



The Tokyo Gas Group's Vision for Energy and the Future

~ Challenge 2020 Vision ~

November 2011
Tokyo Gas Co., Ltd.

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※ In line with Tokyo Gas' Challenge 2020 Vision, 'All Tokyo Gas', hitherto used to refer to Tokyo gas, its affiliates and business partners, will become 'Tokyo Gas Group'.

I. For Energy and the Future

The Great East Japan Earthquake has brought sweeping social and economic change in Japan and given rise to a number of issues.

In particular, the resulting nuclear accident and power supply shortages have once again called into question the nature of Japan's energy supply, and discussion of energy that returns to basics and covers wide-ranging perspectives is set to occur. Energy is the foundation of people's lives and industrial activity, and realistic, earnest consideration with a view to the future is required.

The Tokyo Gas Group has long played a key role in energy supply in Japan, with a focus on the Tokyo metropolitan area. Now, for energy and the future, we intend to actively participate in these discussions and deliberations and rise to the challenge posed by these new energy issues.

When considering the energy of tomorrow, in view of the current set of state of affairs brought about by the earthquake, tsunami, nuclear accident, and power supply problem, the Tokyo Gas Group considers it important to first of all steadily address the following issues on the basis of supply stability, environmental compliance, and economic efficiency stipulated in the Basic Act on Energy Policy.

In view of the current adverse energy situation, it is of crucial importance to squarely face these issues with a sense of urgency from now until 2020.

(1) Enhancement of the energy security that supports safe and secure living

- Take all possible measures to further strengthen energy security, including earthquake and tsunami preparedness, power failure protection, and security assurance.

(2) Energy cost reduction to support the rapid reconstruction and sustained growth of Japan

- Reduce energy costs to eliminate concern about the hollowing out of industry, deceleration of economic growth, and job loss due to factors including the strong yen, power shortages, and rising energy costs.

(3) Energy system innovation to support energy conservation and CO2 emissions reduction

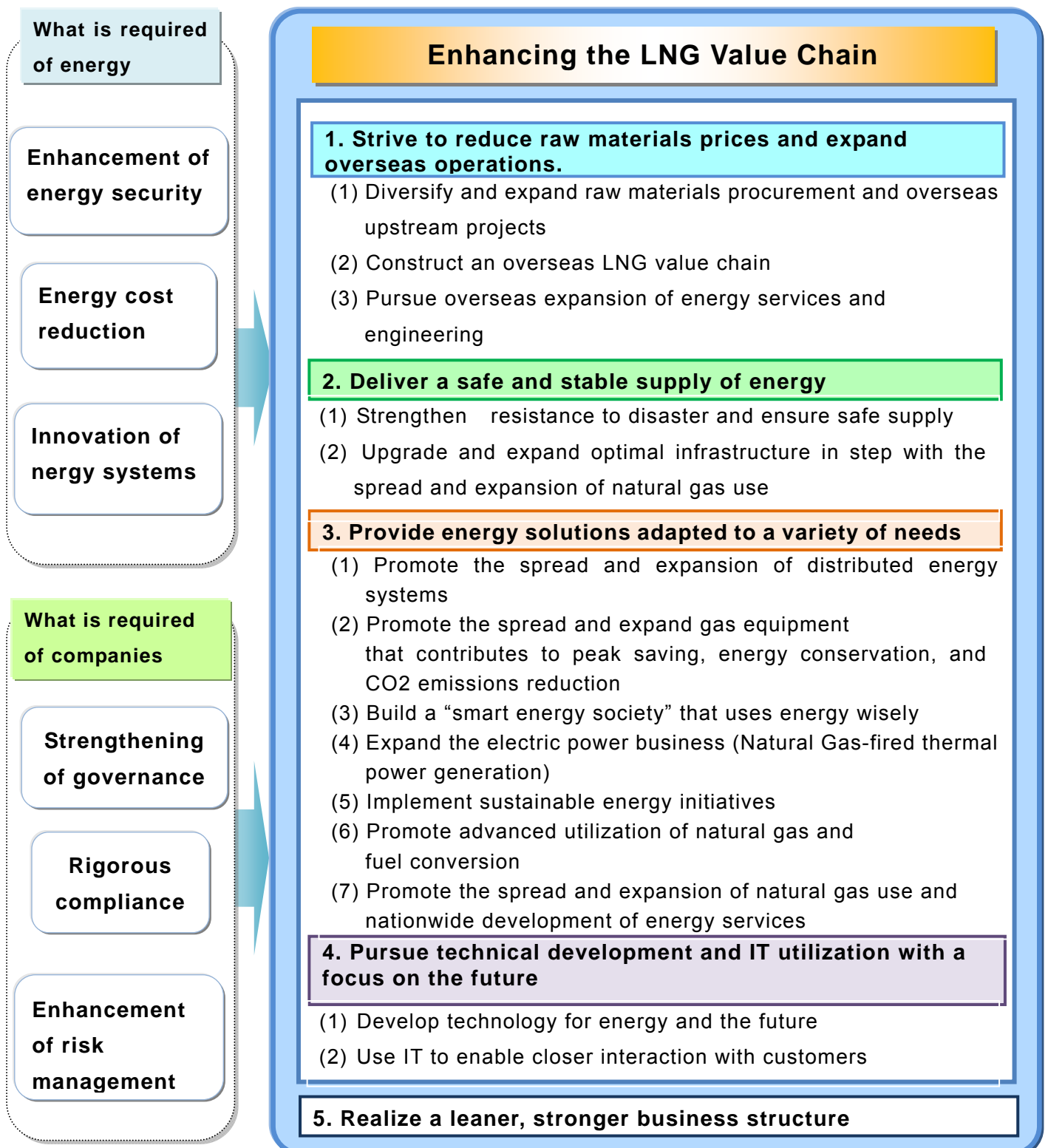
- Engage in energy system innovation, including acceleration of the shift to natural gas and the spread and promotion of distributed energy systems since Japan will be unable to rely heavily on nuclear power generation.

The Tokyo Gas Group seeks to contribute to solving the above issues through initiatives to enhance the LNG value chain. For more than 40 years since pioneering the introduction of LNG in Japan in 1969, we have striven to establish and strengthen the LNG value chain and disseminate and expand the use of natural gas as an LNG pioneer and top runner in the field of natural gas. We have renewed our commitment to be of service to our customers by further honing the technologies and expertise in LNG and natural gas we have cultivated over the years.

The Tokyo Gas Group will satisfy the needs of customers, society, and the times and strive to realize a prosperous, fulfilling way of life, competitive domestic industries, and an environment-friendly society where people can live in peace of mind. We will remain keenly aware of our corporate social responsibility and pursue sustained growth for the Group by engaging in transparent, fair management while aiming for harmonious coexistence with local communities.

