

Prospects of Natural Gas Utilization in Japan

The Tokyo Gas Group's Main Policies

Seita Shimizu, Chief Manager
Corporate Planning Dept.
TOKYO GAS Co., Ltd.
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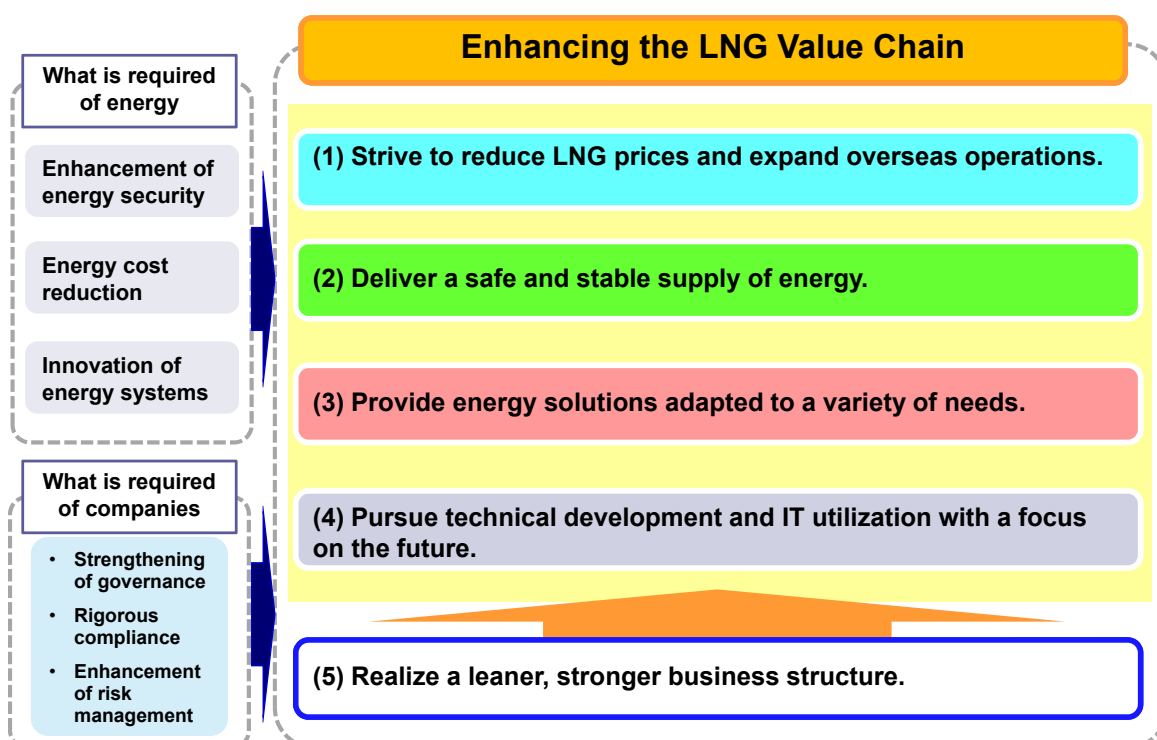
What is required of Japanese City Gas Companies today

1. Continuously important subjects after The Great East Japan Earthquake of March 11, 2011
 - i. **Enhancement of the energy security** that supports safe and secure living
 - ii. **Energy cost reduction** to support sustained growth of Japan
 - iii. **Energy system innovation** to support energy conservation and CO₂ emissions reduction
2. Deregulation of the Gas and Electric Industries
 - **Full liberalization of the gas retail market by 2017**
 - i. Taking appropriate measures from each of the strategic, financial, and IT system perspectives to address full deregulation as a priority issue and ensure that it remains the preferred choice of customers.

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2. The Tokyo Gas Group's Vision

The Tokyo Gas Group's "Challenge 2020 Vision"



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Enhancing the LNG Value Chain



What does 'enhancing the LNG value chain' involve?

