

# International Energy Business



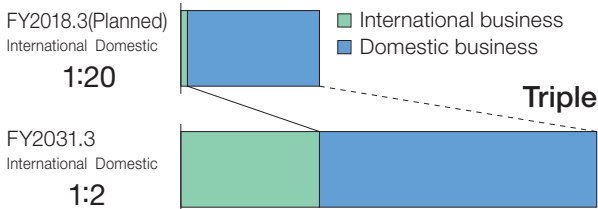
## What We Aim to Be in FY2031.3 and Summary of Current Situation

As an energy business operator, the Daigas Group has focused on the natural gas value chain from early on and has made investments abroad accordingly. In the future, we will continue to invest outside of Japan and by FY2031.3 will increase our international-to-domestic business ratio to 1:2. Daigas Group will create a business model capable of generating balanced earnings streams from North America, Asia, and Oceania.

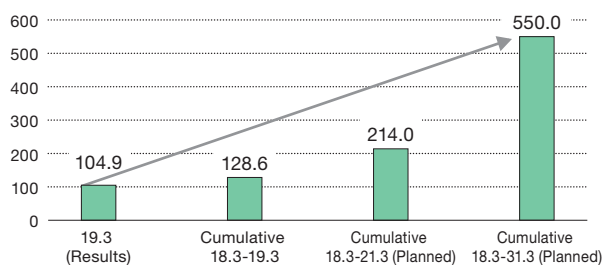
Results of Fiscal Year Ended March 31, 2019  
 Net Sales ¥ **40.4** billion Segment Profit\* ¥ **5.9** billion

\* Operating profit (loss) + Share of profit (loss) of entities accounted for using equity method

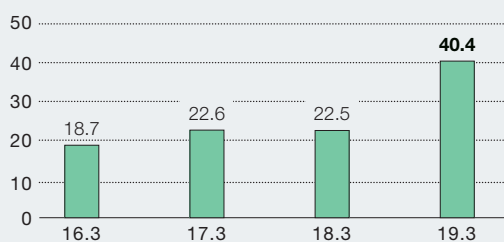
### Anticipated FY2031.3 consolidated ordinary profit



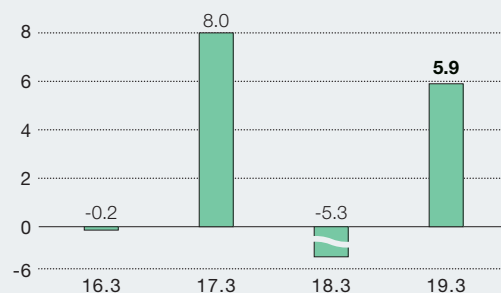
### Growth investment in international business (billion yen)



### Net Sales (billion yen)



### Segment Profit\* (billion yen)



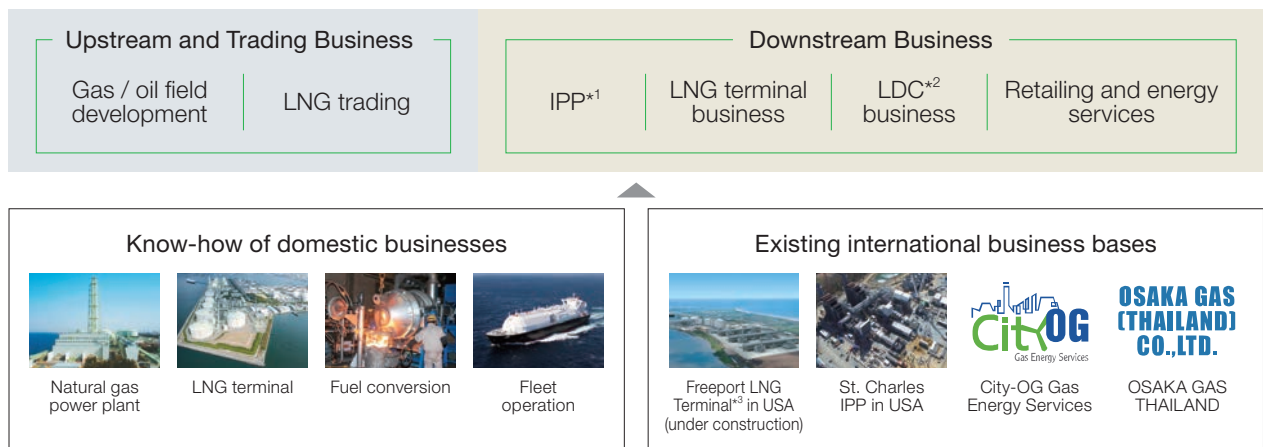
Note: Since FY18.3, Sumisho Osaka Gas Water UK Limited, an equity-method affiliate, changed its segment from "Life & Business Solutions" to "International Energy Business." FY17.3 results are calculated based on the contents after the change.