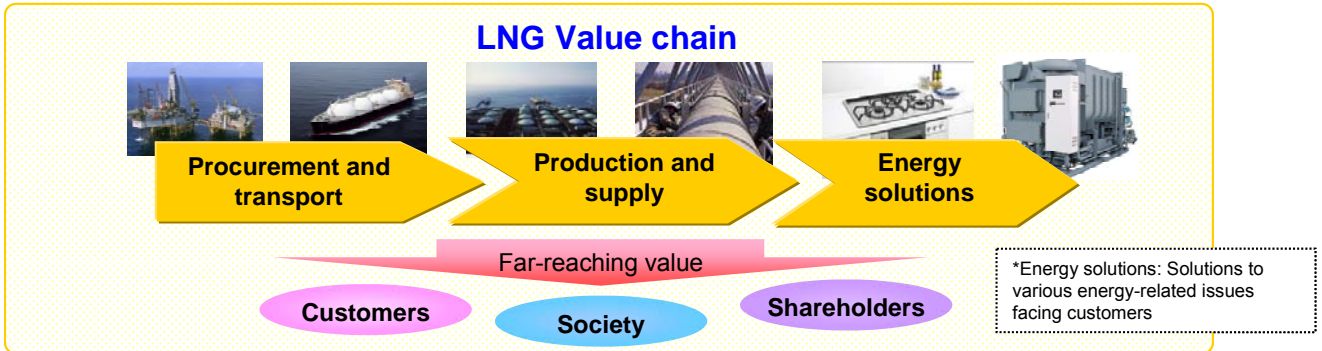
II. The Tokyo Gas Group's Vision

- The Tokyo Gas Group will pursue LNG value chain enhancement for energy and the future.



III. Enhancing the LNG Value Chain

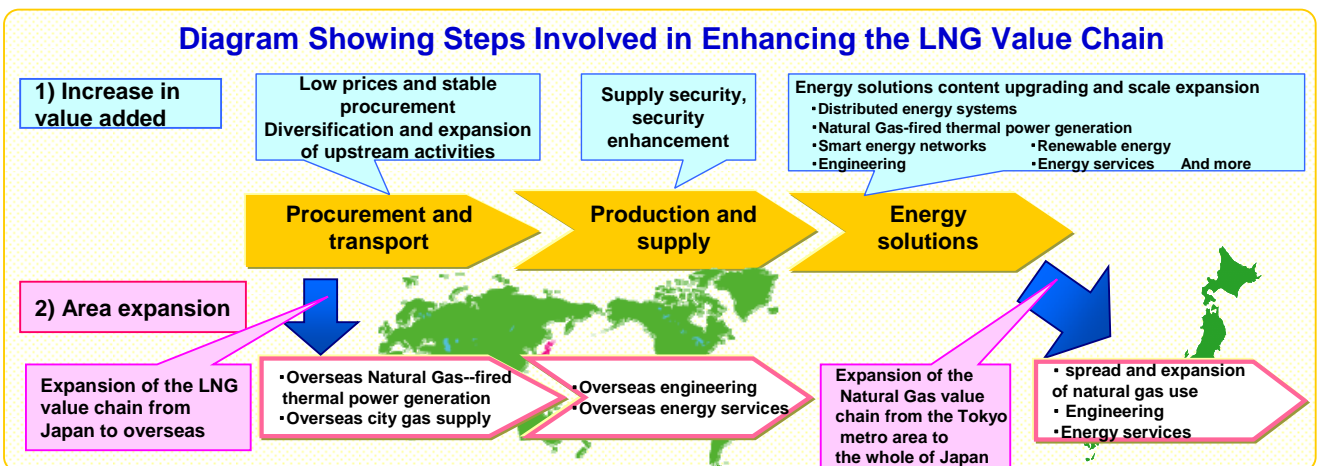
- The Tokyo Gas Group engages in a chain of business activities that extends from LNG procurement to transport, the production and supply of city gas, and the provision of energy solutions (the solving of various energy-related issues facing customers).
- The value of LNG is maximized through balanced overall operation as these business activities interconnect. The Tokyo Gas group has worked for many years to establish and reinforce this value chain and deliver the resulting value to stakeholders.



Far-Reaching Value

Customers: prosperity and fulfillment, convenience, economic efficiency, energy conservation, CO2 emissions reduction
 Society: Supply stability, environmental performance, contribution to economic growth, safety and peace of mind
 Shareholders: Corporate value enhancement

- 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.



IV. Action Plan to enhance the LNG Value Chain

1. Strive to reduce raw materials prices and expand overseas operations.

(1) Diversify and expand raw materials procurement and overseas upstream projects

- Amid expectations for increased LNG demand worldwide, the risk of rising raw materials costs is a concern. In particular, in East Asia, a region poor in pipeline gas and domestically produced gas, alternatives to LNG, it is possible that LNG prices will remain higher than in the U.S. and Europe.
- In these circumstances, while taking into consideration the balance between supply stability, price, and flexibility, 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 raw materials prices (the realization of appropriate Asian market prices*) through involvement in unconventional gas and small- and medium-scale LNG projects.

Details of Involvement

- Procure from diverse sources including unconventional gas (CBM, shale gas) and upstream project participation.
- Procure from small- and medium-scale LNG projects, floating LNG, and other new concept projects.
- Pursuit of joint procurement with other companies as necessary.
- Upgrade the LNG tanker fleet in step with increases in procurement volume

<p>CBM (coal bed methane)</p>	<p>CBM is natural gas that accumulates on the surface of minute fissures that exist in coal beds by adsorption. In the U.S., where commercial production began in the 1980s, CBM accounts for approximately 10% of natural gas consumption. In Australia, use of CBM began in earnest in the 2000s.</p>
<p>Shale gas</p>	<p>Shale gas is natural gas found in pockets in shale strata. Shale is a source rock composed of hardened mud deposits. Although drilling for shale gas is difficult and development hasn't proceeded heretofore, technological innovation in recent years has led to full-scale development.</p>



Darwin LNG Project
(Bayu-Undan Gas Field)



Queensland Curtis LNG Project
(CBM Processing Plant)



Energy Horizon

(2) Construct an overseas LNG value chain

- Construct an overseas LNG value chain and expand the overseas Natural Gas-fired thermal power generation business and gas supply business. By doing this, contribute to the safe supply of energy in overseas countries and secure flexible supply of raw materials for Japan, leading to earnings increases for the Group.
- Construct an LNG value chain in each region in which Tokyo Gas operates, and seek to engage in value chain activities across regions.

