



International Energy Business

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

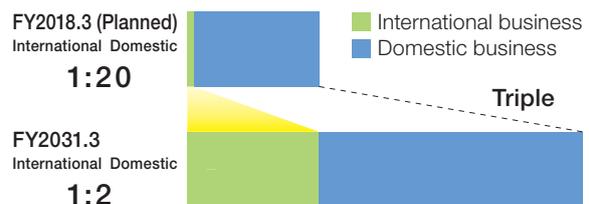
As an energy business operator, the Daigas Group has focused on the natural gas value chain from early on and has made investments abroad accordingly. In the future we will continue to invest outside of Japan and by FY2031.3 will increase our international-to-domestic business ratio to 1:2. Daigas Group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

In the fiscal year ended March 31, 2018, net sales were 22.5 billion yen and segment profit was minus 5.3 billion yen (due to loss on sale of North American IPP) and in the fiscal year ending March 31, 2019, we anticipate net sales of 29.5 billion yen and segment profit of 2.0 billion yen.

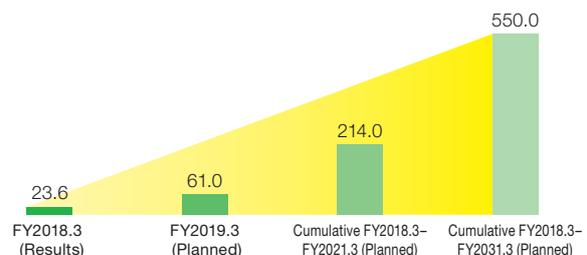
Forecast for the fiscal year ending March 31, 2019

Net Sales **¥29.5 billion** Segment Profit **¥2.0 billion**

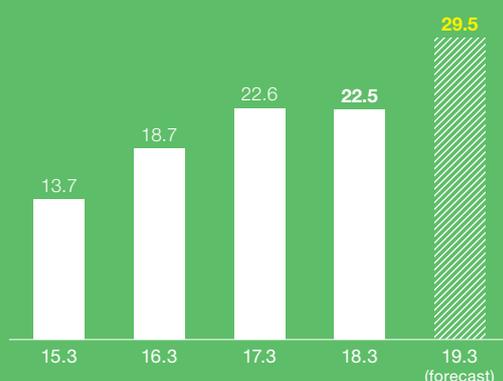
Anticipated FY2031.3 consolidated ordinary profit



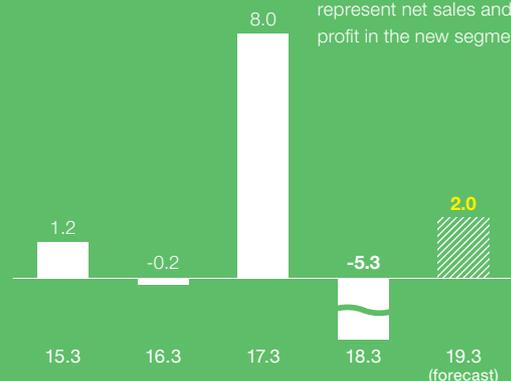
Growth investment in international business (billion yen)



Net Sales (billion yen)



Segment Profit* (billion yen)



(The figures from 2017.3 represent net sales and segment profit in the new segments)