## Efforts to Become What We Aim To Be in FY2031.3

In order to become what we aim to be in FY2031.3, we will promote expansion from upstream to downstream businesses, centering on our priority areas, namely North America, Asia, and Oceania. To do so, we will make full use of the expertise we have cultivated in Japan and the international business infrastructure we have built. Also, we will expand our businesses based on the following three policy points.

- 1 Concentrating management resources on priority areas and priority business in each area
- 2 Accelerating business development by collaborating with mutually complementary partner companies and utilizing M&A
- 3 Increasing business engagement and improving business implementation capabilities (human resource development, development of a quick decision-making system, etc.)

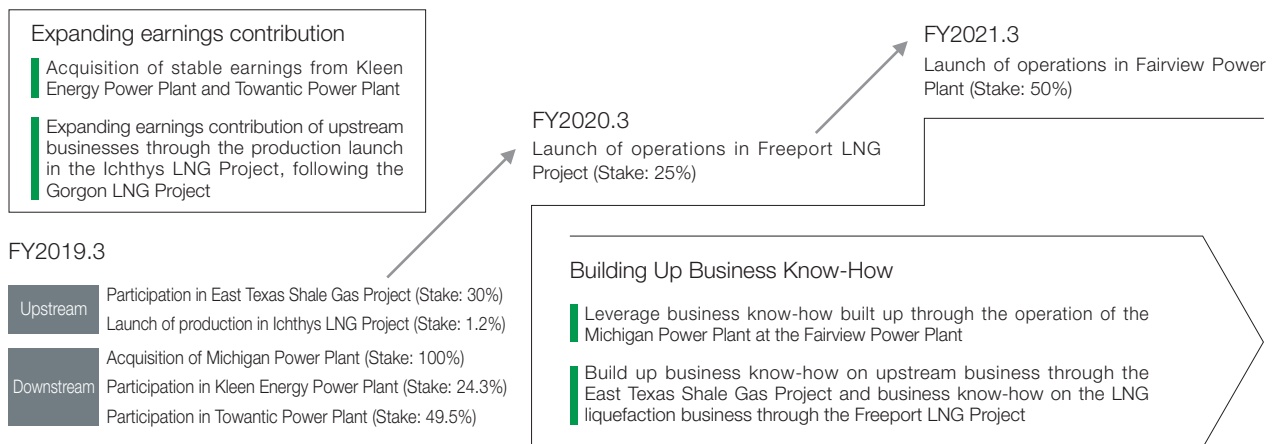
### ■ We will strengthen the profit structure of the international energy business by strengthening each business field.



\*1 Independent Power Producer \*2 Local Distribution Company \*3 Freeport LNG Development, provided by L.P. (projected image completion)

### ■ Specific Initiatives

We aim for sustainable growth by building up business expertise for conducting business independently as well as expanding earnings contribution through growth investment projects. We will strive to strengthen the competitiveness of LNG procurement and expand earnings in the trading business.



### ■ Development in Southeast Asia and LNG Trading

In Southeast Asia, we are engaged in natural gas sales and energy services in four countries: Thailand, Singapore, Indonesia, and Vietnam. With regard to LNG trading, we are expanding operations while responding to customer needs, such as optimization through swaps and contract reclassification.