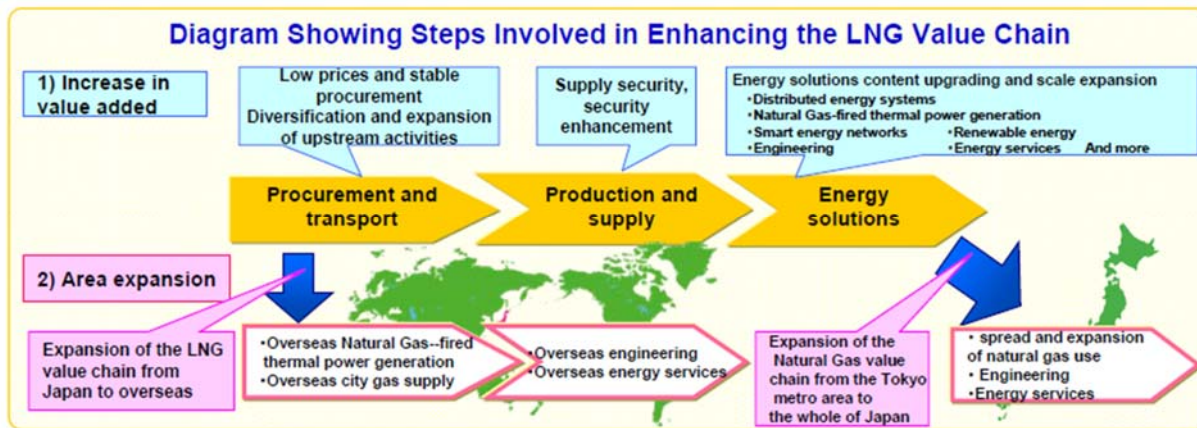
The Tokyo Gas Group aims to **enhance the LNG Value Chain** by engaging in the following activities:

(1) Enhancement of added value delivered through the LNG value chain

Seek to enhance value in line with business needs and increase value added.

(2) Expansion of the areas covered by the LNG value chain

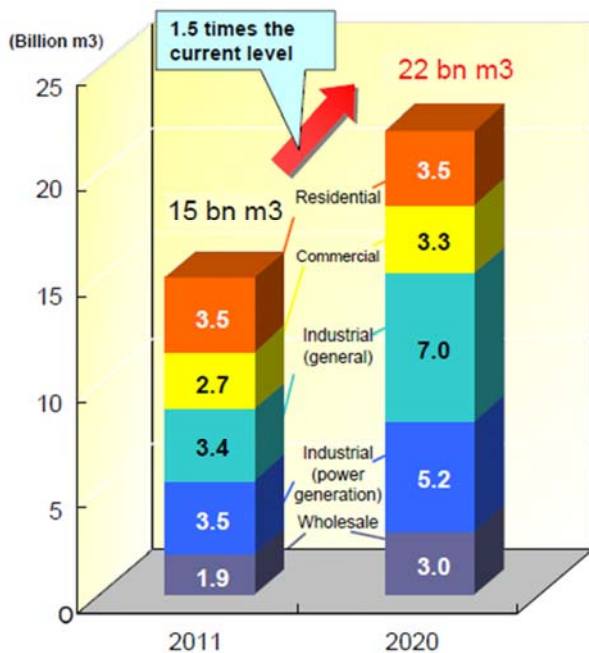
Expand each business area and strive to create new value.



Challenge performance indicators for 2020



Gas Supply Volume



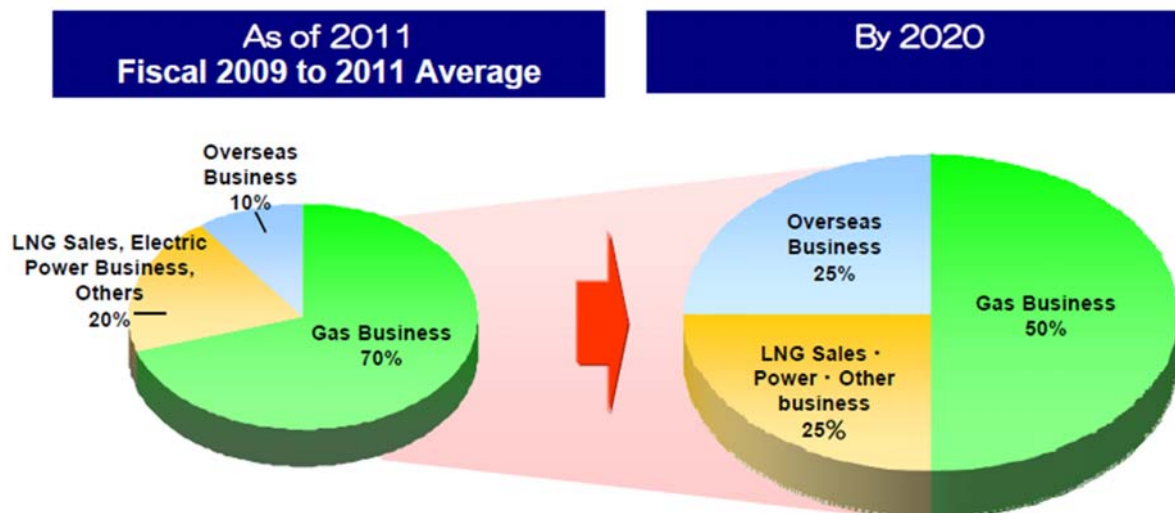
Gas Supply Volume by Application (100 million m3)