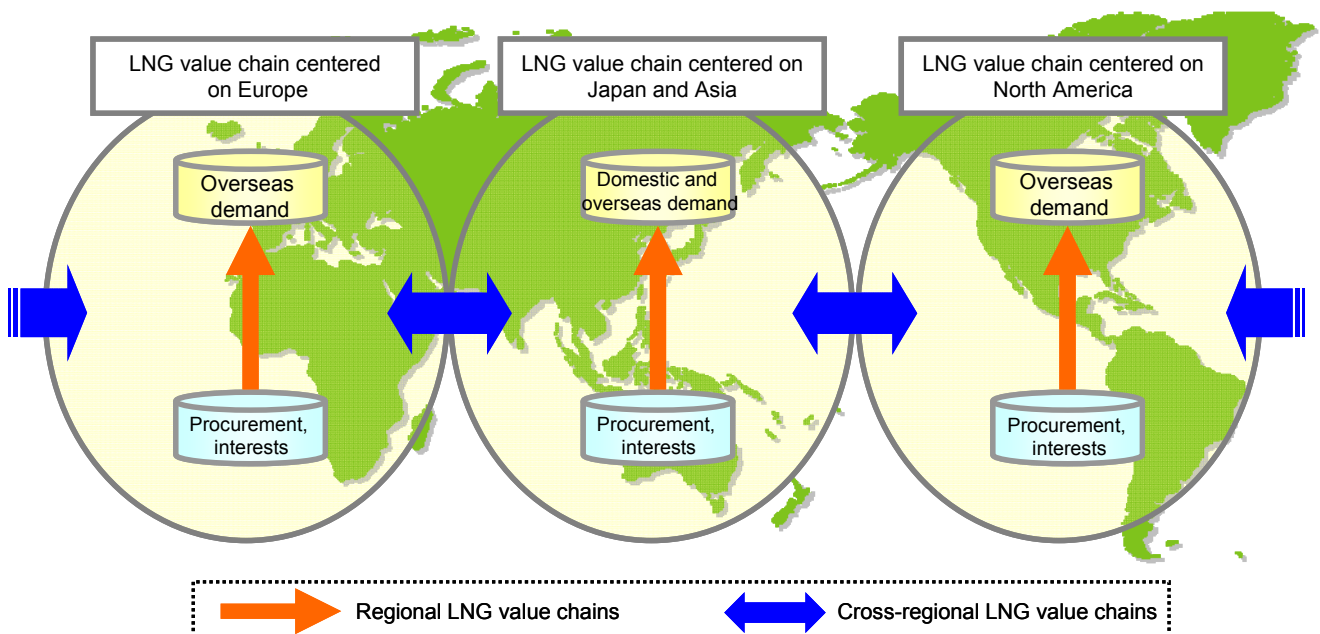
Bajio (power project in Mexico)



MT Falcon (power project in Mexico)



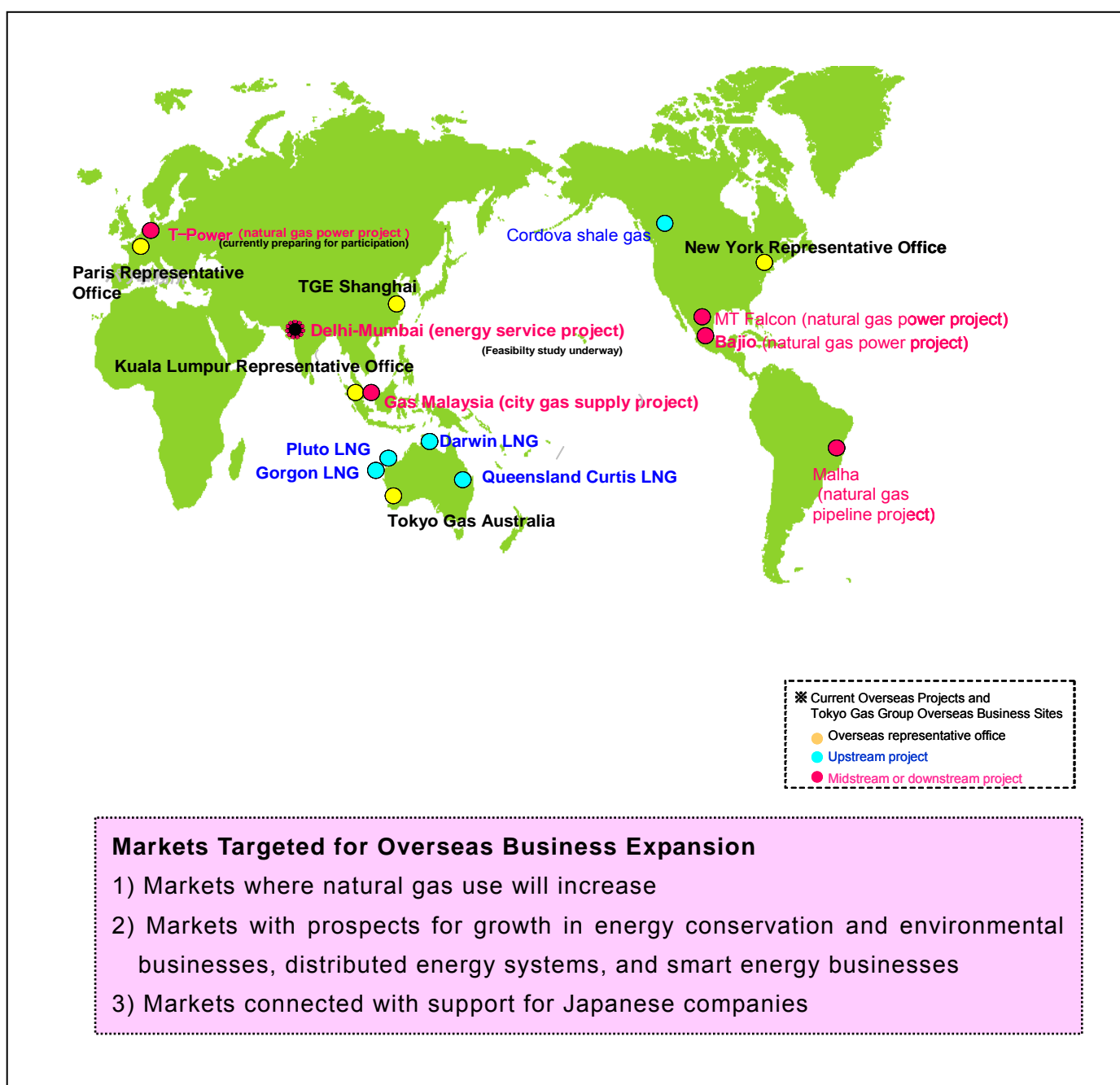
the Overseas LNG Value Chain



(3) Pursue overseas expansion of energy services and engineering

- Focusing on natural gas, pursue overseas expansion of the energy services and engineering businesses, which leverage the Tokyo Gas Group's strengths.
- Also, with a view to Japan's new growth strategy (overseas infrastructure development), seek to participate in LNG and natural gas infrastructure development projects in developing countries that hold promise for robust economic growth and where many Japanese companies set up operations.
- Through these activities, meet needs for infrastructure development, energy conservation, and CO2 emissions reduction in developing countries and the energy-related needs of Japanese companies doing business overseas.

Overseas Business Expansion



2. Deliver a safe and stable supply of energy.

(1) Strengthen resistance to disaster and ensure safe supply.

