

Note: The following report is an English translation of the Japanese-language original.

# Financial Results

## Fiscal Year Ended March 31, 2018

**May 14, 2018**

Japan Petroleum Exploration Co., Ltd.

# Cautionary Statement

This document contains future prospects such as plans, forecasts, strategies, and others which are not historical fact and these are made by the management's judgement based on the obtainable information at the time of the disclosure. Actual results may significantly differ from those future prospects due to various factors.

This document is not intended to invite investment.

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Note: Abbreviations used herein are as follows:

(a) = Actual results

(f) = Forecasts

FY = Fiscal Year (FY3/18, for instance, means 12 months ended March 31, 2018)

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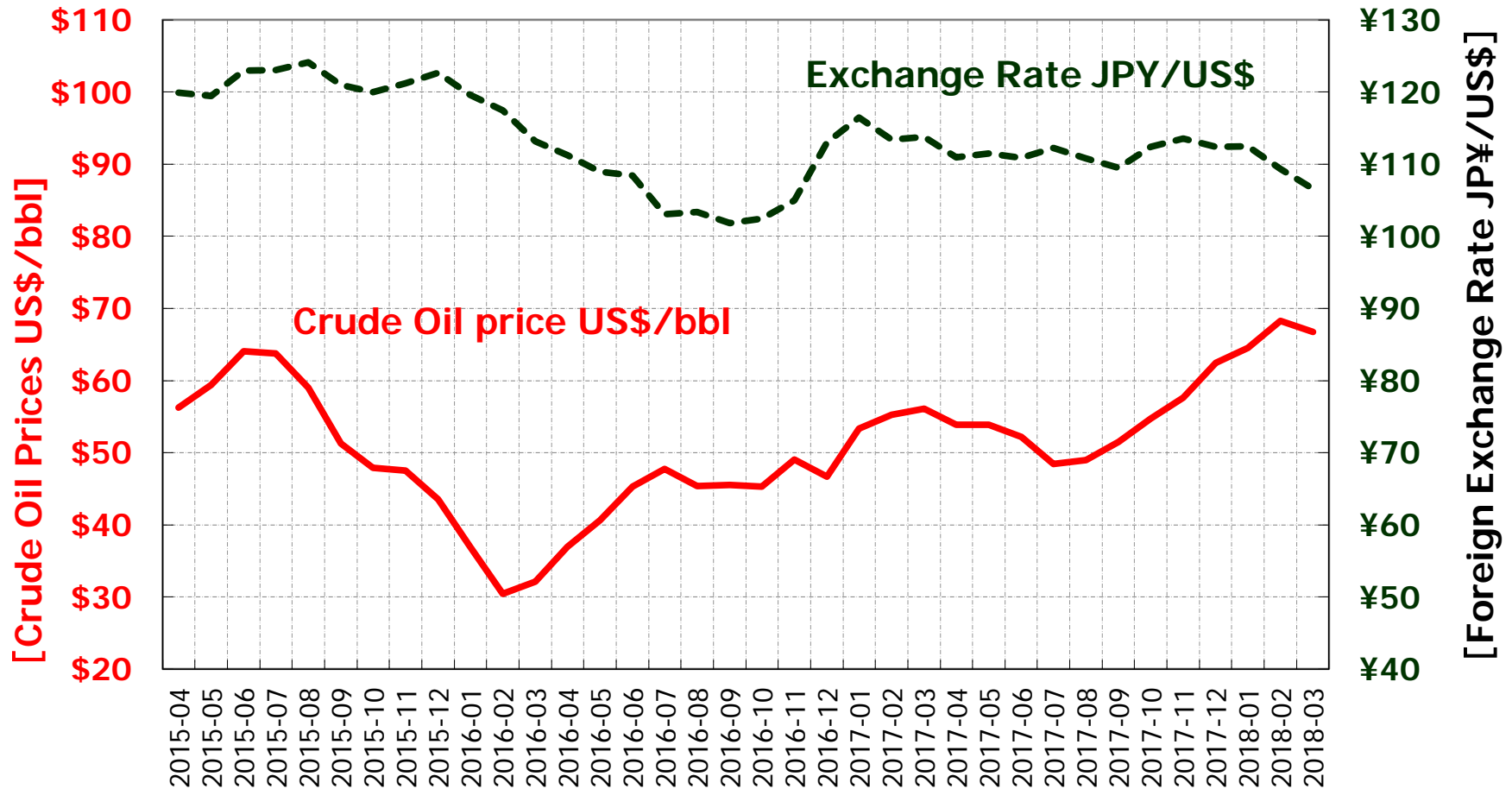
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**I . Financial Highlights,  
Long-Term Vision 2030  
and Mid-term Business Plan 2018-2022**

**Hideichi Okada  
President**

# Trends in Crude Oil Price and Foreign Exchange Rate



Japan crude cocktail (JCC) price in the first 10 days of April 2018 on a prompt report basis: **US\$66.01/bbl** **JPY105.68/US\$**

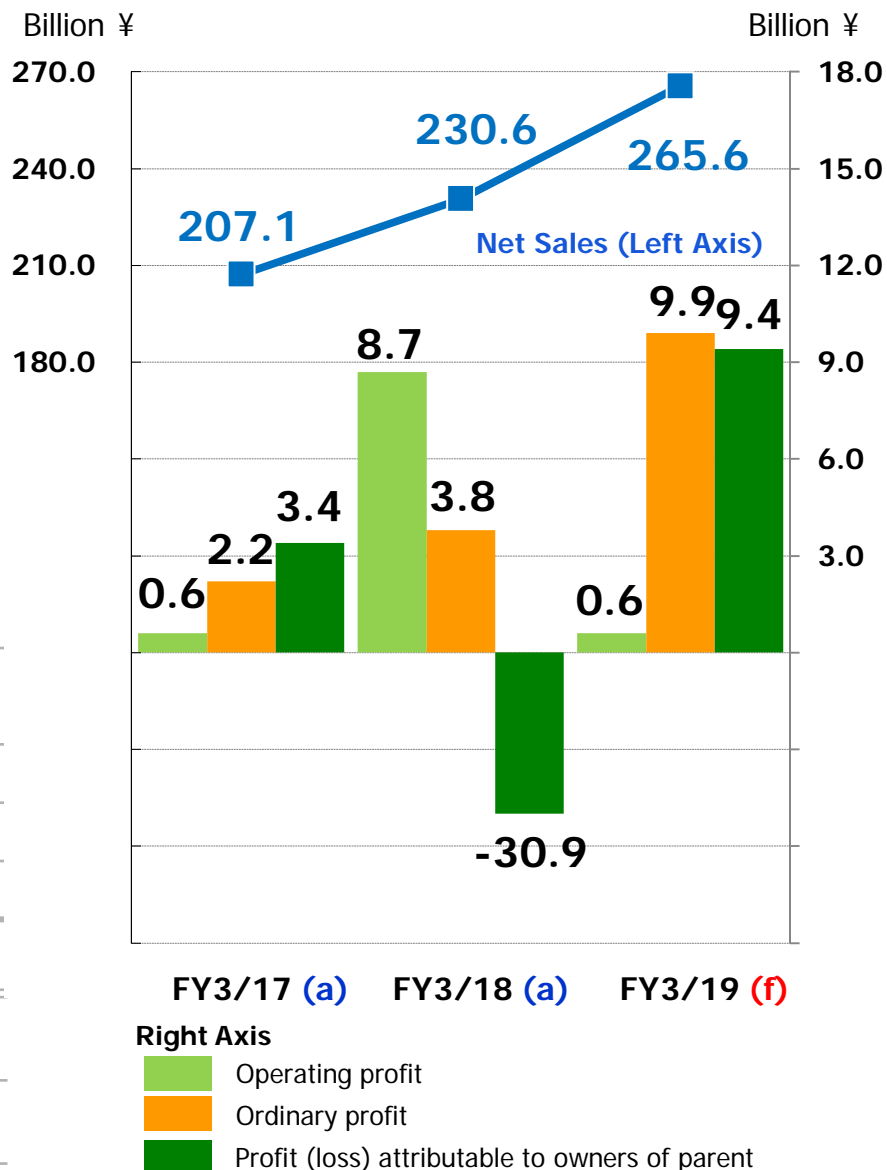
# Actual Results for FY3/18 and Forecasts for FY3/19

## Actual Results for FY3/18 (vs FY3/17)

Billion JPY	FY3/17 (a)	FY3/18 (a)	Change	
Net sales	207.1	230.6	+23.4	+11%
Operating profit	0.6	8.7	+8.0	- %
Ordinary profit	2.2	3.8	+1.6	+72%
Profit (loss) attributable to owners of parent	3.4	-30.9	-34.4	- %
JCC price (US\$/bbl)	45.60	56.20	+10.60	+23%
Exchange rate (JPY/US\$)	108.53	111.67	+3.14	+2%

## Forecasts for FY3/19 (vs FY3/18)

Billion JPY	FY3/18 (a)	FY3/19 (f)	Change	
Net sales	230.6	265.6	+35.0	+15%
Operating profit	8.7	0.6	-8.1	-92%
Ordinary profit	3.8	9.9	+6.1	+159%
Profit (loss) attributable to owners of parent	-30.9	9.4	+40.4	- %
JCC price (US\$/bbl)	56.20	60.00	+3.80	+6%
Exchange rate (JPY/US\$)	111.67	110.00	-1.67	-1%



# Background

## Current Status

Need to revise quantitative targets of Long-Term Business Vision and Medium-Term Business Plan (proved reserves, production volumes, natural gas handled volume) formulated in May 2015, due to deterioration in E&P\* business profit caused by low oil and gas prices and not proceeding the PNW LNG Project \*\*.

## Changes in Social Needs

It is necessary to redefine our social role based on changing social needs for the energy industry, including the United Nations 'The 2030 Agenda for Sustainable Development' and the Paris Agreement.

## Long-term Vision 2030 and Mid-term Business Plan

Newly formulated "Long-term Vision 2030 and Mid-term Business Plan 2018-2022". Realize sustainable energy supply by reforming business structure to respond to long-term social structural changes and improve profitability in the oil price range of US\$50-60/bbl.

(\*) E&P: Exploration & Production

(\*\*) Refer to "Pacific NorthWest LNG Project in British Columbia, Canada, Is Not Proceeding" released on July 26, 2017

# Corporate Vision

Contribute to society through stable supply of energy, and solve social issues to realize sustainable development agendas.

Explore, develop, produce and deliver oil and natural gas in Japan and overseas.

Further enhance natural gas supply chain, consisting of our domestic infrastructures, by power supply business.

Contribute to solve problems for sustainable society on energy and climate change, through development and commercialization of new technology utilizing our existing technology and expertise.

Trust with stakeholder as first priority  
Achieve sustainable growth and maximize corporate value

**E&P Business**

**Infrastructure  
Utility Business**

**New Business  
Development**



## What JAPEX Aims for by 2030

**Growth to the Integrated Energy  
Company Utilizing Oil and Gas E&P  
and its Supply Base**

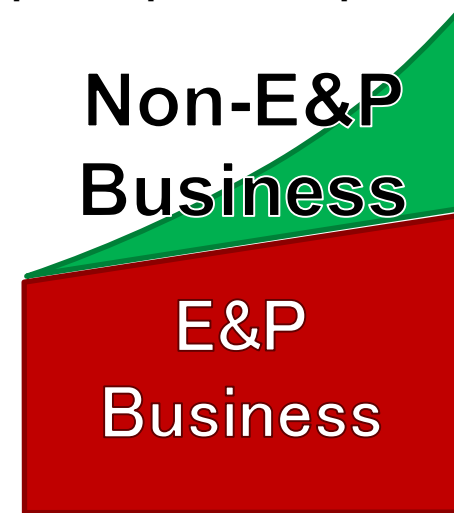
Meet the Local communities and clients' demands for stable oil and Gas supply as well as play an active role to solve global issues such as low-carbonization and decarbonization.