	Fiscal 2011 Forecast	Fiscal 2020	Average annual growth
Residential	35	35	0%
Commercial	27	33	2%
Industrial (general)	34	70	8%
Industrial (power generation)	35	52	4%
Wholesale	19	30	5%
Total	150	220	4%

Challenge performance indicators for 2020



Business Structure (Consolidated Net Income Ratio by Business)



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Strive to reduce LNG prices and expand overseas operations.



Diversify and expand LNG procurement and overseas upstream projects.

In addition to procurement from existing large-scale LNG projects and interests acquisition, seek further diversification and expansion of supply sources and overseas upstream projects and lower LNG prices.

Recent topics

- Delivery of LNG from [Queensland Curtis LNG project](#) (April, 2015)
First delivery to Japan of long term contract LNG from unconventional natural gas sources
- MOU with [CPC Corporation, Taiwan](#) (August, 2015)
The possible areas of collaboration shall include;
Optimization of LNG inventory, collaboration for LNG procurement, and so forth.



Darwin LNG Project
(Bayu-Undan Gas Field)



Queensland Curtis LNG Project
(CBM Processing Plant)



Energy Horizon

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3. Efforts to Date

Deliver a safe, stable supply of energy.



Upgrade and expand optimal infrastructure in step with the spread and expansion of natural gas use.

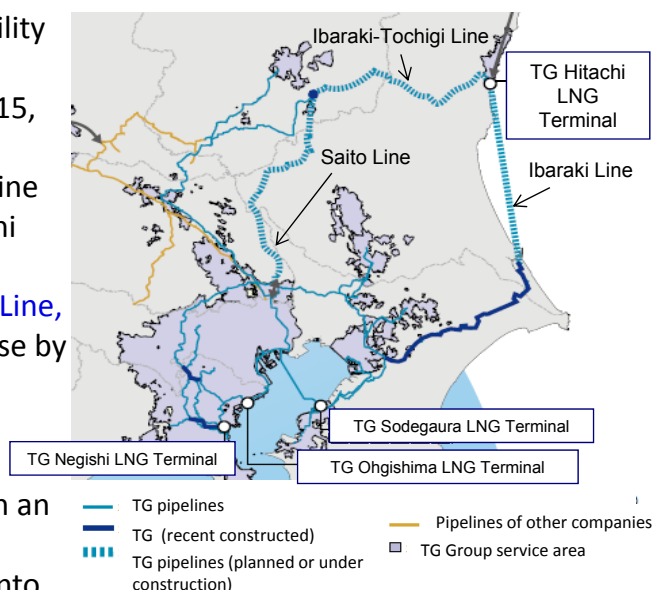
1) Infrastructure Improvements to Respond to Demand Increases and Boost Supply Stability

- A ground survey for the **Hitachi LNG Terminal's No. 2 LNG tank** (September 2015, operational in fiscal 2020).
- **Surveying works** on overland and submarine routes for the **Ibaraki Line** between Hitachi and Kashima (up to August 2015).
- **The Hitachi LNG Terminal, Ibaraki-Tochigi Line, Saito Line**, and other facilities will enter use by March 2016.

2) Preparedness for Earthquake and other Disasters

- To minimize shutdown of gas supply when an earthquake occurs, the number of **low-pressure pipeline blocks** was subdivided into 207 blocks*, May 2014

*The number was 140-block in 2011.