* Segment profit = Operating profit + Equity in earnings of affiliates

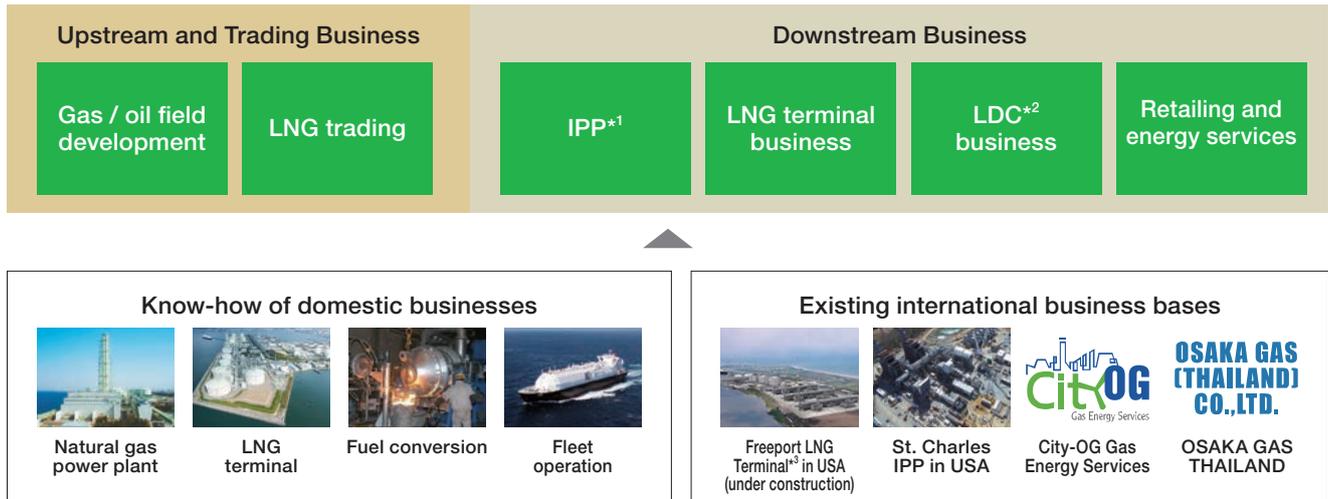
Note: From the fiscal year ended March 31, 2018, Sumisho Osaka Gas Water UK Limited, an equity-method affiliate, was repositioned from Life & Business Solutions into the International Energy Business.

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.)

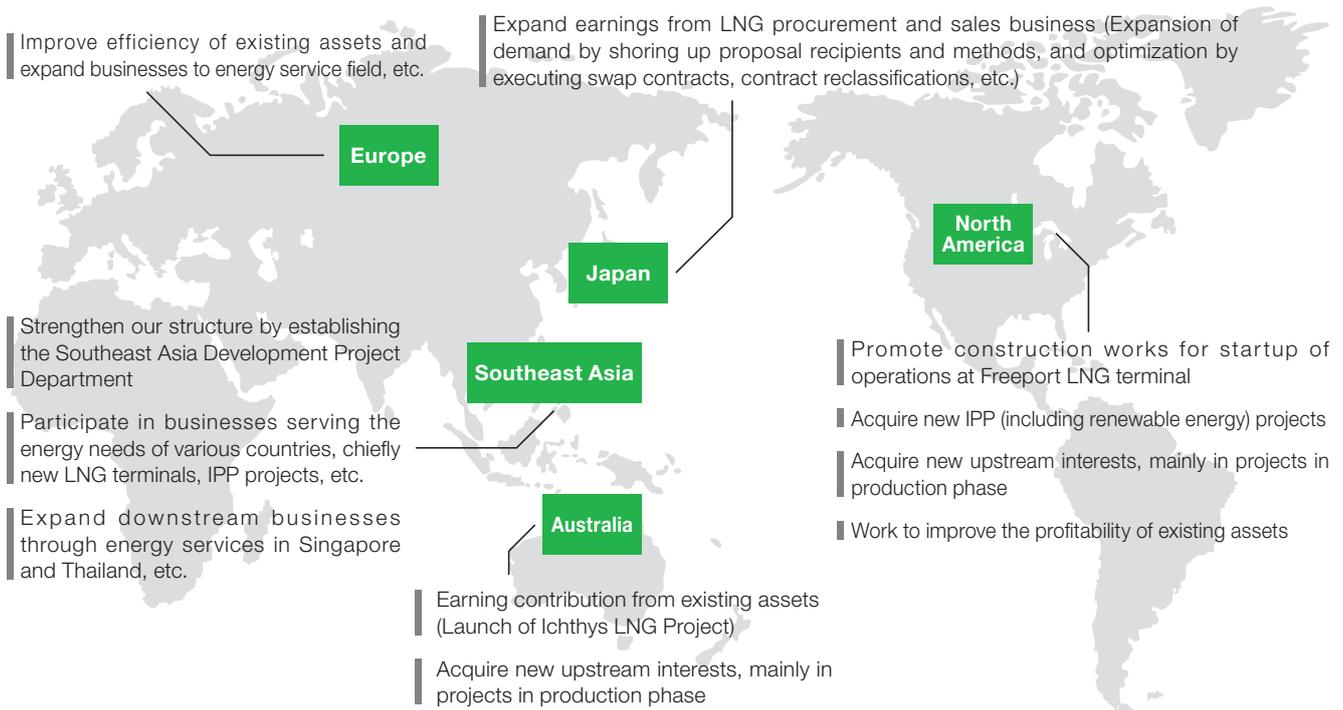
We will strengthen the profit structure of the international energy business by strengthening each business field.