# Profit Composition

## Business portfolio that enables sustainable growth

- Global oil and gas demand in 2050 is considered as similar to the current level
- It is necessary to develop both E&P and non-E&P business for future uncertainty
- **By creating new environmentally-friendly businesses utilizing full use of our competence, JAPEX will transform our business structure and aim for the profit composition "6 : 4 of E&P to Non-E&P" in 2030**

[Corporate profit composition\*\*]



2030 Ratio

4  
:  
6

➤ Maintaining "RRR > 1" \*

- Infrastructure/Utility Business
- New Business Development

(\*) RRR : Reserve Replacement Ratio = Increase in reserves (during a certain period) ÷ Production volume

(\*\*) Operating profit + Equity method investment income/loss basis

# Social Agendas JAPEX Address

Focus on solving three social agendas of sustainable development goals (SDGs)\* leveraging oil and gas E&P and its supply base

Social  
Agendas

**7** AFFORDABLE AND  
CLEAN ENERGY



Stable supply to meet primary energy demand, for the needs of local communities and customers

**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



Contribute to the reconstruction of Fukushima prefecture and local communities through a robust supply base starting from the Soma LNG Terminal and the Fukushima Natural Gas Power Plant

**13** CLIMATE  
ACTION



Play an active role to solve global issues for low carbonization and decarbonization

Our  
Efforts

(\*) Sustainable Development Goals: Agenda adopted at UN Headquarters in September 2015. Toward realization of a sustainable society it consists of 17 goals to be achieved by 2030 and 169 targets

# Business Environment Surrounding JAPEX

Our Business Opportunities

Decarbonization  
ESG

CCS\*, \*\*  
Renewable Energy

Liberalization  
of Electricity  
and Gas Market

Power Supply  
Energy Service

Business  
Environment  
Surrounding  
JAPEX

Oil & Gas  
Price Trend

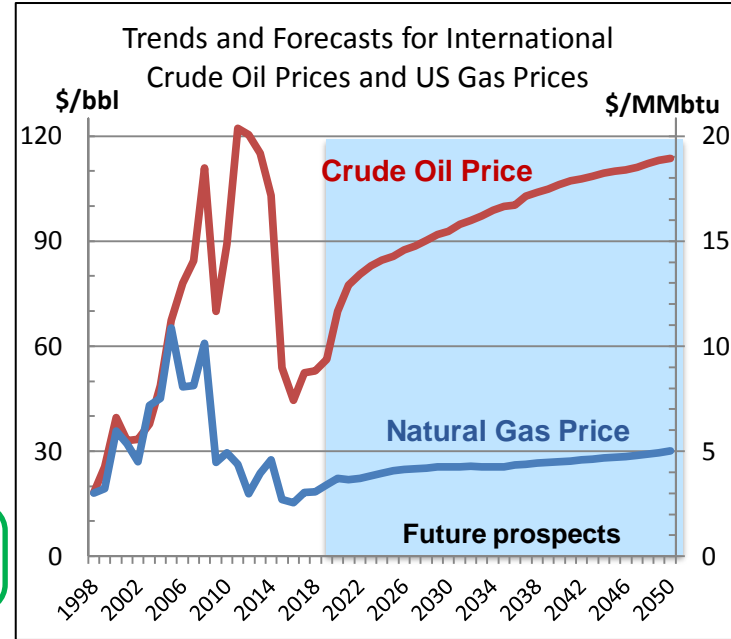
Oil & Gas continue to  
be the primary energy

Distributed  
Power Supply  
IoT·AI

Natural Gas -Fired Power  
Generation as Flexible Power  
Supply

Domestic  
Population  
Decline

Smart Community  
Compact City Business



Source: EIA

- Most predictions insist rise of oil and gas prices
- Current volatility is high



**Transformation to a business structure capable of sustainable growth is necessary on the premise of continuing the oil price of \$50-60/bbl**

(\* ) CCS: Carbon dioxide Capture and Storage

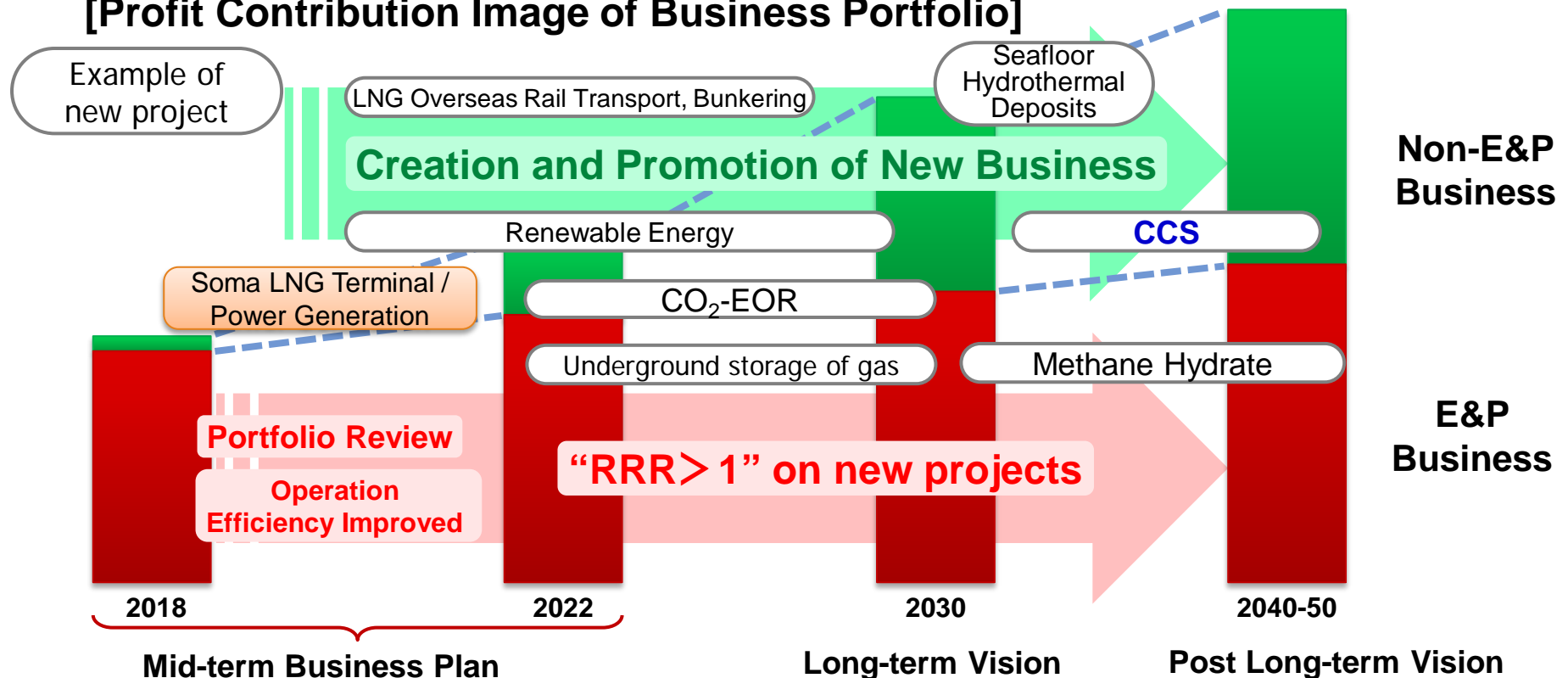
(\*\* ) There is also the concept of CCUS (Carbon dioxide Capture, Utilization and Storage) including the use of CO2

# Towards Integrated Energy Company

## Allocation of Management Resources to Realize the Target

- Secure funds for new investment under financial discipline “Debt/EBITDA\* < 2”
- **Allocate approximately half of new investment resources to non-E&P business in the medium to long term**

### [Profit Contribution Image of Business Portfolio]



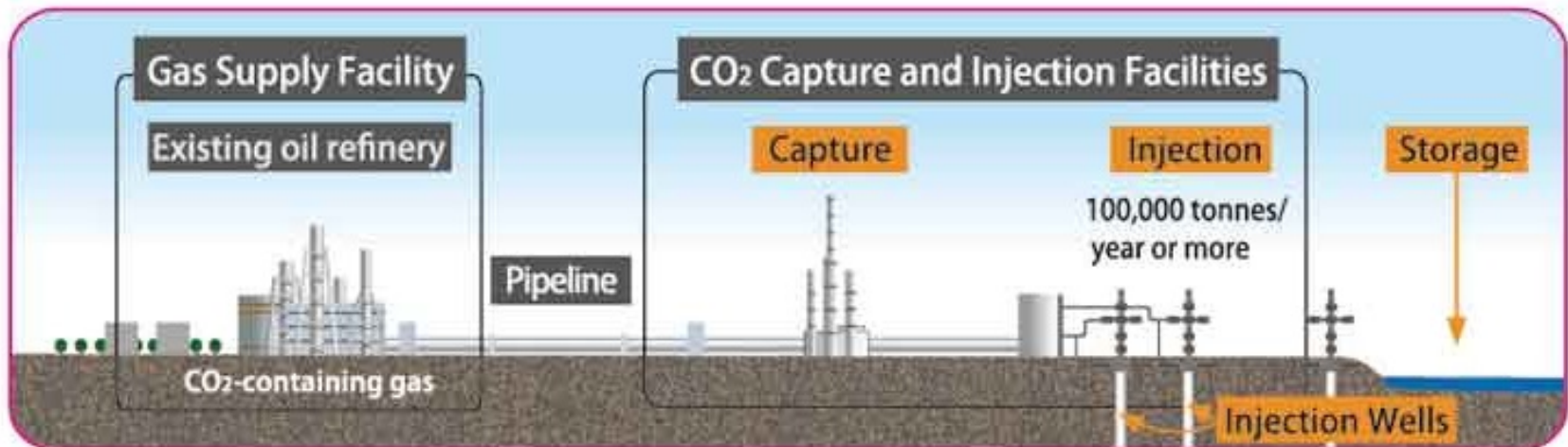
(\*) EBITDA: Earnings before Interest, Taxes, Depreciation and Amortization

## [Priority Business] CCS

- According to the International Energy Agency (IEA), **CCS is expected to contribute 14% of the total CO<sub>2</sub> reductions by 2060** in order to achieve the "2 °C target" of the Paris Agreement
- If CCS is commercialized, **there is the possibility of offsetting the substantial amount of CO<sub>2</sub> emitted at the time of combustion of oil and natural gas on the client side**, in addition to CO<sub>2</sub> emitted during our business process.

Through Japan CCS Co., Ltd., we utilize the E&P underground technology we have accumulated so far and are leading the project of pioneering CCS technology development that is gaining global attention.

- Achieved 150,000 ton cumulative injected CO<sub>2</sub> volume by large-scale CCS demonstration project at Tomakomai, Hokkaido. About 2,000 visitors per year. (as of March 31, 2018)



— Provided by Japan CCS Co., Ltd.