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3. Efforts to Date

Provide energy solutions adapted to a variety of needs.



Promote the spread and expansion of distributed energy systems.

- Release of world's first **ENE-FARM** residential fuel cell system for housing complexes in April 2014



Build a "smart energy society" that uses energy wisely.

- Verified energy conservation and electricity conservation effect by introducing HEMS and demand response at the **Isogo Smart House**, June 2014
- Began construction of a smart energy center in the **Tamachi Station District** (supply to begin in Nov. 2014), June 2012
- Began construction of a smart energy center in the **Toyosu Pier District** (supply to begin in Mar. 2016), July 2014



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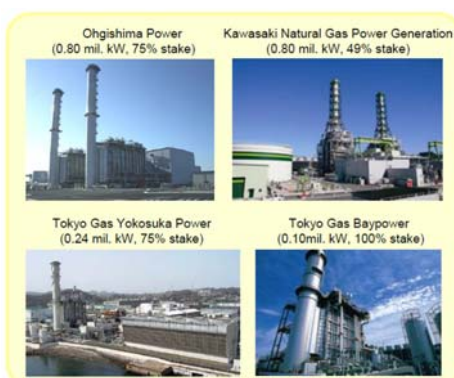
3. Efforts to Date



Provide energy solutions adapted to a variety of needs.

Expansion of the Electric Power Business

- Began construction of [Ohgishima Power Station Unit 3](#) (supply to begin in Feb.2016), June 2013
- Signed an agreement with Kobe Steel, Co.,Ltd. on electric power supply from the [Shinko Mooka Power Plant](#) (supply to begin in FY2019), September 2014



Nationwide Development of LNG Supply

- Began LNG supply to [Hokkaido Gas Co., Ltd.](#) via ocean liners, October 2012
- Concluded an agreement regarding the sale and purchase of LNG with [Saibu Gas Co., Ltd.](#) (supply to begin in Oct. 2014), March 2012
- Began construction of the [Onahama Satellite Terminal](#) toward supply to meet industrial demand



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4. Electric Power Business of Tokyo Gas Co., Ltd



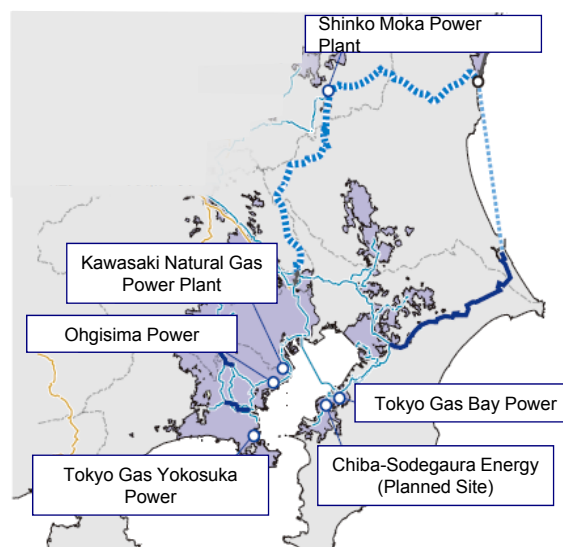
Electric Power Business of Tokyo Gas

<Current situation>

- Procurement of fuels, generation, and sales
- Wholly owned subsidiary Nijio Co., Ltd. procures its own fuel and then subcontracts power generation to Group-owned power plants.
- **The power is sold to wholesale and large-lot customers.**

<Looking ahead>

- With the complete liberalization of retail electric power, the Tokyo Gas Group will
 - build **a more competitive power source portfolio.**
 - deliver electricity to **residential and commercial customers.**