1) Preparedness for Earthquakes, Tsunamis, and Other Disasters

- Minimize areas subject to supply disruption when an earthquake occurs by means including an increase in the number of high-earthquake-resistance blocks and the formation and subdivision of tsunami and liquefaction blocks.

In addition, achieve rapid gas restoration through means including the introduction of a remote control restart system for pressure governor valves. Through these initiatives, aim for restoration within 30 days except for badly damaged areas (for an earthquake directly beneath an urban area on the scale of the Great Hanshin-Awaji Earthquake, the current situation is restoration within 55 days) by 2020.

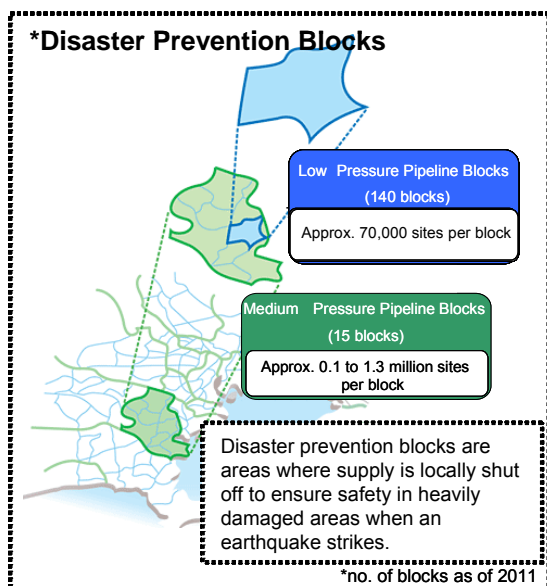
- Strengthen earthquake and tsunami countermeasures (such as seawall liquefaction countermeasures) at LNG terminals.
- Implement urban flood damage (such as localized torrential rain) countermeasures, such as raising electrical facilities at risk of inundation.
- Respond to the results of deliberations and new guidelines of the Central Disaster Prevention Council.

2) Power Failure Protection

- Reinforce power failure protection at terminals, such as upgrading of private power generation facilities.

3) Security Measures

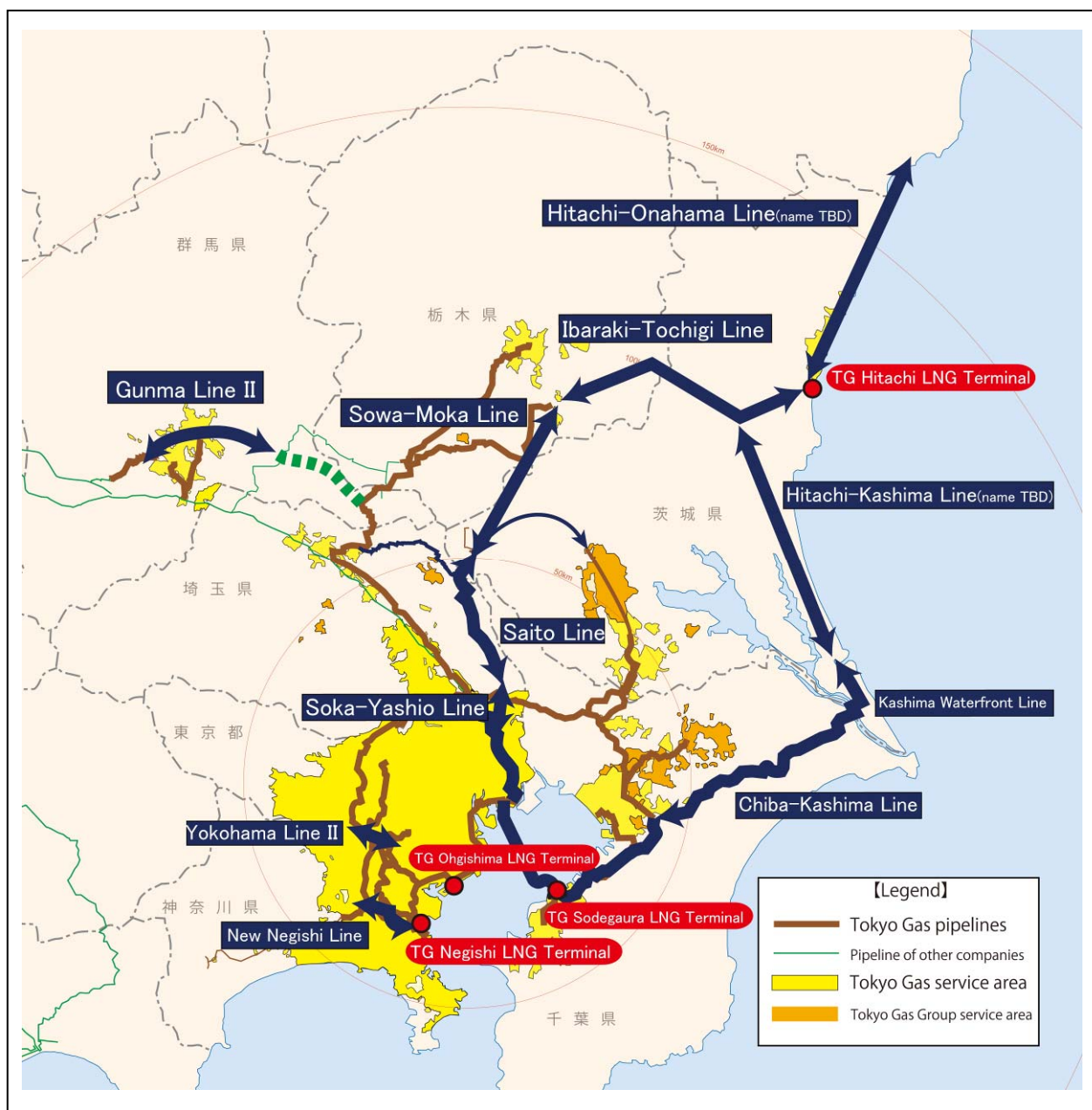
- Accelerate measures for aging pipes and other facilities, starting with aging cast iron pipes.
- Strive to eliminate gas equipment accidents by means including safety assurance through promoting the replacement of equipment not fitted with imperfect combustion prevention devices, reliable replacement of expired ventilation alarms, and dependable work (periodic security inspections, service startup).
- Proceed with the development of certified-safe equipment and facilities, including equipment development and demonstration testing for the installation of carbon monoxide sensors on four main types of commercial equipment (noodle boilers, dishwashers, bread ovens, fryers) and remote monitoring through linkage with other equipment or sensors.