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

Specific Initiatives

Taking advantage of our LNG procurement and sales know-how and the strengths we have developed through our existing assets, we are adopting a medium- to long-term perspective to expand our business scale by promoting activities that capture the needs of communities and businesses.



Upstream and Trading Business

Business Overview and Characteristics

In upstream businesses, we are contributing to growth and stabilization of overall 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 winning new production and development-stage projects. 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.

Status of Investments

In the Gorgon LNG project (in which we hold 1.25% of the rights), we launched LNG production at all three liquefaction systems in March 2017. We are also well ahead with preparations for launch of production in the Ichthys LNG Project.



Gorgon LNG Project



Ichthys LNG 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 amass business know-how in the region and make use of it to proactively develop our businesses.

the Company has in recent years won three natural gas thermal power plant projects, mainly in the US north-east including in the PJM Market, one of the largest wholesale power markets in America. We aim for independent power-plant operation by developing the know-how we have built up in the US power sector, including in project fuel procurement and marketing to the power-generation market. In 2018, we took a 100% stake in the 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, including through acquisition of a 24.3% interest in Kleen Energy natural gas-fired power plant; we are currently building up its earnings contribution. Additionally, we are proactively exploring investment opportunities in renewable energy, a sector likely to expand in America in the future.

Status of Investments

Steady Progress on Freeport LNG Project

Construction work is proceeding steadily on the Freeport LNG Project in Texas, USA. The gas liquefaction facility is set to start shipments shortly.

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.

Natural Gas-Fired Thermal Power Plants in the USA Market

As aging coal-fired power stations in the United States get decommissioned, demand grows for stable power sources with greater use of renewables, and expected to take their place will be thermal power plants fired by natural gas, an environmentally friendly new power source. Since participating in North American natural gas thermal power station projects for the first time in 2004,



Michigan Power natural gas-fired thermal power plant



Kleen Energy natural gas-fired thermal power plant

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. In 2016, we began opening activity locations in Indonesia and the Philippines. We aim to develop local energy operations and infrastructure, following timely appraisal of local needs in various countries. In fiscal 2018, we launched a new Southeast Asia Development Project Department. We are further strengthening these activities and stepping up initiatives that will lead to expansion of business.

Investments in the International Energy Business (As of June 30, 2018)



Participation in Upstream Projects (LNG, gas fields, etc.)

- 1 Norwegian North Sea (Idemitsu Snorre Oil Development Co., Ltd.)**
Stake since 2005: 2-10%
- 5 Qalhat LNG**
Stake since 2006: 3% LNG output: 3.3 million tons/year
- 10 Universe Gas & Oil Company, Inc. (Sanga Gas Field)**
Stake since 1990: 1.5%
- 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)
- 16 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%
- 30 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 Shuweihat 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
- 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: 100% Power generation capacity: 87 MW
- 20 Osaka Gas Power America**
Ownership interest since 2005: 6 IPP projects Power generation capacity*: 301 MW
* Excludes 50% interest in 87 MW generation capacity of Marianas Energy IPP
- 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**
Plant Ownership interest since 2017: 50% Power generation capacity: 525 MW
- 28 Michigan Power Natural Gas-Fired Thermal Power Plant**
Plant Ownership interest since 2018: 100% Power generation: 125 MW
- 29 Klean Energy Natural Gas-Fired Thermal**
2Power Plant Plant Ownership interest since 2018: 24.3% Power generation capacity: 151 MW