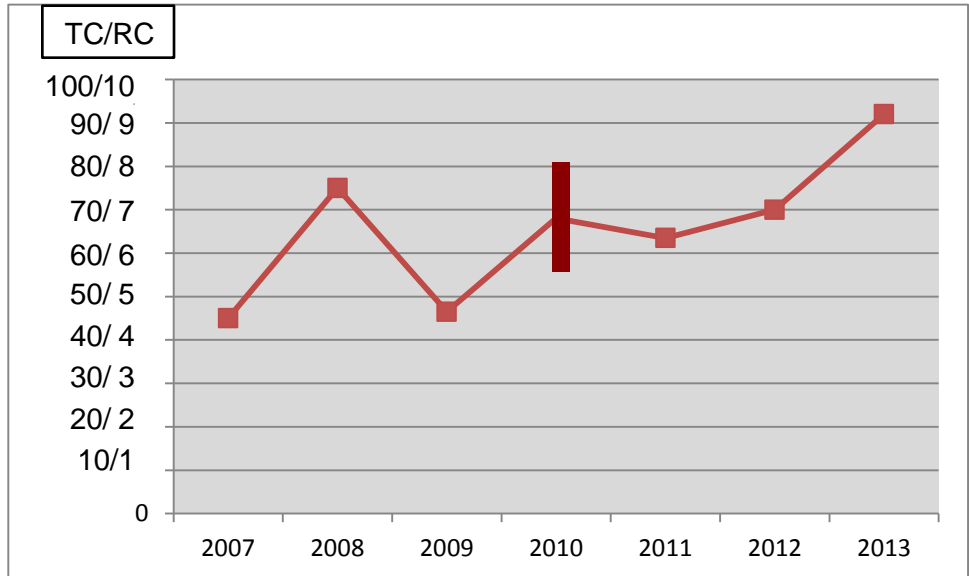


# Earnings Structure of Copper Smelting and Refining Business

## Earnings Structure of Copper Smelter & Refinery



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



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

### Cost of copper concentrate :

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

### Copper cathode sales price :

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

# 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 .

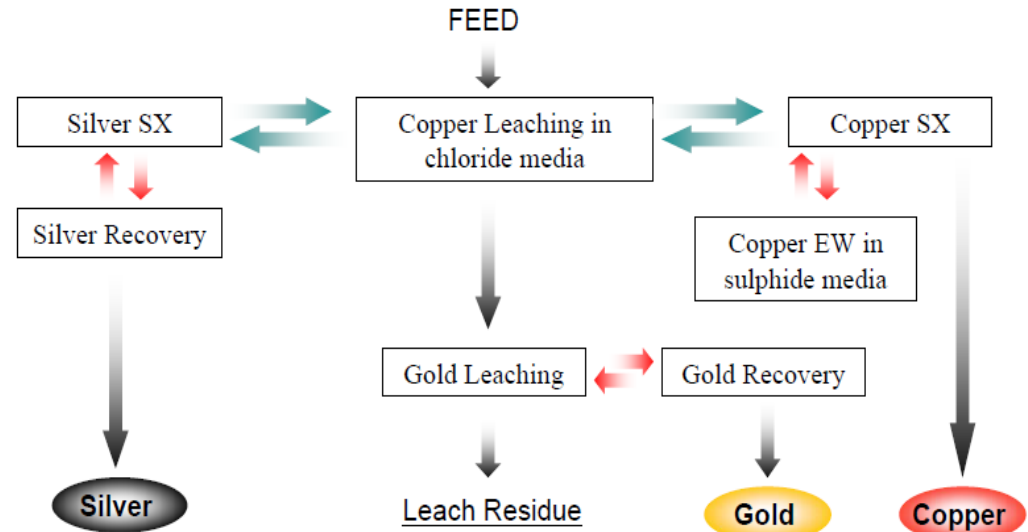
We constructed a pilot plant in Australia and had completed demonstration test FY2013, and we got a good result about copper and gold recovery.

We advance an effort to commercialize the process while searching the mines to apply the process.

Pilot plant in Perth, Australia (About 100t/year Cu recovery)



## Structure of N-Chlo Process



# Biomining



## Biomining

Biomining is a hydro-metallurgical method of extracting copper from copper ores in acidic condition accelerating the extraction by utilizing activity of microorganisms.

Low-grade primary copper sulfide ores have not been used enough as resources without economical recovery process. Biomining technology is mainly applicable to such ores and has great potential in future.

BioSigma S.A. was established in 2002 and started collaborative study of Biomining technology between JX Mining & Metals(33%) and CODELCO (67%).

Taking favorable results of the industrial test conducted at CODELCO's Radmido Tomic mine with low-grade primary copper sulfide ores, launch of commercial application of the technology to the mine was announced in August, 2014.

## Method of Biomining

| 【Type of Ore】         | 【Economical Process of Copper Recovery】  |   |
|-----------------------|--|---|
| Oxide Ore             | Hydro-metallurgical Process (SX-EW)<br>Leaching by sulfuric acid ~ Solvent extraction ~ Electrowinning   | Pyro-metallurgical Process (Smelter & Refinery)<br>Smelting ~ Electrorefining |
| Secondary Sulfide Ore |  |   |
| Primary Sulfide Ore   | Hydro-metallurgical Process (SX-EW) + Biomining technology<br>Leaching by sulfuric acid (added microorganisms) ~ Solvent extraction ~ Electrowinning |   |
| (Low-grade)           |  |   |

Existing

New