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

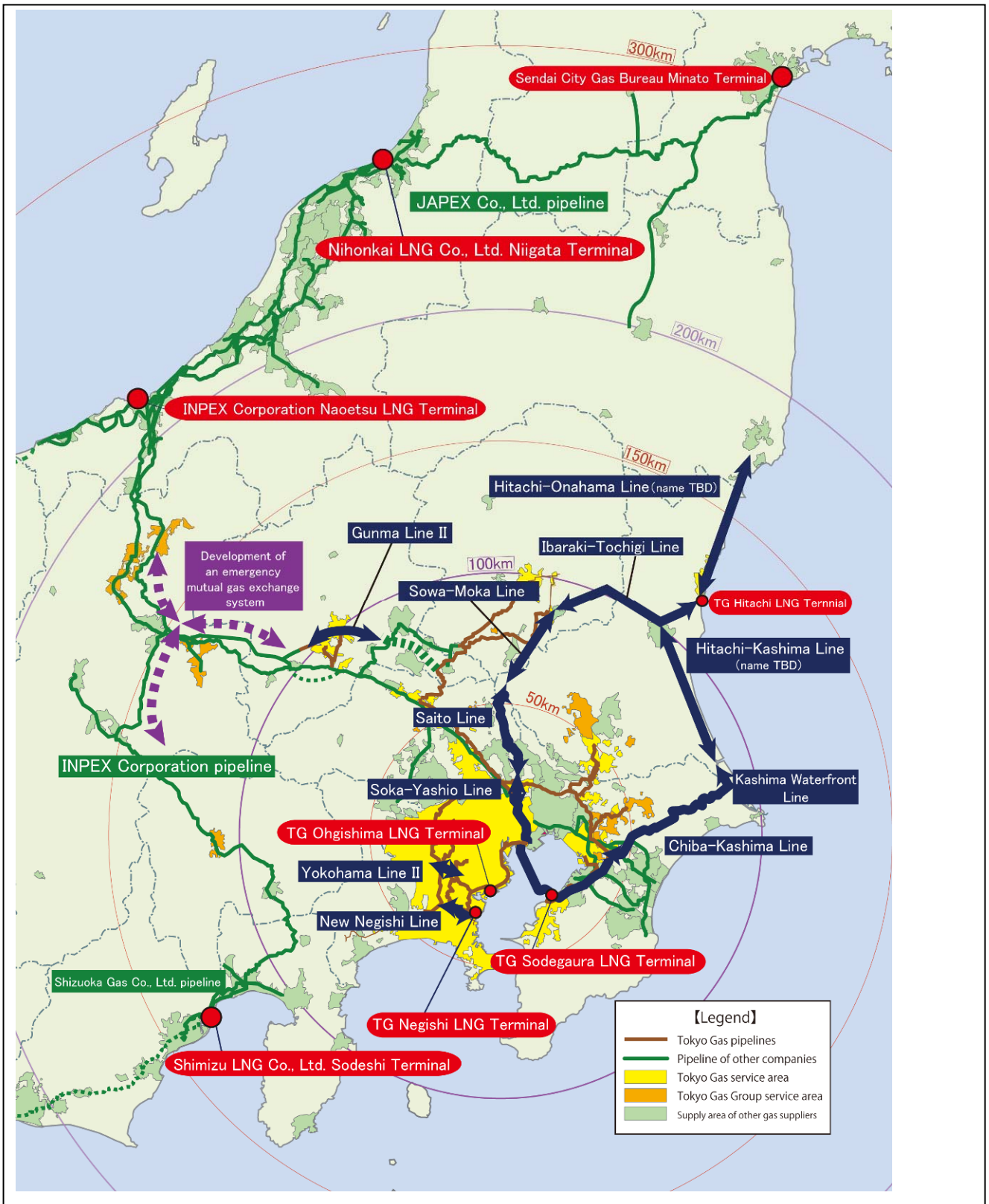
- Construction of the Hitachi LNG Terminal and linkage of the new terminal with the three terminals in Tokyo Bay will increase the stability of the overall supply infrastructure.
- In addition to constructing production and supply infrastructure to cope with increases in gas demand, contribute to enhancement of energy security for the entire Kanto region by creating a loop for trunk lines, etc.

Infrastructure in 2020 (Kanto Region)



- By developing a system for gas interchange during times of emergency by means of pipeline linkage, further strengthen the natural gas supply network in eastern Japan while also developing, upgrading, and expanding the company’s infrastructure.
- Utilize the Hitachi LNG Terminal to strengthen the lorry supply system. At the same time, strengthen the small and large tanker domestic LNG supply system.

the Gas Interchange System

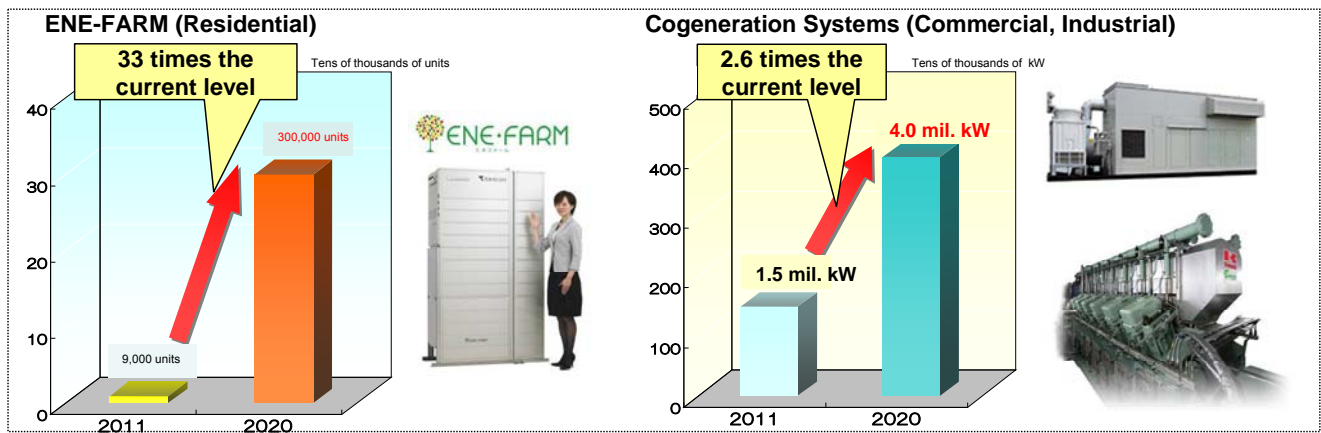


3. Provide energy solutions adapted to a variety of needs.

(1) Promote the spread and expansion of distributed energy systems.

- Spread and expand the use of distributed energy systems (residential fuel cell ENE-FARM and cogeneration systems) that can enhance energy security and contribute to peak saving, energy conservation, and CO2 emissions reduction.
- Achieve technical development (efficiency enhancement, increased durability, etc.) and cost reduction to ensure spread and expansion.
- Implement a power outage response for ENE-FARM and cogeneration systems.