## Upstream and Trading Business

### ■ Business Overview and Characteristics

In upstream businesses, we are contributing to growth and stabilization of overall our group earnings, in addition to acquiring useful expertise in LNG procurement. While steadily proceeding with projects in which our participation is already decided, we aim to create an earnings platform and improve our business potential chiefly by acquiring new projects in production or development. With regard to trading operations, we plan to expand sales while responding to customer needs, by leveraging our diversified procurement portfolio and broadening the range of project partners and methods, ensuring optimization through use of swaps and contract reclassification. In Australia, while the Gorgon LNG Project (in which we hold 1.25% of the rights) that launched production in 2016 is steadily contributing to earnings, we expect further earnings contribution from the Ichthys LNG Project (in which we hold 1.2% of the rights), which launched

production in 2018. In North America, we acquired interest in the East Texas Shale Gas Project, currently in production, in 2018. We will proceed with new developments in this project and expect further stable long-term production in the future.



Gorgon LNG Project



Ichthys LNG Project



East Texas Shale Gas Project

## Downstream Business

### ■ Business Overview and Characteristics

In downstream businesses, we aim to secure stable income by utilizing the know-how and experience cultivated in the domestic energy business to improve the business value of each project. The Group participates in LNG terminal and IPP businesses and other business in North America, Europe, the Middle East,

and Australia. We are also engaged in natural gas sales and energy services in Southeast Asia and would like to expand into projects such as power plants and LNG terminals. We will continue to make use of business expertise amassed in the region to proactively develop our businesses.

### ■ Status of Investments

#### Natural Gas-Fired Thermal Power Plants in the USA Market

In the United States, an environment-friendly natural gas-fired power plant is expected as a measure to respond to the increasing demand for stable power supply due to the abolition of aging coal-fired power plants and the expansion of renewable energy. Since participating in North American natural gas thermal power plant projects for the first time in 2004, we have in recent years participated natural gas thermal power plant projects, mainly in the US northeast including in the PJM Market, one of the largest wholesale power markets in the US. We aim for independent power-plant operation by accumulating the know-how we have built up in the US power business including in project fuel procurement and marketing to the power-generation market. In 2018, we took a 100% stake in Michigan Power's natural gas-fired power plant business and are proceeding with initiatives to operate the business independently. In addition, we are steadily expanding our businesses, through the acquisition of interest in the Kleen Energy natural gas-fired power generation business and the Towantic natural gas-fired power plant business; we are currently building up their earnings contribution. Moreover, we are proactively exploring investment opportunities in the renewable energy business, which are expected to expand in the US.



Michigan Power natural gas-fired thermal power plant



Kleen Energy natural gas-fired thermal power plant



Towantic natural gas-fired thermal power plant

#### Steady Progress on Freeport LNG Project

Construction is steadily advancing at the Freeport LNG Project in Texas, USA, where the launch of commercial operation of the liquefaction business is scheduled around autumn 2019. LNG procurement from the USA is aimed at diversifying our supply sources and our LNG price indexation. It also introduces LNG without restrictions on the country of destination, which will help us to achieve stable and competitive LNG procurement.