# ESG Efforts for Sustainable Growth

Relationship with  
SHINE\*

## Environment

- **Commercialization of CCS**
- Energy saving and diffusion of natural gas as a clean energy
- Create environmentally friendly new business

S

H

## Social

- Safety first priority
- Regional promotion through stable energy supply
- **Contribution to Fukushima reconstruction through Soma Project**
- Local production and local consumption of energy and disaster-resistant community planning

H

N

## Governance

- Diversity & inclusion
- Dialogue with stakeholders
- Disclosure of ESG information under international standards

I

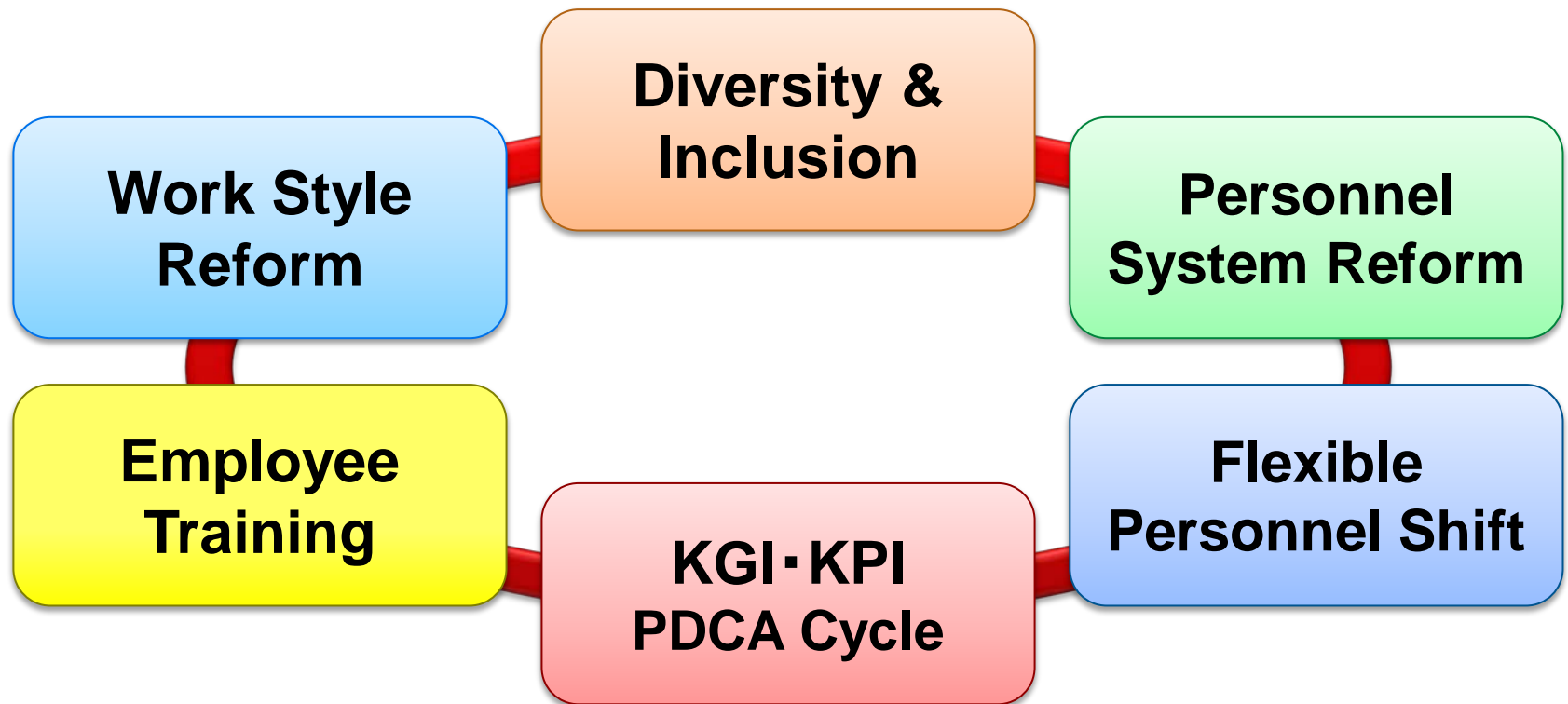
E

(\*) Five core CSR themes as “SHINE” initiatives

[S]: Stable and sustainable energy supply    [H]: HSE as our culture    [I]: Integrity and governance

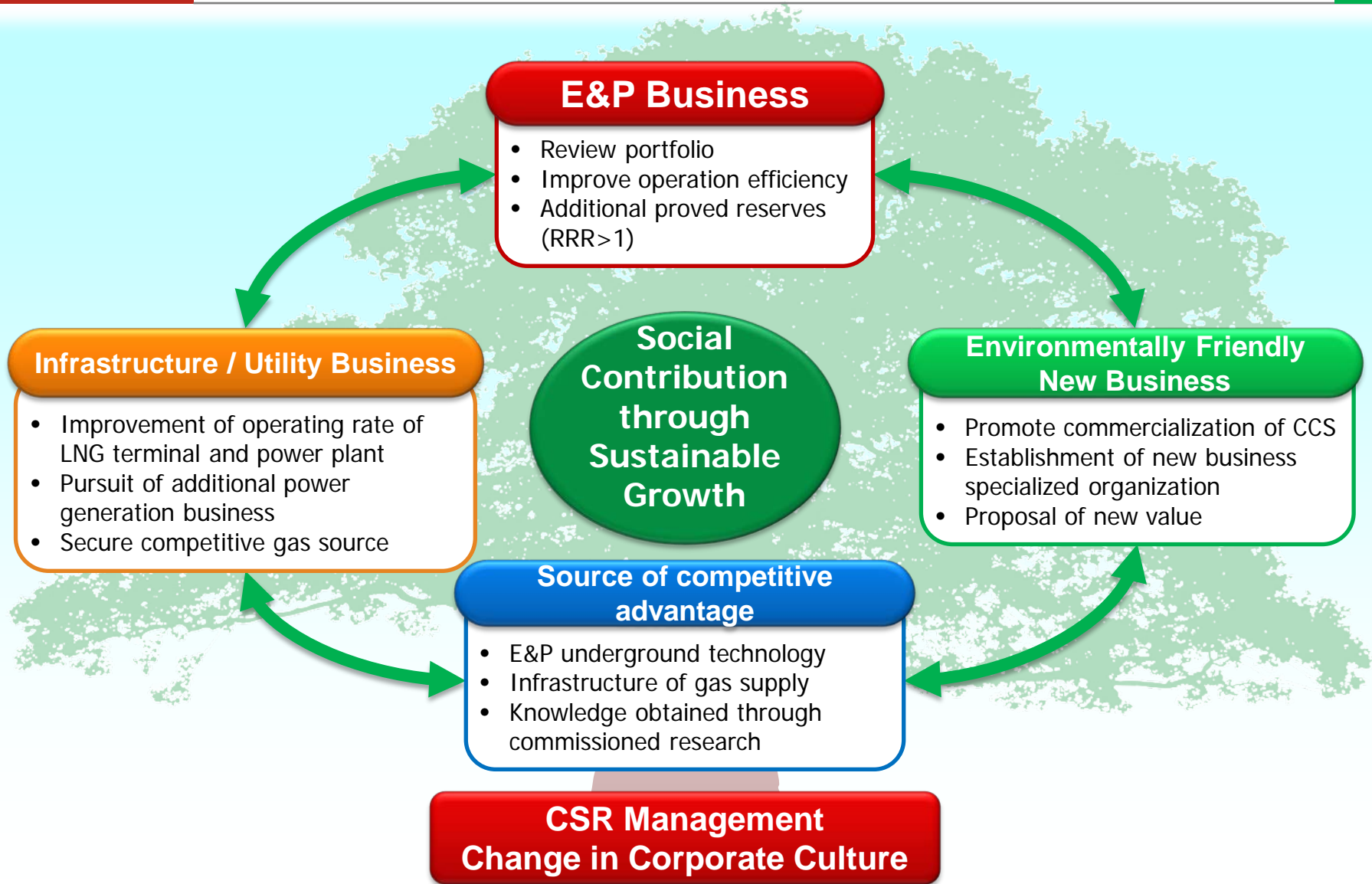
[N]: Being a good Neighbor    [E]: The Employer of choice

While aiming to increasing the creativity and challenging spirit of each of the executives and employees, JAPEX aim to transform into a company with abundant mobility and diversity.





# JAPEX's "Integrated Energy Company"



# Relationship Between Long-term Vision and Mid-term Business Plan

Social Contribution through  
Sustainable Growth

Achieve  
ROE=>5%

Long-term  
Vision

2040-2050

2030

2022

Mid-term  
Business Plan

2018

- Review portfolio
- Financial soundness
- Improve profitability of existing business

Pursuit of new business opportunities

Building a sustainable growth portfolio

Compliance of stable supply of energy and low carbon society

# Mid-Term Tactics and Targets

Achieve "ROE => 5%" level in 2022  
(crude oil prices US\$60/bbl)

Latter  
Half

- **Active Investment** 1 : 1 of E&P to Non-E&P (Investment allocation)

- **Secure Investment Resources**  
Own funds 30 to 60 billion yen + Reserve capacity of borrowing

Overseas

Domestic

First  
Half

- Improve profitability thoroughly of overseas existing E&P project
- Improve financial indicators including asset sales
  - Debt / EBITDA < 2



- Maximizing the value of domestic resources
- Sales expansion
  - Gas: 1.6 million ton
  - Power: 2.8 billion kWh
- Reduction of G&A expenses: 1 billion yen

## (1) E&P Business

**[Long-term Targets] Aim to achieve "RRR > 1"\***

### Overseas E&P

- Maximize the value of existing projects / contribution to earnings
- Appropriate portfolio including asset sales
- Discover new investment opportunities

### Domestic E&P

- Maximize production rate / Additional development
- Maintenance and improvement of field operation capability and operation efficiency
- Promote offshore exploration based on national research

### Compatibility of E&P business and low-carbon society

Acceleration of CCS efforts utilizing E&P technology

Establishment of investment evaluation standard taking account of climate change response\*

(\* ) Considering introducing internal carbon pricing (Risk management system that quantitatively evaluates the impact of carbon emissions in current or future business activities)

## (2) Infrastructure & Utility Business

### [2022 Target]

- **Domestic natural gas sales volume: 1.6 million ton**  
(Including LNG for power generation)
- **Electricity sales volume: 2.8 billion kWh**  
(Equivalent to the annual electricity consumption of about 930,000 households in general households)

#### Domestic gas supply business

- Promote natural gas use as clean energy
- Construct robust supply base by adding gas underground storage to the network Soma LNG Terminal and gas pipeline
- Secure stable supply by domestically produced gas and diversification LNG procurement source

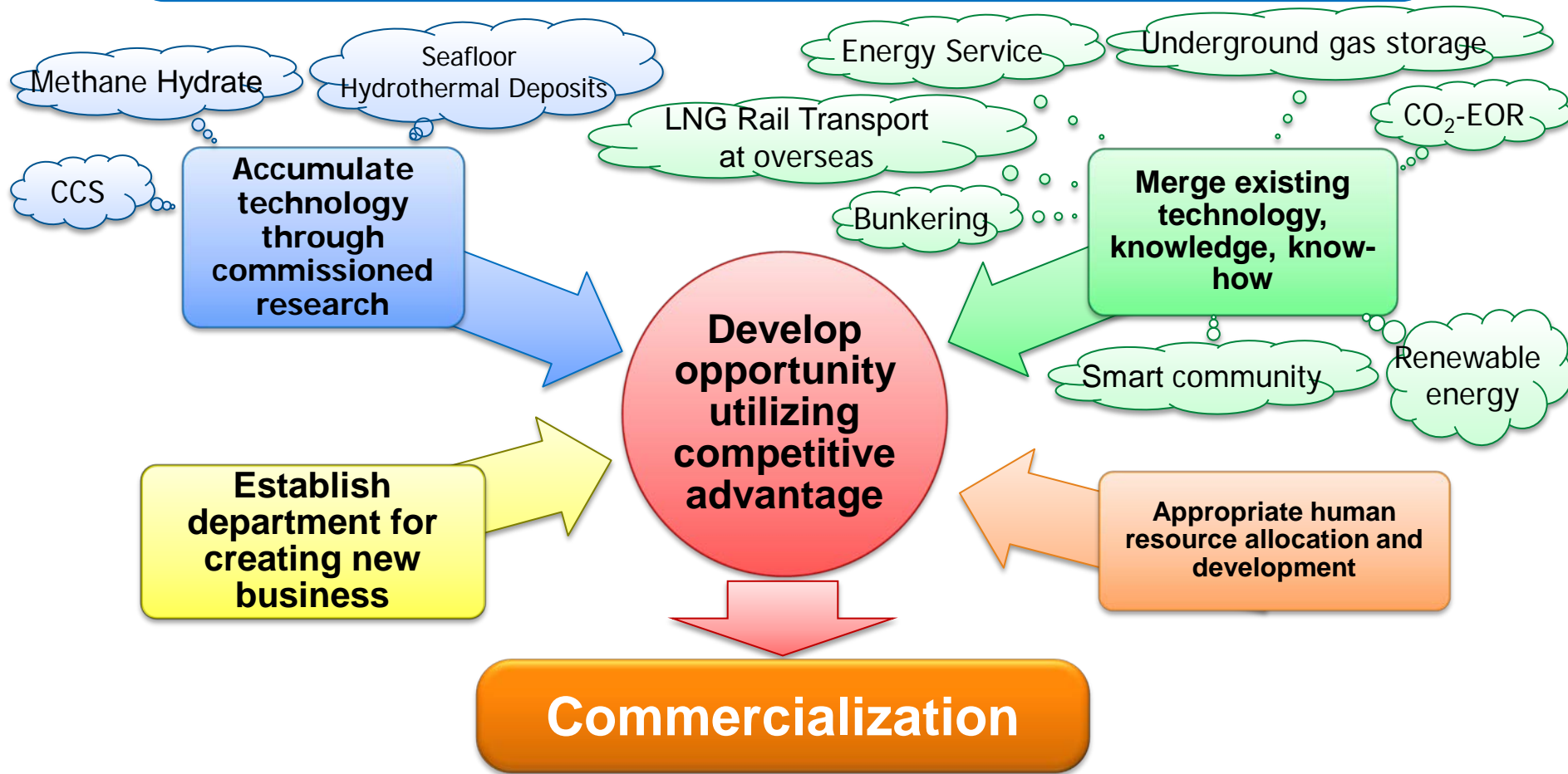
#### Power generation/ Electricity sales