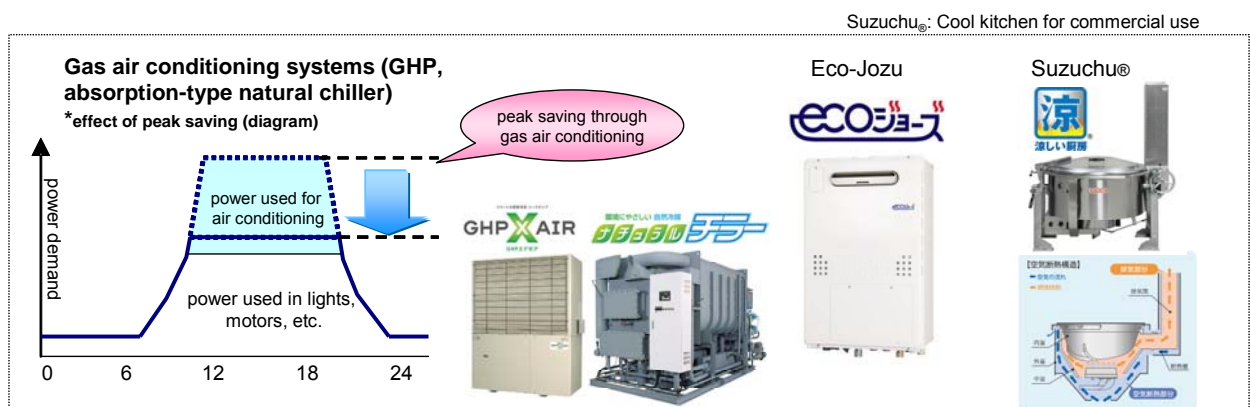
2020 Stock	ENE-FARM	300,000 units	(33 times the 2011 level)
	Cogeneration systems	4.0 million kW	(2.6 times the 2011 level)



(2) Promote the spread and expansion of gas equipment that contributes to peak saving, energy conservation, and CO2 emissions reduction.

- To contribute to peak saving, energy conservation, and CO2 emissions reduction, diffuse and expand the use of gas air conditioning systems (GHP, absorption-type natural chiller), commercial kitchen equipment (Suzuchu®, etc.), high-efficiency water heaters (Eco-Jozu), and gas floor heating systems.

2020 Stock	Gas air conditioning systems	5.7 million RT	(1.4 times the 2011 level)
	Suzuchu®	100,000 units	(7.4 times the 2011 level)
	Eco-Jozu(Including ENE-FARM systems)	2.8 million units	(4.5 times the 2011 level)
	Floor heating systems	1.3 million sites	(1.6 times the 2011 level)

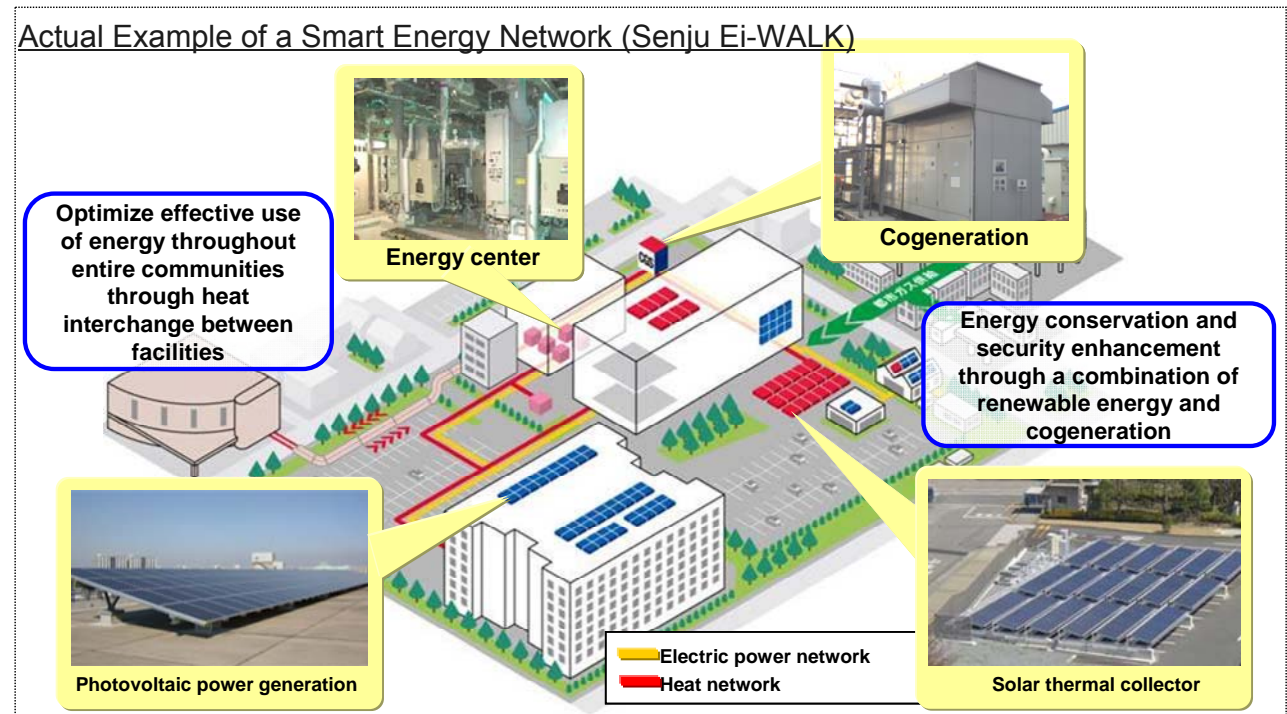
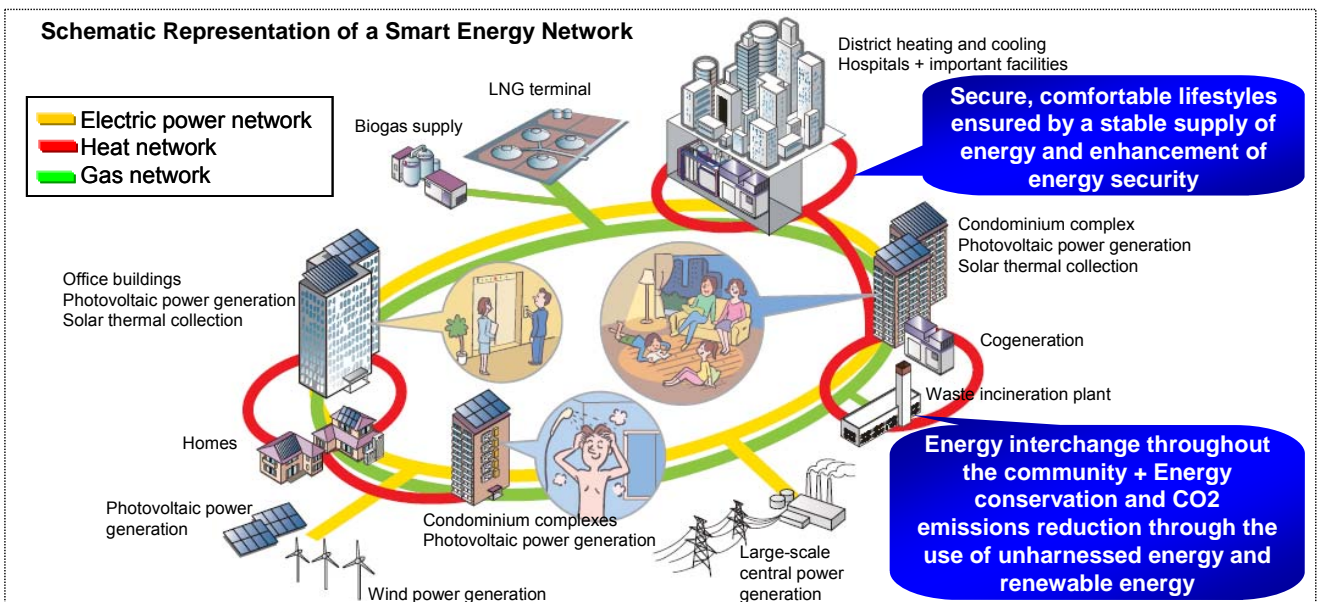


(3) Build a “smart energy society” that uses energy wisely.