#### Business Development in Southeast Asia

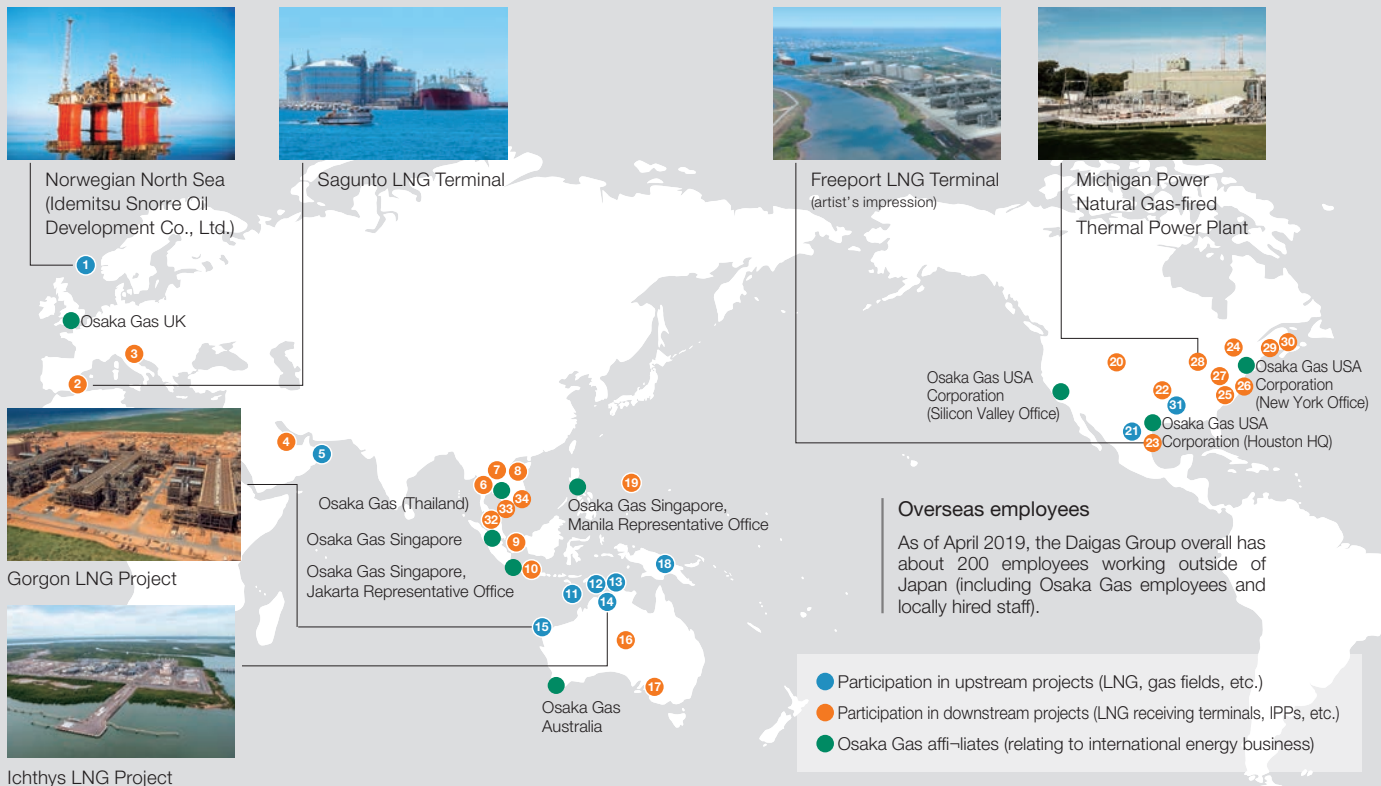
In March 2013 we set up a local representative company in Singapore and in October 2013 we also set up a local company in Thailand to sell natural gas and provide energy services. We are developing businesses in four countries in Southeast Asia, including the establishment of a local representative company in Indonesia in August 2018 and the establishment of a joint-venture company in Vietnam in July 2019. We will be expanding our international energy business by promoting business activities while responding to local needs, particularly in Southeast Asia, where the demand for natural gas is expected to grow.



Artist's impression of completed Phu My 3 Specialized Industrial Park



## Investments in the International Energy Business (As of July 31, 2019)



### Participation in upstream projects (LNG, gas fields, etc.)

- 1 Norwegian North Sea (Idemitsu Snorre Oil Development Co., Ltd.)**  
Stake since 2005: 1-10%
- 5 Qalhat LNG**  
Stake since 2006: 3% LNG output: 3.3 million tons/year
- 11 Crux Gas and Condensate Field**  
Stake since 2007: 3%
- 12 Sunrise LNG Project**  
Stake since 2000: 10%
- 13 Evans Shoal Gas Field**  
Stake since 2000: 10%