- Establish electric power business structure through the Fukushima Natural Gas Power Plant\* and improvement of operating rate
- Pursuit of renewable energy development

(\*).Owned by Fukushima Gas Power Co., Ltd. (JAPEX investment ratio 33%)

### (3) New Business Development

**[Target]** Commercialization by "new business model" utilizing the competitive advantage of JAPEX

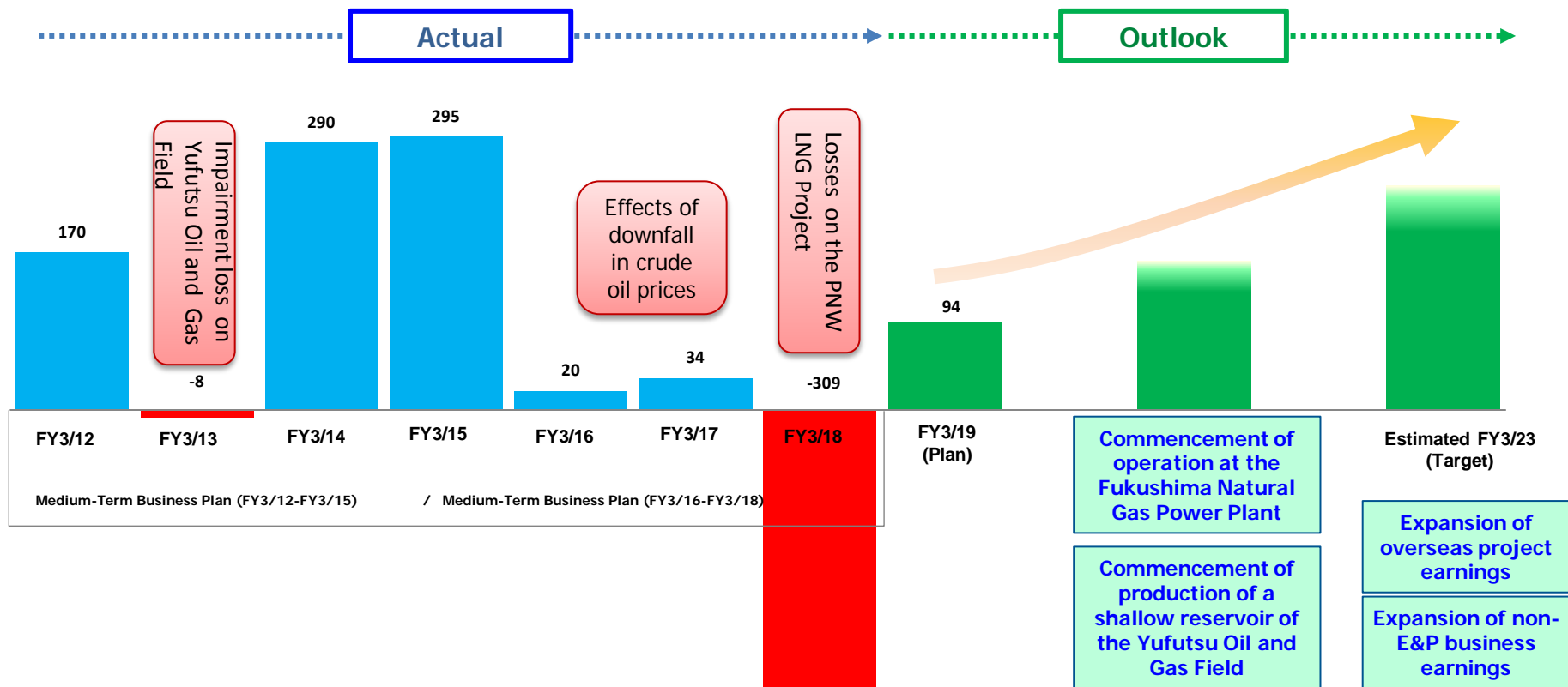


# Profit Target and Return to Shareholders

## Profit Target and Return to Shareholders for Medium Term Business Plan Period

- JAPEX is aiming to **achieve "ROE => 5%"** as the minimum profit target corresponding to our business size under the oil price of US\$60/bbl around FY2022.
- JAPEX will firmly maintain its policy for long-term and stable dividends to shareholders.

### 【Transition of Profit attributable to owners of parent (100M Yen)】

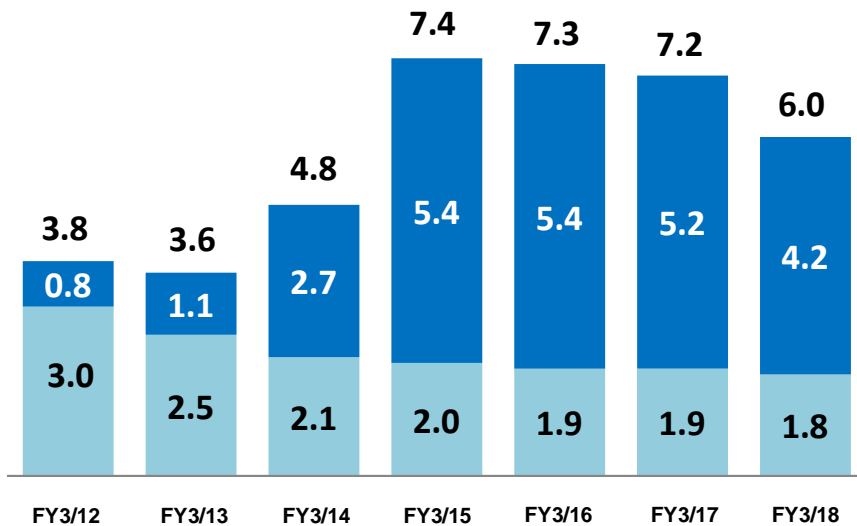


# Transition of Production Volume and Proved Reserves

- Both production volume and proved reserves decreased due to development delay of overseas projects and re-evaluation due to the decision of not to proceed the PNW LNG Project
- For the time being, we will aim to **achieve long-term "RRR > 1" by compensating proved reserves with high profitability** without setting production volume and proved reserves target.

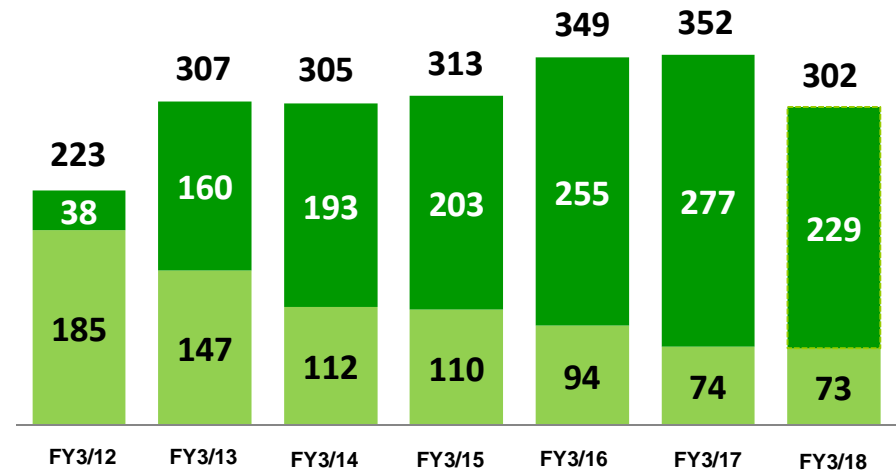
Production volume (10 thousands BOED)

Domestic Overseas



Proved reserves (MMBOE)

Domestic Overseas





## **Ⅱ . Actual Results for the FY3/18**

**Michiro Yamashita**  
**Managing Executive Officer**

## Actual Results for FY3/18 (Summary)

Billion JPY	FY3/17 (a)	FY3/18				(a)
		Initial Forecasts (f) (May 12, 2017)	Revised Forecasts (f) (Aug.8, 2017)	Revised Forecasts (f) (Feb.9, 2018)		
Net sales	207.1	214.8	211.0	230.5	230.6	
Operating profit	0.6	2.9	4.4	6.7	8.7	
Ordinary profit	2.2	5.4	-0.9	5.4	3.8	
Profit (loss) attributable to owners of parent	3.4	5.5	1.2	-28.4	-30.9	
<b>Assumptions</b>						
JCC price (US\$/bbl)	45.60	50.00	51.27	53.60	56.20	
Exchange rate (JPY/US\$)	108.53	110.00	110.62	111.30	111.67	

◆ Initial Forecasts (May 2017) → Revised Forecasts (August 2017) → Revised Forecasts (February 2018)

【+】Increase in sales price and volume, Fluctuation in foreign currency exchange gains/losses

【-】Losses on the Pacific NorthWest LNG Project (the PNW LNG Project), Losses on the Oil Sands Project at Hangingstone DEMO area, Impairment loss on the Shale Gas Project in Canada

◆ Revised Forecasts (February 2018) → Second Revision (April 2018) and Actual Result (May 2018)

【+】Increase in sales price, Increase in sales volume of domestic crude oil

【-】Share of loss of entities accounted for using equity method, related to Japan Drilling Co., Ltd.

# Natural Gas sales for FY3/18 (year-on-year)

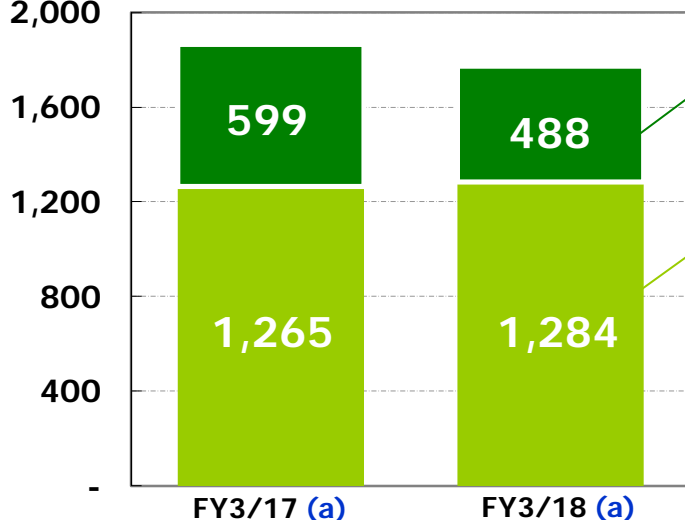
Sales volume : Million M3		FY3/17	FY3/18	Change
Net sales : Million JPY		Full (a)	Full (a)	Full
Natural gas	Sales volume	1,864	1,773	-91
	Net sales	55,329	60,431	+5,101

Increase in sales price

## Breakdown

Domestic gas	Sales volume	1,265	1,284	+19
(Domestically produced gas)	Sales volume	(744)	(739)	(-5)
Overseas gas	Sales volume	599	488	-111

(Million M3) 2,000



Sales volume of overseas gas

Decrease in shale gas sales volume in Canada

Sales volume of domestic gas

Increase in sales volume due to severe winter

Sales volume of "Overseas gas" stated herein are amounts of Japex (U.S.) Corp. and JAPEX Montney Ltd., overseas consolidated subsidiaries.