1) Bringing Smart Energy to Communities and Buildings (Construction of a Smart Energy Network)

- Through urban redevelopment and support for reconstruction of the Tohoku Region, implement smart energy networks that can contribute to energy conservation, CO2 emissions reduction, and the stable supply of energy by enabling optimal use of energy throughout entire communities through heat networking.

Smart energy networks	Smart energy networks are networks that optimally control and efficiently use electricity and heat through distributed energy systems such as high-efficiency cogeneration and fuel cells, combined with renewable energy such as sunlight, solar heat, and unharnessed energy such as waste heat, through the use of information and communication technology.
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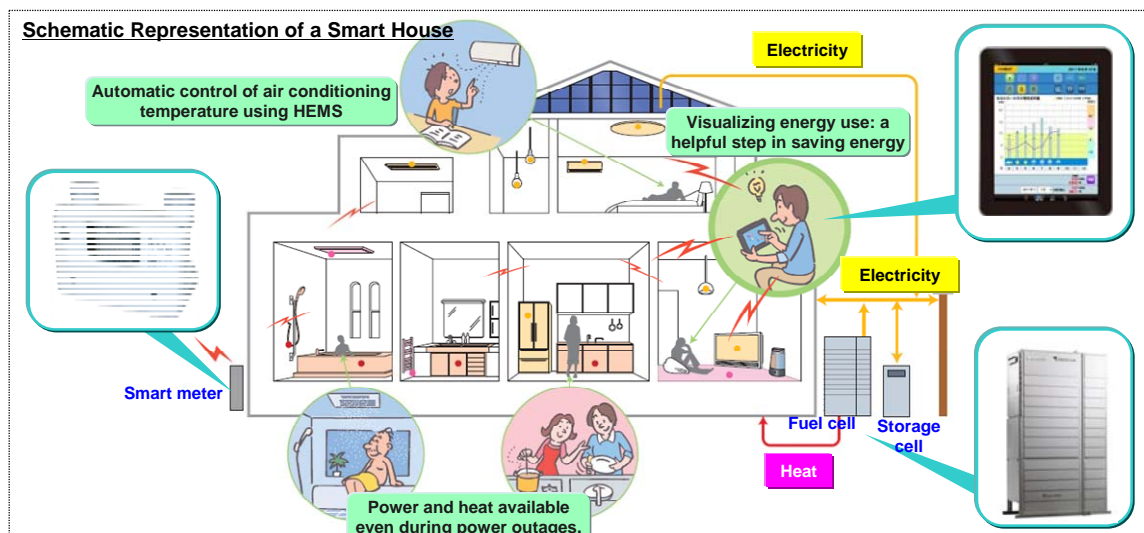
Note: In addition to the above project, similar projects are under consideration for implementation at redevelopment areas such as Tamachi and Toyosu and for Fujisawa Sustainable Smart Town.

2) Smart energy for the home

- Engage in the following measures to ensure that all customers who use natural gas realize an environment-friendly, secure, prosperous and fulfilling way of life.
 - a) Actively contribute to the diffusion of smart houses equipped with ENE-FARM, solar power, solar heat, storage cells, HEMS systems, and smart meters that can provide customers with new lifestyle value.
 - b) Promote the further spread and expanded use of floor heating systems, mist saunas, Eco-Jozu, and High-tech hot plates (Si sensor hot plates).
 - c) Through the Web and other media, strive to create new interfaces that enable continuous, bidirectional linkage with customers and seek to realize safer, more secure living for customers and achieve enhancement of customer services.
 - d) Tokyo Gas LIFEVAL companies will continue to strengthen ties with customers and support a safe, fulfilling way of life for customers by means of community-based marketing that provides meticulous value proposals and services that satisfy the wants and needs of each customer through communication with customers at every service opportunity. Furthermore, they will utilize HEMS data to provide wide-ranging services, notably proposals for energy-related products, including energy-saving services (consultation, advice, renovation proposals, etc.).
 - e) Strengthen the partnership between the Tokyo Gas Group and housing and construction contractors to propose and create lifestyle value for customers.

HEMS	An abbreviation for home energy management system, a system that promotes and supports the energy-saving behavior of customers through functions such as the visualization of energy use in the home and remote control of appliances.
Smart meters	Meters equipped with functions for enhanced meter reading (such as remote meter reading and meter reading at short intervals), the remote switching on and off of gas supply, and the collection and transmission of measurement data. Smart meter installation has progressed in overseas countries, and the number of installed smart meters in the U.S. is predicted to reach 52 million units (approximately one-third of all meters) by 2013.