- 14 Ichthys LNG Project**  
Stake since 2012: 1.2% Projected LNG output: 8.4 million tons/year (planned)
- 15 Gorgon LNG Project**  
Stake since 2009: 1.25% Projected LNG output: 15.0 million tons/year (planned)
- 18 Western Papua New Guinea Gas and Condensate Field**  
Stake since 2014: 10 - 20% (ratio depends on field)
- 21 Pearsall Shale Gas and Liquids Development Project**  
Stake since 2012: 35%
- 31 East Texas Shale Gas Project**  
Stake since 2018: 30%

### Participation in downstream projects (LNG receiving terminals, IPPs, etc.)

- 2 Sagunto LNG Terminal**  
Ownership interest since 2010: 20% Vaporization capacity: 6.4 million tons/year
- 3 Erogasmet**  
Ownership interest since 2015: City gas distribution business
- 4 Shuweiht S2 IWPP**  
Ownership interest since 2011: 10% (25% equity interest in the operation and maintenance company)  
Power generation capacity: 151 MW Freshwater processing capacity: 10 million gallons/day
- 6 Osaka Gas (Thailand)**  
Ownership interest since 2013: Energy services business
- 7 OGP Energy Solutions**  
Ownership interest since 2015: Energy services business
- 8 NS-OG Energy Solutions**  
Ownership interest since 2014: 30% Cogeneration business
- 9 CITY-OG Gas Energy Services**  
Ownership interest since 2013: 49% Gas retail business
- 10 PT OSAKA GAS INDONESIA**  
Ownership interest since 2018: Natural gas joint marketing business
- 16 EII (Energy Infrastructure Investments)**  
Ownership interest since 2008: 30.2% Four pipelines, two gas-refining facilities, two power plants, two interconnected power transmission lines Power generation capacity: 18 MW
- 17 Hallett 4 Wind Farm Project**  
Ownership interest since 2009: 39.9% Power generation capacity: 53 MW
- 19 Marianas Energy IPP**  
Ownership interest since 2005: Power generation O&M business
- 20 Osaka Gas Power America**  
Ownership interest since 2005: 6 IPP projects Power generation capacity: 301 MW
- 22 Tenaska Gateway IPP**  
Ownership interest since 2004: 40% Power generation capacity: 338 MW
- 23 Freeport LNG Terminal (vaporization business)**  
Ownership interest since 2008: 10.81% Vaporization capacity: 13 million tons/year
- 23 Freeport LNG Project**  
Ownership interest since 2012: 25% (first train) LNG output: 4.64 million tons/year (planned)
- 24 Aurora Solar Power Generation Project**  
Ownership interest since 2012: 50% Power generation capacity: 51 MW
- 25 St. Charles Energy Center Natural Gas-Fired Power Plant**  
Ownership interest since 2015: 25% Power generation capacity: 181 MW
- 26 Shore Natural Gas-Fired Thermal Power Plant**  
Ownership interest since 2017: 20% Power generation capacity: 145 MW
- 27 Fairview Natural Gas-Fired Thermal Power Plant**  
Ownership interest since 2017: 50% Power generation capacity: 525 MW
- 28 Michigan Power Natural Gas-Fired Thermal Power Plant**  
Ownership interest since 2018: 100% Power generation capacity: 125 MW
- 29 Kleen Energy Natural Gas-Fired Thermal Power Plant**  
Ownership interest since 2018: 24.3% Power generation capacity: 151 MW
- 30 Towantic Natural Gas-Fired Thermal Power Plant**  
Ownership interest since 2018: 49.5% Power generation capacity: 399 MW
- 32 AGP International Holdings Pte. Ltd.**  
Ownership interest since 2019: LNG business
- 33 OE Solar Co., Ltd.**  
Ownership interest since 2019: 49% Solar power generation business
- 34 Sojitz Osaka Gas Energy Company Ltd.**  
Ownership interest since 2019 (planned): 49% Gas supply business