## Crude Oil sales for FY3/18 (year-on-year)

Sales volume : Thousand KL Net sales : Million JPY		FY3/17 Full (a)	FY3/18 Full (a)	Change Full
Crude oil	Sales volume	2,762	2,506	-255
	Net sales	82,098	93,685	+11,587

Increase in sales price

## Breakdown

Domestic crude oil (*)	Sales volume	301	291	-10
	Net sales	10,273	12,265	+1,991
Overseas crude oil (**)	Sales volume	1,181	991	-189
	Net sales	28,653	33,749	+5,095
Bitumen (***)	Sales volume	91	—	-91
	Net sales	669	—	-669
Diluted bitumen (****)	Sales volume	—	160	+160
	Net sales	—	4,512	+4,512

Increase in crude oil sales volume from Garraf Oil Field, Iraq.

Not to re-start SAGD operations at the Hangingstone DEMO area

Commencement of production operations at the Hangingstone Joint Venture area

## Assumptions

JCC price	US\$/bbl	45.60	56.20	+10.60
Bitumen (***)	US\$/bbl	9.94	—	—
Diluted bitumen price (****)	US\$/bbl	—	39.63	—
Exchange rate	JPY / US\$	108.53	111.67	+3.14

(\*) Sales volume and net sales of "Domestic crude oil" stated herein do not include purchased crude oil.

(\*\*) Sales volume and net sales of "Overseas crude oil" stated herein are amounts of 3 overseas subsidiaries (Japex (U.S.) Corp., JAPEX Montney Ltd. and Japex Garraf Ltd.).

(\*\*\*), (\*\*\*\*) Royalty is excluded in the net sales and price of bitumen and diluted bitumen.

## Actual Results for FY3/18 (year-on-year)

Million JPY	FY3/17 (a)	FY3/18 (a)	Change
Net sales	207,130	230,629	+23,499
Gross profit	32,172	39,263	+7,090
Exploration expenses	1,512	1,324	-188
SG&A expenses	29,975	29,173	-801
Operating profit (loss)	685	8,764	+8,079
Non-operating income (expenses)	1,537	-4,936	-6,473
Ordinary profit (loss)	2,222	3,828	+1,606
Extraordinary income (losses)	970	-73,231	-74,202
Income taxes	1,642	239	-1,402
Profit (loss) attributable to non-controlling interests	-1,892	-38,683	-36,791
Profit (loss) attributable to owners of parent	3,443	-30,958	-34,401

## Main factors for change

Increase factor (+) / Decreasing factor (-)

**Gross profit**

Domestic crude oil and natural gas + ¥3.9 billion  
 Overseas consolidated subsidiaries + ¥3.3 billion

**Non-operating income (expenses)**

Equity in earnings + ¥1.6 billion  
 (FY3/17) Loss of ¥4.2 billion → (FY3/18) Loss of ¥2.6 billion

Foreign currency translation adjustments on debt,  
 foreign currency exchange gains and losses  
 (FY3/17) Profit of ¥3.4 billion → (FY3/18) Profit of ¥2.7 billion  
 - ¥ 0.7 billion

Depreciation expenses related to the Hangingstone  
 DEMO area - ¥ 7.8 billion

**Extraordinary losses**

Loss on the PNW LNG Project  
 Contract cancellation loss due to termination of pipeline  
 construction plan - ¥ 5.4 billion

Impairment loss due to the revision to the development plan  
 of the shale gas project - ¥ 67.4 billion

## **Ⅲ. Forecasts for the FY3/19**

**Managing Executive Officer  
Michiro Yamashita**

# Full Year Forecasts for FY3/19

## [Assumptions for Crude Oil Price and Exchange Rate]

		Upper: from January 2017 to March 2018. Lower: from January 2018 to March 2019.					Full year	
		Jan.-Mar.	Apr.-Jun.	Jul.-Sep.	Oct.-Dec.	Jan.-Mar.		
JCC price	US\$/bbl	2017(a)		<b>54.63</b>	<b>49.88</b>	<b>54.49</b>	<b>64.89</b>	<b>56.20</b>
		2018(f)		<b>60.00</b>	<b>60.00</b>	<b>60.00</b>	<b>60.00</b>	<b>60.00</b>
Exchange rate	JPY/US\$	2017(a)		<b>112.12</b>	<b>111.38</b>	<b>111.77</b>	<b>111.39</b>	<b>111.67</b>
		2018(f)		<b>110.00</b>	<b>110.00</b>	<b>110.00</b>	<b>110.00</b>	<b>110.00</b>
JACOS Diluted bitumen	US\$/bbl	2017(a)	-	-	<b>36.79</b>	<b>39.76</b>		<b>39.63</b>
		2018(f)	<b>35.50</b>	<b>36.95</b>	<b>37.23</b>	<b>37.26</b>		<b>36.79</b>
JML gas	C\$/mcf	2017(a)	<b>2.71</b>	<b>2.67</b>	<b>1.37</b>	<b>1.29</b>		<b>2.07</b>
		2018(f)	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>		<b>2.00</b>

1. "JACOS Diluted bitumen" stated herein is the diluted bitumen sales price of Japan Canada Oil Sands Ltd. (Royalty excluded) Production operation at the "Hangingstone expansion area" commenced in the middle of 2017.
2. "JML gas" stated herein is the gas sales price of JAPEX Montney Ltd. (Royalty excluded)

# Natural Gas Sales Forecasts for FY3/19

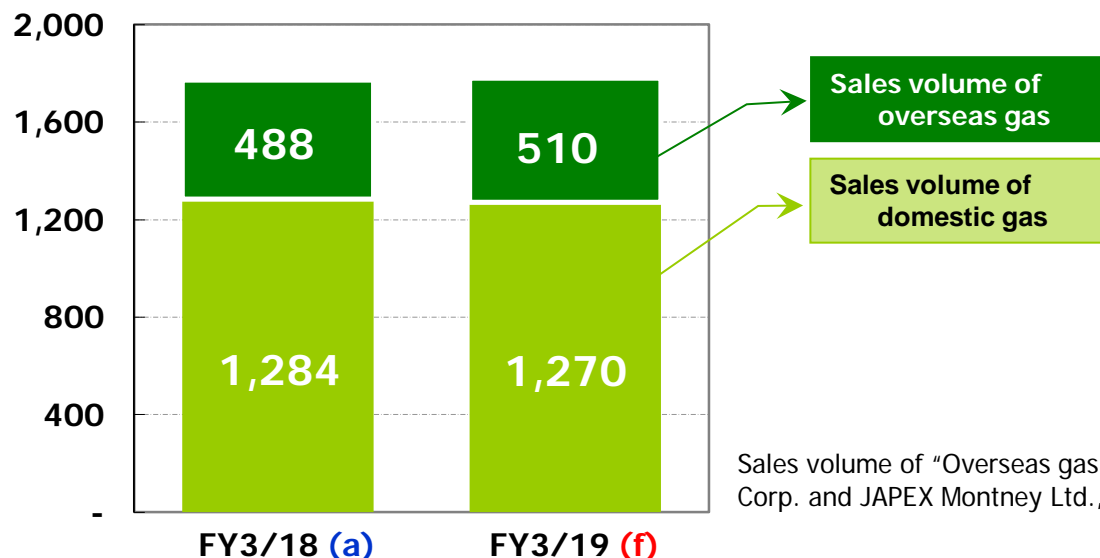
Sales volume : Million M3 Net sales : Million JPY		FY3/18 Full (a)	FY3/19 Full (f)	Change Full
Natural gas :	Sales volume	1,773	1,780	+7
	Net sales	60,431	64,102	+3,670

Increase in selling price

## Breakdown

Domestic gas	Sales volume	1,284	1,270	-14
(Domestically produced gas)	Sales volume	(739)	(666)	(-73)
Overseas gas	Sales volume	488	510	+21

(Million M3)



Sales volume of overseas gas

Increase in shale gas sales volume in Canada

Sales volume of domestic gas

Decrease from the increase in sales volume due to severe winter in the previous term

Sales volume of "Overseas gas" stated herein are amounts of Japex (U.S.) Corp. and JAPEX Montney Ltd., overseas consolidated subsidiaries.



# Crude Oil Sales Forecasts for FY3/19

Sales volume : Thousand KL Net sales : Million JPY		FY3/18	FY3/19	Change
		Full (a)	Full (f)	Full
<b>Crude oil</b>	Sales volume	2,506	3,368	+861
	Net sales	93,685	119,835	+26,149

Increase in sales price

## Breakdown

<b>Domestic crude oil (*)</b>	Sales volume	291	265	-27
	Net sales	12,265	11,622	-643
<b>Overseas crude oil (**)</b>	Sales volume	991	851	-141
	Net sales	33,749	32,894	-855
<b>Diluted bitumen (***)</b>	Sales volume	160	1,197	+1,037
	Net sales	4,512	30,472	+25,960

Decrease in crude oil sales volume from Garraf Oil Field, Iraq.

Increase in sales volume due to the commencement of full year production operation at the Hangingstone Expansion Project in Canada.

## Assumptions

<b>JCC price</b>	US\$/bbl	56.20	60.00	+3.80
<b>Diluted bitumen (***)</b>	US\$/bbl	39.63	36.79	-2.84
<b>Exchange rate</b>	JPY /US\$	111.67	110.00	-1.67

(\*) Sales volume and net sales of "Domestic crude oil" stated herein do not include purchased crude oil

(\*\*) Sales volume and net sales of "Overseas crude oil" stated herein are amounts of 3 overseas subsidiaries (Japex (U.S.) Corp., JAPEX Montney Ltd. and Japex Garraf Ltd.)

(\*\*\*) Royalty is excluded in the net sales and price of diluted bitumen

# Forecasts for FY3/19

Million JPY	FY3/18	FY3/19	Change
	(a)	(f)	
Net sales	230,629	265,649	+35,019
Gross profit	39,263	32,951	-6,312
Exploration expenses	1,324	1,073	-252
SG&A expenses	29,173	31,234	+2,060
Operating profit (loss)	8,764	644	-8,121
Non-operating income (expenses)	-4,936	9,303	+14,240
Ordinary profit (loss)	3,828	9,947	+6,119
Extraordinary income (losses)	-73,231	632	+73,864
Income taxes	239	1,495	+1,256
Profit (loss) attributable to non-controlling interests	-38,683	-403	+38,280
Profit (loss) attributable to owners of parent	-30,958	9,487	+40,446

## Main factors for change

Increase factor (+) / Decreasing factor (-)

### Gross profit

Domestic crude oil and natural gas - ¥1.5 billion  
 Overseas consolidated subsidiaries + ¥2.0 billion  
 Operating cost in the Soma LNG Terminal - ¥0.6 billion

### SG&A expenses

Reduction of G&A expenses of JAPEX (Non-consolidated)  
 + ¥0.7 billion  
 Increase in transportation cost because of the all year  
 production operation at the Hangingstone Expansion  
 Project in Canada - ¥2.5 billion

### Non-operating income (expenses)

Equity in earnings + ¥8.9 billion  
 (FY3/18) Loss of ¥2.6 billion → (FY3/19) Profit of ¥6.3 billion  
 Foreign currency translation adjustments on debt,  
 foreign currency exchange gains and losses  
 (FY3/18) Profit of ¥2.7 billion → (FY3/19) Not estimated  
 - ¥2.7 billion  
 Decrease in amortization expenses related to the  
 Hangingstone DEMO area in FY3/18 + ¥7.8 billion

### Extraordinary income (loss)

Decrease in losses on the PNW LNG Project in FY3/18  
 + ¥72.9 billion

# Assumptions and Impact on Profits

Assumptions	JCC price US\$60.00/bbl	Exchange rate JP¥110.00 / US\$	Canadian gas prices C\$2.00/mcf (JPY88.00/C\$)
<b>FY3/19 Impact on Profits</b>	<b>US\$1/bbl increase in JCC prices</b> would push profits up by...	<b>A weakening in JPY1/US\$ exchange rates</b> would push profits up by...	<b>C\$1/mcf increase in gas prices</b> would push profits up by...
Operating profit	JPY 610 million	JPY 270 million	JPY 550 million
Profit (loss) attributable to owners of parent	JPY 500 million	JPY 180 million	JPY 410 million

Assumptions		FY3/18 Full (a)	FY3/19 Full (f)	Change
JCC price	US\$/bbl	56.20	60.00	+3.8
Exchange rate	JPY/US\$	111.67	110.00	-1.67
Canadian gas prices	C\$/mcf	2.07	2.00	-0.07

Note: In addition to the impact of exchange rate fluctuations shown above, translation adjustments of foreign-currency-denominated receivables and payables also occur.  
Actual profits are influenced by a variety of other factors besides crude oil prices and exchange rates.