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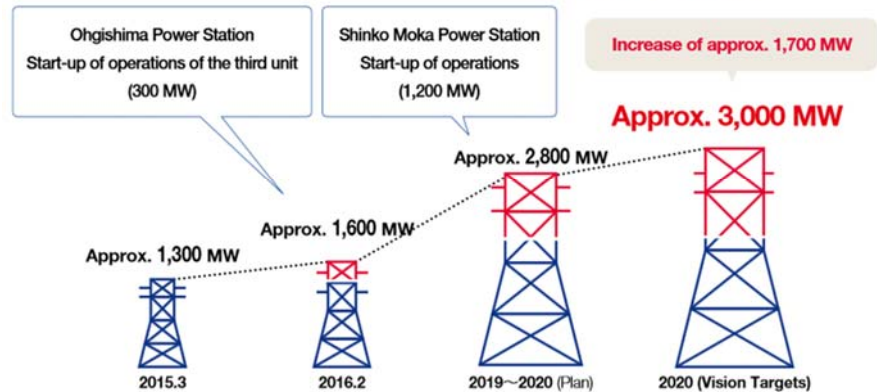
Recent topics on the Electric Power Business (1)

<Increasing Competitive Generation Capacity>

- Establishment of **Chiba-Sodegaura Energy Co., Ltd.*** (Coal-fired power plant) (May, 2015)
*Established by Idemitsu Kosan Co.,Ltd. , Kyushu Electric Power Co., Inc. , and Tokyo Gas Co., Ltd.
- Submission of the “Planning Stage Environmental Impact Statement for the **Kawasaki Natural Gas Power Plant Units No. 3 and No. 4** Enlargement Plan” † (June, 2015)
†Submitted by Kawasaki Natural Gas Power Generation Co., Ltd., which is owned by JX Nippon Oil & Energy Corporation and Tokyo Gas Co., Ltd.

- Commencement of of **<Confirmed Expansions in Generation Capacity (Own Equity)>**

the operation of **Ohgishima Power Station Unit 3 ‡**
(Planned in February, 2016)
‡Constructed by Ohgishima Power Co., Ltd., a subsidiary of Tokyo Gas Co., Ltd. and Showa Shell Sekiyu K.K.

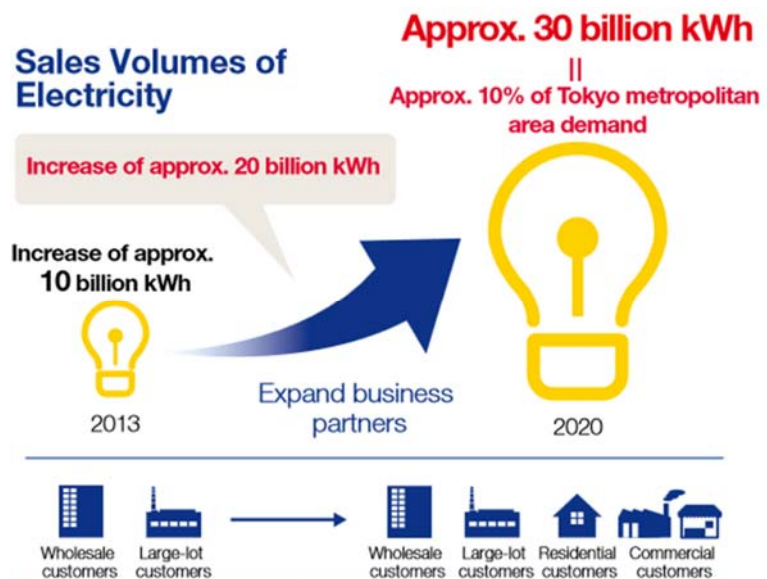


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Recent topics on the Electric Power Business (2)

<Expand Electric Power Sales>

- In addition to the wholesale and large-lot customer to date, **deliver electricity to residential and commercial customers.**
- Expand sales to around 30 billion kWh** (about 10% of Tokyo metropolitan area demand) by 2020.
- Commence pre-order sales** of electricity to residential and commercial customers from fiscal 2015



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Summary



1. The Tokyo Gas group has released “Challenge 2020 Vision” in 2011, after The Great East Japan Earthquake.
2. Efforts to Date
 - i. Further diversification and expansion of supply sources. (ex. Coal bed methane from Queensland Curtis LNG project .)
 - ii. Expansion of infrastructure. (ex. Hitachi LNG Terminal, Saitou Line, Ibaraki-Tochigi Line)
 - iii. Expansion of the electric power business.
3. With the complete liberalization of retail electric power, the Tokyo Gas Group will build a more competitive power source portfolio, and deliver electricity also to residential and commercial customers.



Спасибо за внимание.

ご清聴ありがとうございました。