# IV. Appendix

# FY3/18 Overview of Key Projects in Progress

## ■ E&P business

### Domestic

- ✓ Investment decision on commencement of oil development of a shallow reservoir of the Yufutsu Oil and Gas Field in June 2017
- ✓ Pursuing additional domestic E&P potential including utilizing government basic surveys

### Canada: Shale Gas Development and Production Project

- ✓ Upstream: Producing and marketing gas. Formulated development plan to preferentially develop high economic efficiency
- ✓ Midstream: Decided not to proceed PNWL project in July 2017

### Canada: Oil Sands Project in Hangingstone Leases

- ✓ Sold the Hangingstone Demonstration area in April 2018
- ✓ Commenced production in the Hangingstone Joint Venture area in August 2017; expected to reach 20,000 bbl/d in second half of 2018

### Iraq : Garraf Project

- ✓ Ongoing stable crude oil production of approx. 90,000 bbl/d
- ✓ Commencement of further development to increase the production to 230,000 bbl/d under the Final Development Plan

### Indonesia: Kangean Project

- ✓ Ongoing stable gas production from the Terang Gas Field
- ✓ Under development of the Sirasun and Batur Gas Fields expected to start production in 2Q 2019

## ■ Infrastructure·Utility Business

### Soma LNG Terminal

- ✓ Commenced operation at Soma LNG Terminal in March 2018
- ✓ Commenced operation on the Soma-Iwanuma Gas Pipeline in November 2017

### Soma Natural Gas-Fired Power Generation Project

- ✓ Commenced of construction in October 2017

## ■ New Business

### CCS

- ✓ Proceeding of CO<sub>2</sub> injection in large-scale CCS demonstration project from April 2016
- ✓ Achieved 150,000 ton cumulative injected CO<sub>2</sub> volume in March 2018

### Methane Hydrate

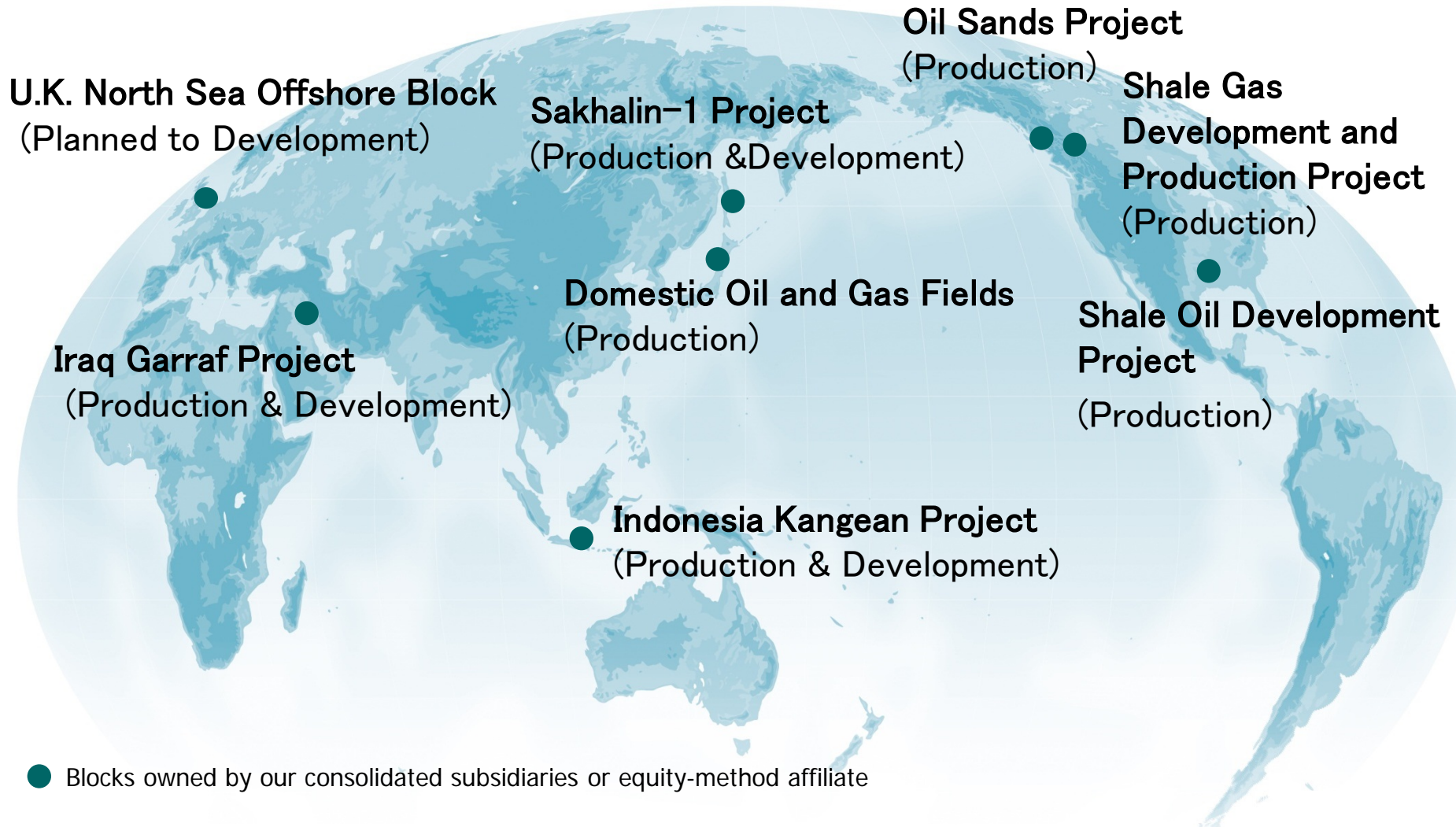
- ✓ Completed the second offshore production test from April to June 2017. Achieved 260,000 m<sup>3</sup> cumulative production volume during 36 days production test

### Geothermal Power

- ✓ Completed of evaluation work in the Mt. Musa area, Hokkaido
- ✓ Ongoing study and evaluation work in other projects

# E&P Business (1)

## Projects in Japan and Overseas



# E&P Business (2)

## Domestic Activities

### Pursuing compensation of domestic reserves and maintenance of the production volume

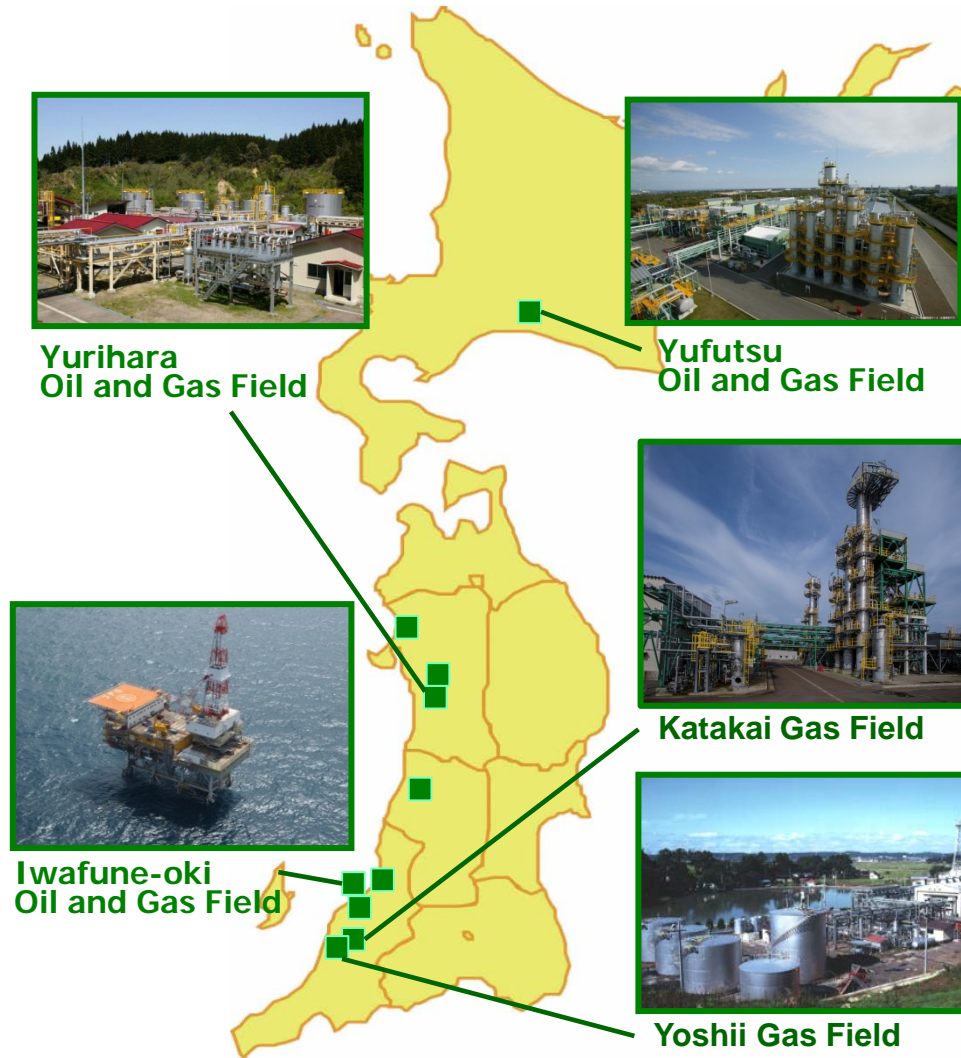
#### Plan for the FY3/19

- Domestic exploration (Geophysics, Exploration well) is not planned in FY3/19
- Pursuing additional domestic E&P potential including utilizing government basic surveys

#### Results for the FY3/18

- Domestic exploration (Geophysics, Exploration well) is not performed in FY3/18
- Investment decision on commencement of oil development of a shallow reservoir of the Yufutsu Oil and Gas Field in June 2017

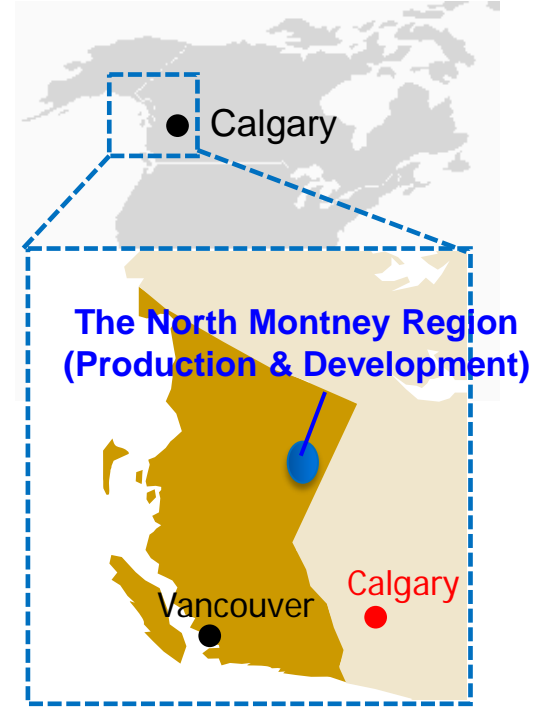
### Operating 10 domestic oil and gas fields



# E&P Business (3)

## Canada Shale Gas Development and Production Project

	Upstream: Shale gas project	Midstream: LNG project
Block / Proposed site	North Montney Area, British Columbia, Canada	Lelu Island, The Port of Prince Rupert, British Columbia, Canada
Interest	10% Interest	10% Equity
Operator	PETRONAS (Including subsidiaries)	PETRONAS (Including subsidiaries)
Current status	<ul style="list-style-type: none"> <li>Producing and marketing gas approx. 500 mmcf/d</li> <li>Executing the development plan prioritizes the area with high economic</li> </ul>	Decided not to proceed with the LNG project on July 25, 2017.



### ■ Project Schedule

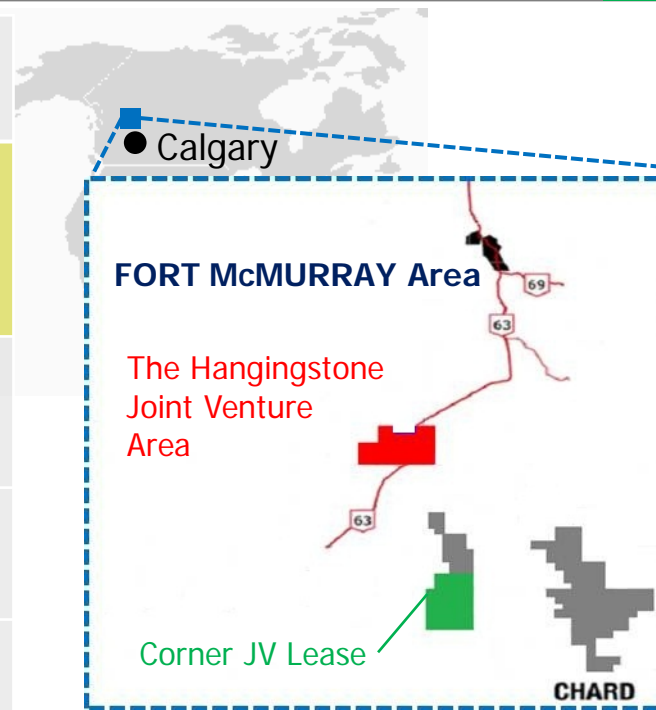
April 2013	Signed a contract
July 2017	Decided not to proceed with the LNG project
Current status	Executing upstream development plan and pursuing investment focus on efficient development



# E&P Business (4)

## Canada Oil Sands Project

Project Company	Canada Oil Sands Co., Ltd. (CANOS) Operator : Japan Canada Oil Sands Ltd. (JACOS)	
Block	The Hangingstone area <b>75%</b> interests Gradual increase from 20,000 bbl/d	Ongoing Production
	Corner JV Lease <b>12%</b> interests	Undergoing appraisal
	Other bitumen leases (includes Corner & Chard)	Considering future activities
	Current status January 2018; Relinquished Thornbury & Chard North (25% interests) April 2018; Sold the Hangingstone Demonstration area(100% interests)	



### ■ Schedule of Hangingstone Project

February 2013	Commenced development works (early civil work)
February 2017	Completed construction of facilities
April 2017	Commenced steam injection to horizontal well pairs
August 2017	Commenced production
Second half of 2018 (planned)	Reaching production rate (20,000 bbl/d)

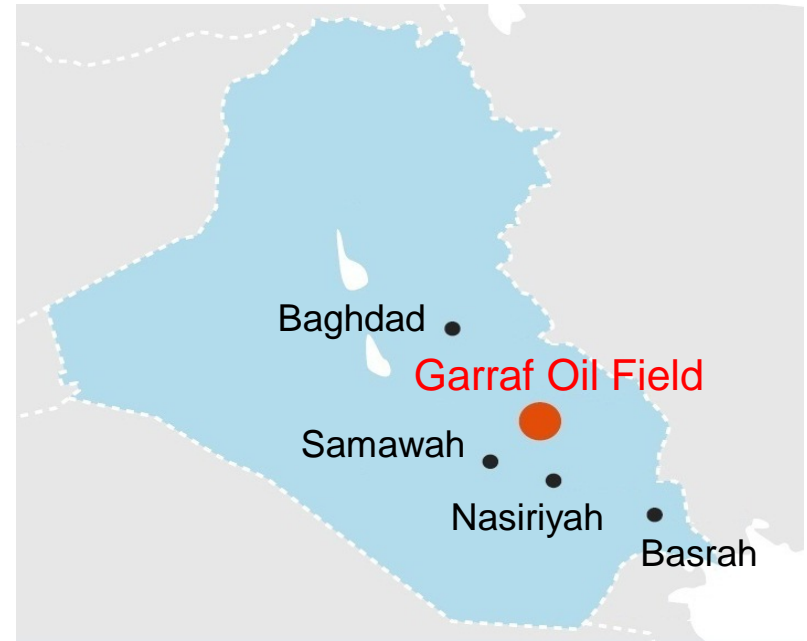


Rachel Notley, Premier of Alberta (second from the left) celebrating the opening ceremony of production startup

# E&P Business (5)

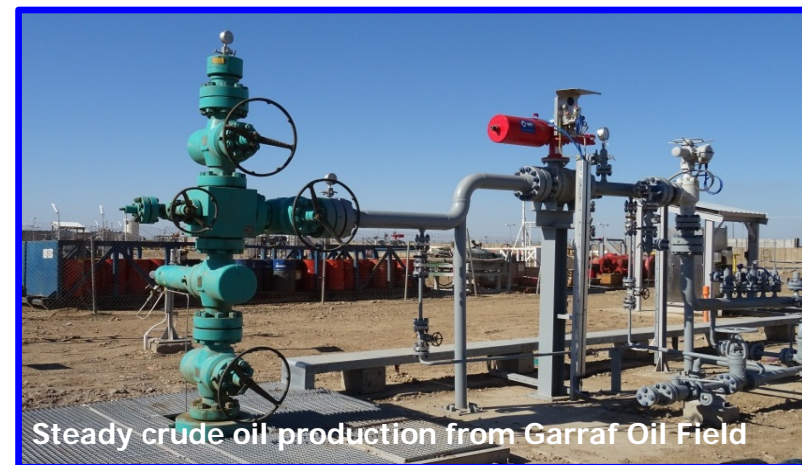
## Iraq Garraf Project

Project company	Japex Garraf Ltd.	
Interest	<b>30%</b> (cost share 40%) Operator : PETRONAS	
Field	Garraf Oil Field	In Production

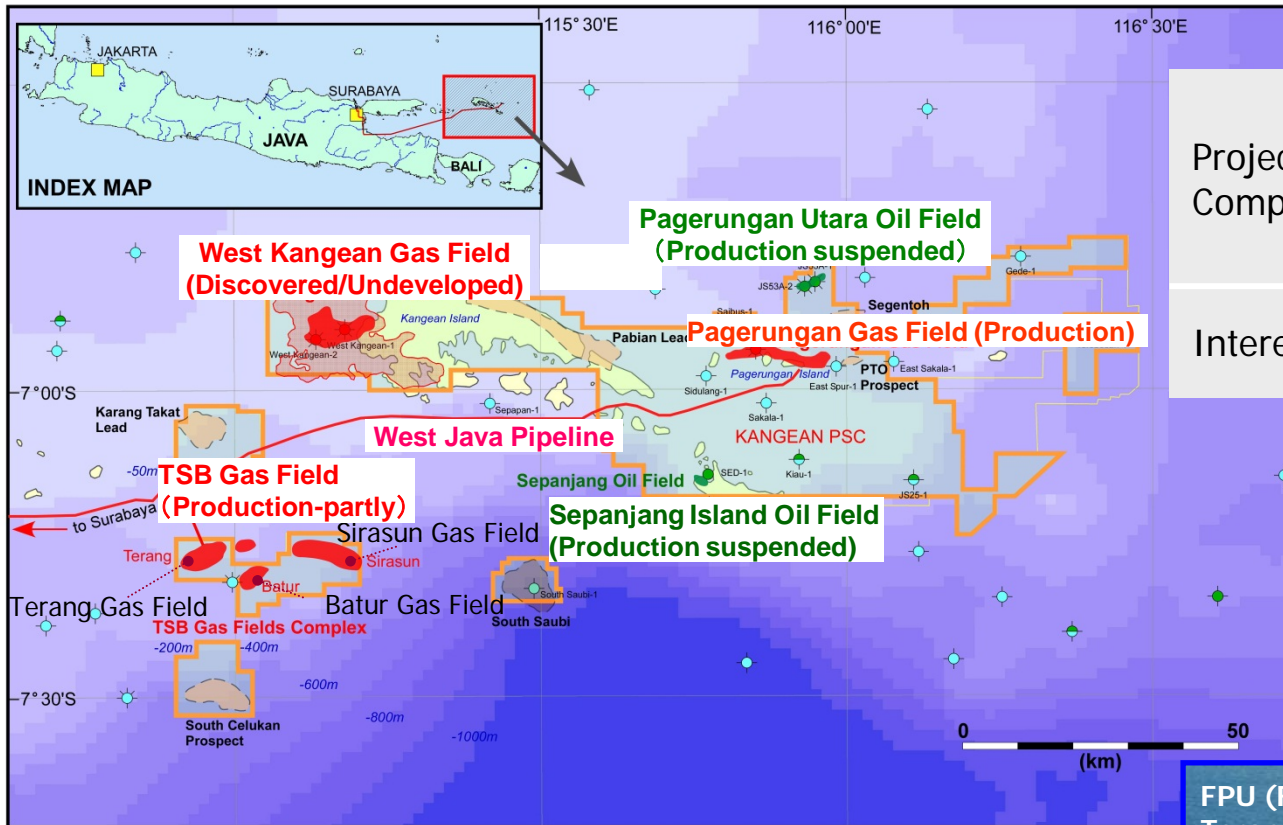


### Time Schedule

2013	<u>First oil production on August 31</u> Average daily production : Approx. 64,000 bbl/d
2014 -2020 4Q	Average daily production 2018 April: approx. 90,000 bbl/d  *Gradual increase from 100,000 bbl/d to 230,000 bbl/d
2020 4Q	Achievement of plateau production target of 230,000 bbl/d



# E&P Business (6) Indonesia Kangean Project



Project Company	Kangean Energy Indonesia Ltd. (KEI) + 2 others, Equity-method affiliate
Interest	<b>25%</b> (Operator : KEI)

Production volume : **Approx. 36,000 boe/d**

- the TSB Gas Field
  - (Phase1: Terang) : Production started in end of May 2012  
Production rate 210 million cf/d  
(approx. 36,000 boe/d)
  - (Phase2: Sirasun, Batur): Targeting the production start in 2Q 2019

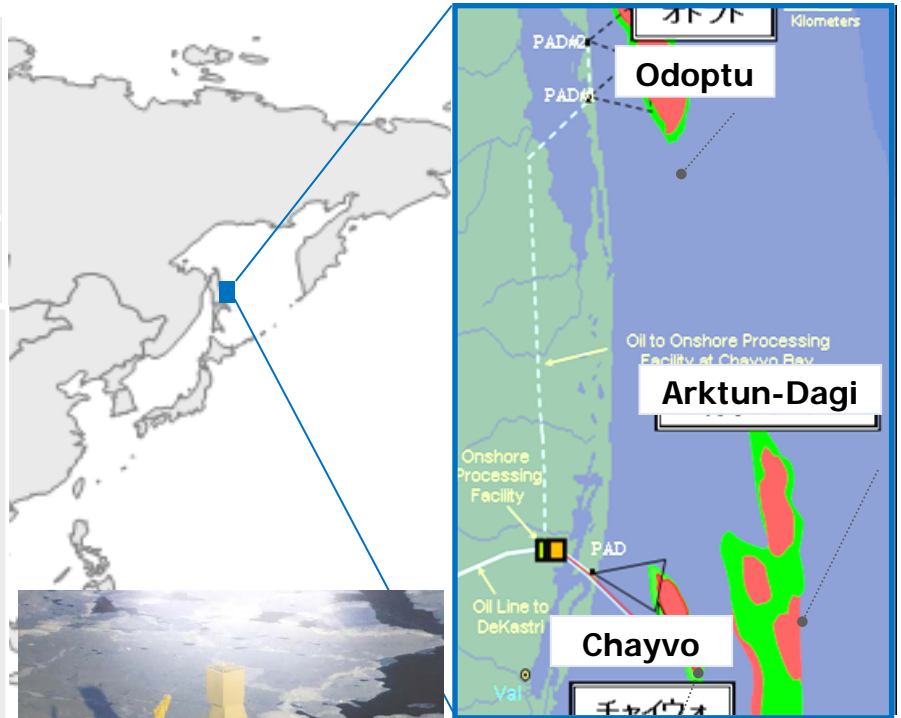
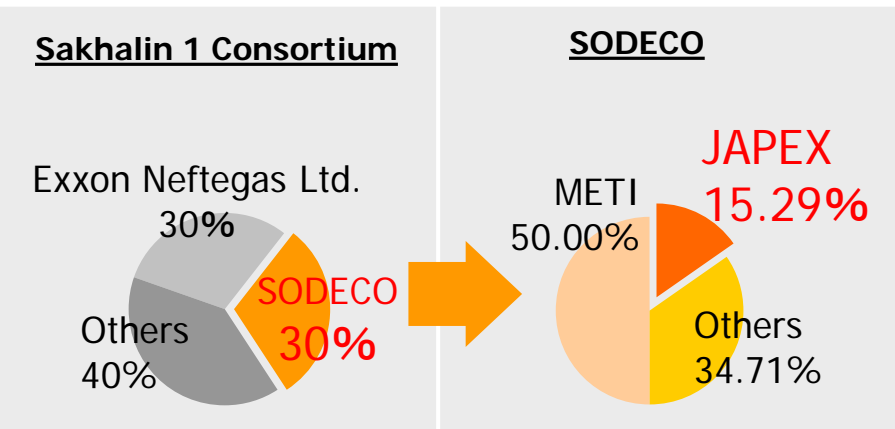


FPU (Floating production unit) in the Terang Gas Field

# E&P Business (7) Sakhalin-1 Project

<b>Project Company</b>	Sakhalin Oil and Gas Development Co., Ltd. (SODECO) Equity-method affiliate
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<b>Interest</b>	
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<b>Block</b>	Chayvo,	In Production at each fields
	Odoptu,	*The Arktun-Dagi Oil and Gas Field commenced oil production in January 2015
	Arktun-Dagi	*In 2015, the Chayvo Oil and Gas Field achieved a new world-record of extended reach drilling, at a measured depth of 13,500m

**The Arktun-Dagi Offshore Field**  
Provided by Exxon Neftegas Limited,  
Sakhalin-1 project operator

# Infrastructure·Utility Business (1)

## Construction of the Soma LNG Terminal

### ■ Soma LNG Terminal

Site	Shinchi-Town, Fukushima Pref. (No.4 wharf area of Soma Port)
Capacity	One LNG Tank of Aboveground Style/PC type containing 230,000kl
Receiving Capacity	LNG ocean-going vessel : Full set (maximum 210,000m <sup>3</sup> class) LPG domestic vessel : Full set (maximum 2,500m <sup>3</sup> class)
Vaporizers	Sending power : 7.0MPa 75t/h x2
Shipping Facilities	LNG domestic vessel : maximum 4,800 m <sup>3</sup> class Tanker truck : 5 lanes, 30t/h
Commencement of Operation	March 2018

\*In addition to the above, construction for another LNG vaporization equipment and LNG tank (230,000kl) is ongoing

### ■ Soma-Iwanuma Gas Pipeline

Starting / End point	Starting point : the Soma LNG terminal End point : the Iwanuma Valve station
Caliber	20B
Pressure	7Mpa
Length	Approx. 40km
Commencement of Operation from the Soma LNG Terminal	February 2018



Panoramic view of the Soma LNG Terminal



# Infrastructure·Utility Business (2)

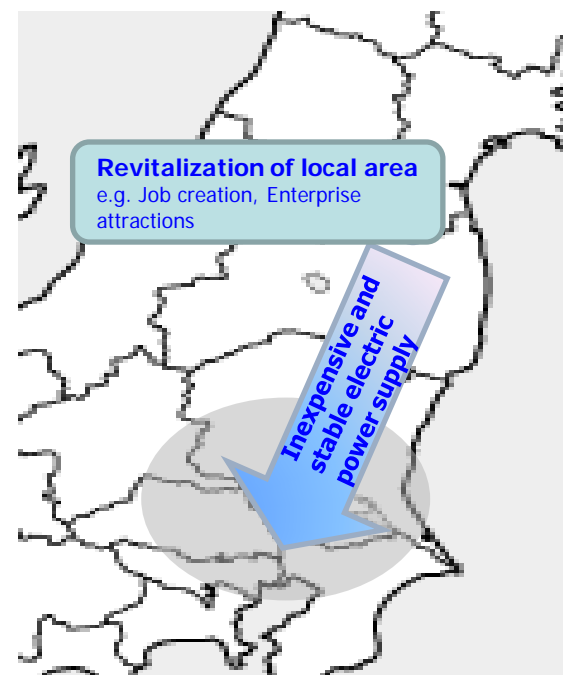
## Natural Gas-Fired Power Generation Project

### ■ The overview of Fukushima Natural Gas Power Plant

Head Office	Fukushima Gas Power Co., Ltd.* (Founded April 2015)
Method	Gas Turbine and Steam Power (Combined Cycle)
Capacity	1.18 million kW (2 units of 0.59 million kW)
Fuel	Natural Gas (Vaporized LNG) Amount 700,000-1,000,000t/y (Utilization Ratio 60%-90%)
Thermal Efficiency	Sending End 60.64% (LHV, Temperature 15°C)
Gas Turbine	1,500°C Class
Steam Turbine	Steam Condition (High-pressure/ Medium-pressure/ Low-pressure) 600/600/284°C 15.6/3.34/0.5MPa
Heat Recovery Boiler	Steam Flow 370/85/50t/h NOx Emission concentration Less than 5ppm



Rendering of the Soma LNG Terminal and the Fukushima Natural Gas Power Plant



### ■ Schedule

October 2016	FID
June 2017	Approved Environmental Assessment
October 2017	Commencement of construction
2020 Spring	Commencement of commercial operations (planned)

\* Investment ratio: JAPEX 33%, Mitsui & Co., Ltd. 29%, Osaka Gas Co., Ltd. 20%, Mitsubishi Gas Chemical Co., Inc. 9%, Hokkaido Electric Power Co., Inc. 9%

# Geothermal Power, Methane Hydrate, CCS, Solar Power

## CCS



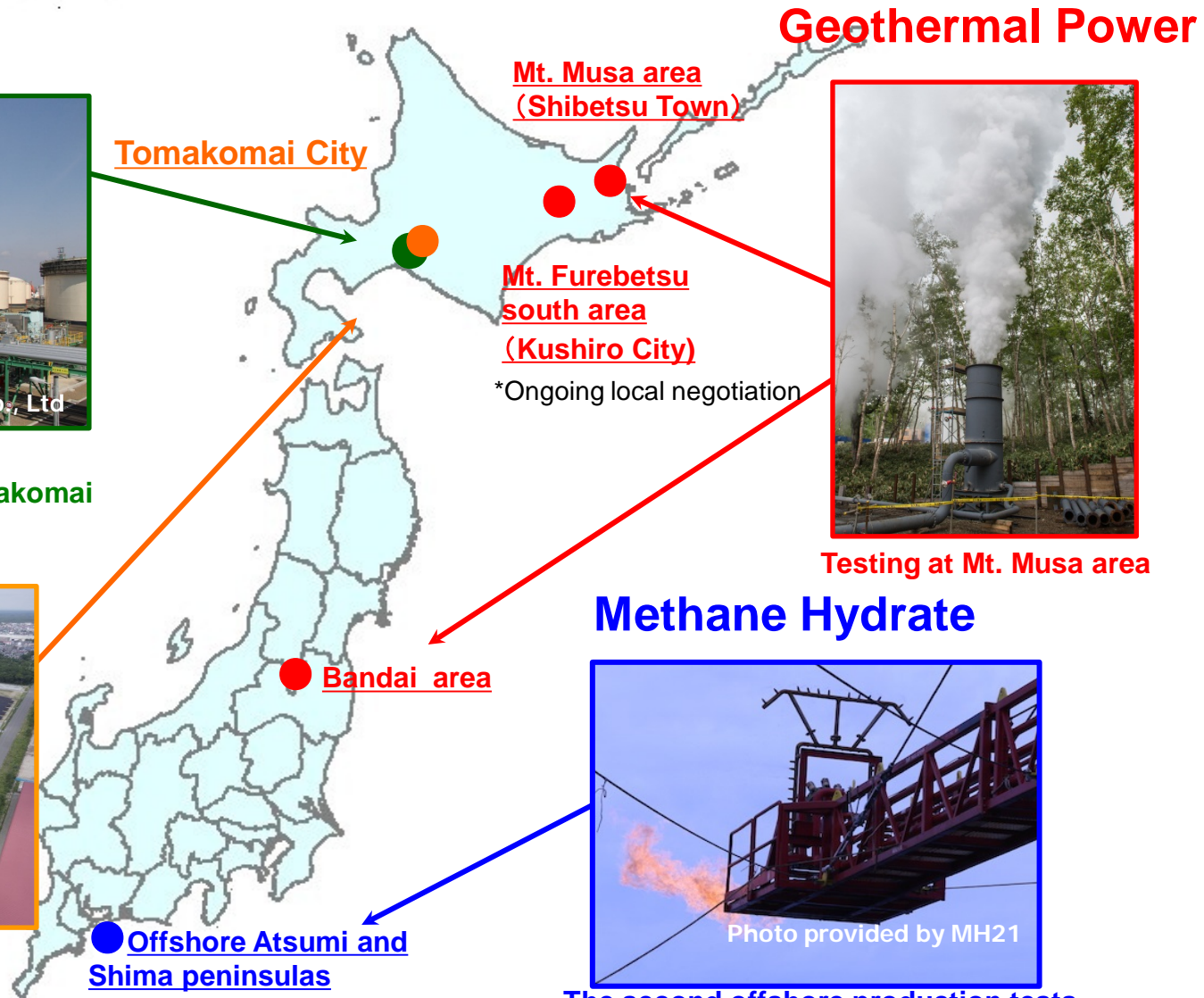
Photo provided by Japan CCS Co., Ltd

Ground facilities of CCS demonstration project in Tomakomai

## Solar Power



Solar panels at Hokkaido District Office



## Geothermal Power



Testing at Mt. Musa area

## Methane Hydrate



Photo provided by MH21

The second offshore production tests

- **BOE(D)** Barrels of Oil Equivalent (per Day)
- **CCS** Carbon dioxide Capture and Storage
- **CIF** Cost, Insurance and Freight
- **COP** Conference of the Parties
- **CSR** Corporate Social Responsibility
- **E&P** Exploration and Production
- **FID** Final Investment Decision
- **GHG** Greenhouse Gas
- **HE** Hangingstone Expansion
- **HSE** Health, Safety and Environment
- **IOR (EOR)** Improved (Enhanced) Oil Recovery
- **JCC** Japan Crude Cocktail
- **JOGMEC** Japan Oil, Gas and Metals National Corporation
- **LNG** Liquefied Natural Gas
- **MH** Methane Hydrate
- **P/L** Pipeline
- **PNWL** Pacific North West LNG
- **ROE** Return on Equity
- **RRR** Reserve Replacement Ratio
- **SODECO** Sakhalin Oil & Gas Development Co., Ltd.
- **TSB** Terang, Sirasun, Batur
- **WTI** West Texas Intermediate