Schematic Representation of a Smart House

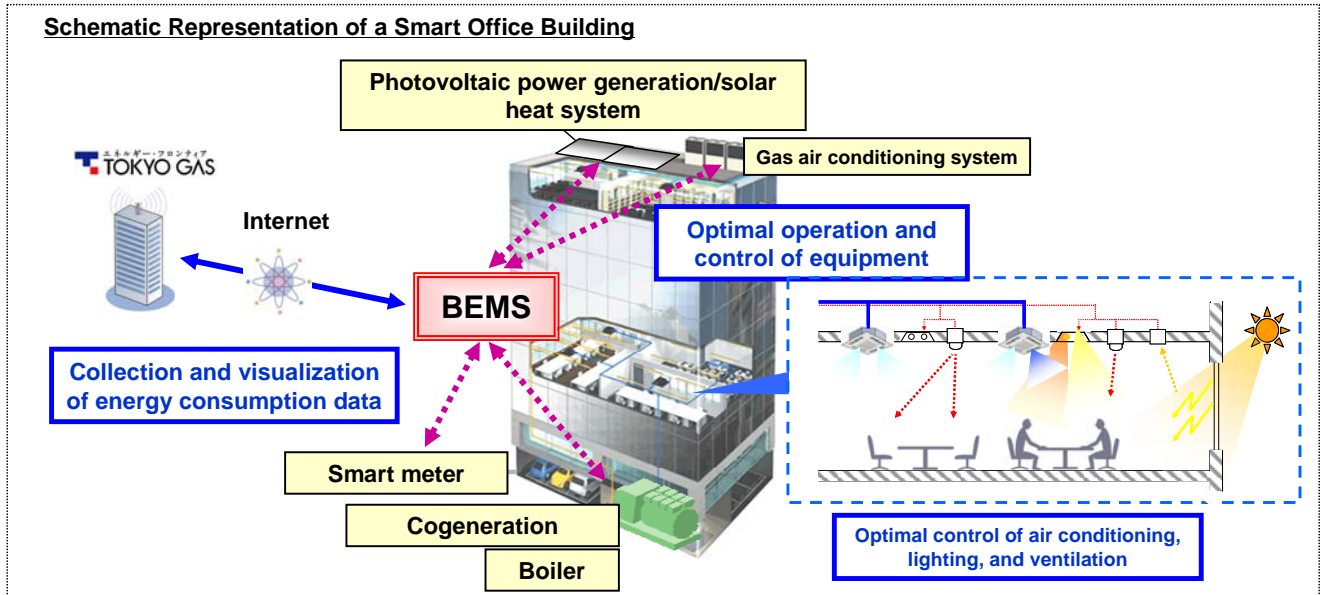


*HEMS: Home energy management system

3) Smart energy for office buildings and plants

- Upgrade the energy services menu and satisfy diverse needs, starting with needs for energy conservation, by using BEMS (building energy management systems) and smart meters for the visualization of energy use and optimal operation and control of cogeneration systems, air conditioning, boilers, and other equipment at office buildings, plants, and other business sites.

Schematic Representation of a Smart Office Building

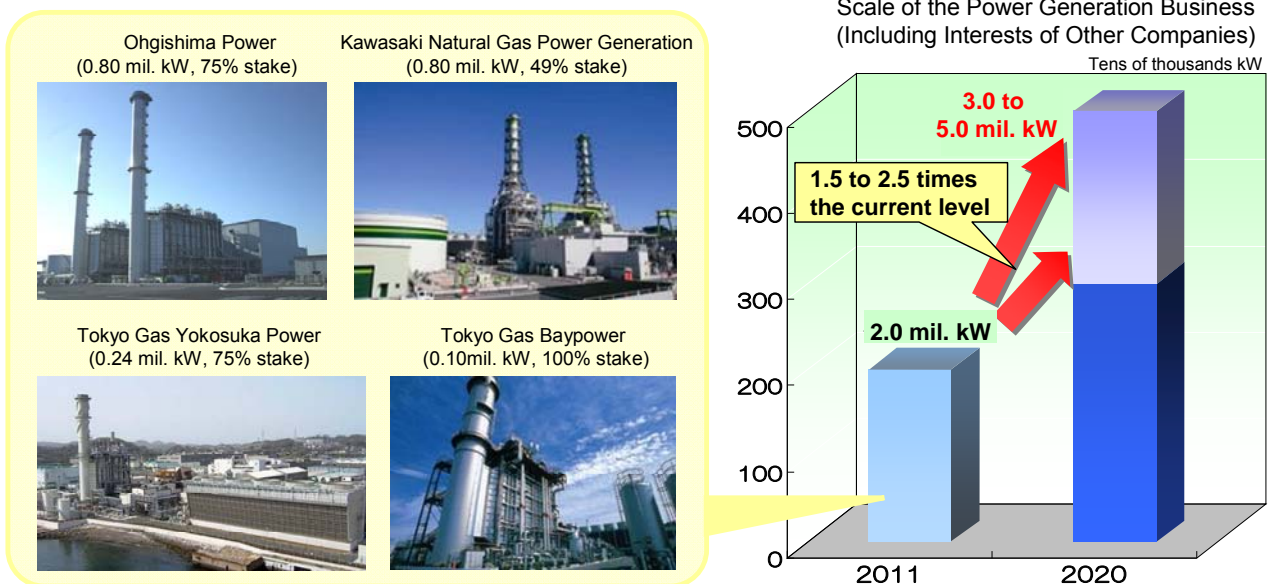


*BEMS: Building energy management system

(4) Expand the electric power business (Natural Gas-fired thermal power generation).

- To contribute to solving the electric power supply problem, Tokyo Gas will expand the Natural Gas-fired thermal power generation business using high efficient combined cycle power generation to leverage the Group's strengths: LNG terminals, pipeline facilities, and LNG procurement capabilities.

Scale of the Domestic Power Generation Business in 2020 - 3 to 5 Million kW



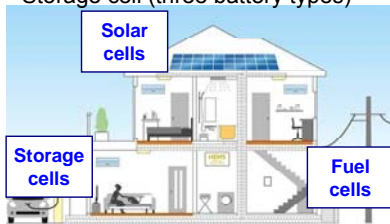
(5) Implement sustainable energy initiatives.

- Expand services that combine renewable energy sources such as sunlight, solar heat, and biomass to meet customers' energy conservation and CO2 emissions reduction needs, including ZEB, ZEH, and smart energy.
- Pursue the commercialization of renewable energy utilization technologies (combined control technology for solar cells + fuel cells + storage cells (3 battery types), biomass utilization technologies, etc.).

ZEB, ZEH	Abbreviations for net zero energy building and net zero energy home, structures that have roughly zero net consumption of primary energy over the course of a year.
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Examples of Services That Combine Renewable Energy Sources

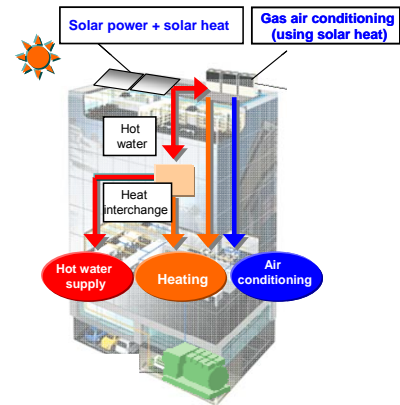
1) Solar cells + Fuel cell + Storage cell (three battery types)



2) SOLAMO + Eco-Jozu

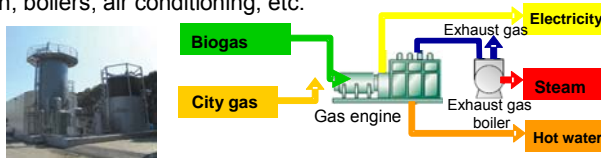


2) Commercial solar power, solar heat + hot water supply, and air conditioning



4) Biomass + Cogeneration, boiler, etc.

*Use of biogas collected from sewage, domestic waste, and other sources in cogeneration, boilers, air conditioning, etc.



* ZEB, ZEH: Net-zero energy building, Net-zero energy home

- Step up involvement in zero emission power sources such as wind power to promote the economical, stable procurement of environmental value (tradable green certificates, etc.) in response to customers' CO2 emissions reduction needs and contribute to a low-carbon society.

Scale of Wind Power Generation by 2020 - 150,000 kW

Current Participation in Wind Power Generation

Sodegaura wind power generation
(From 2005, 1,990 kW)



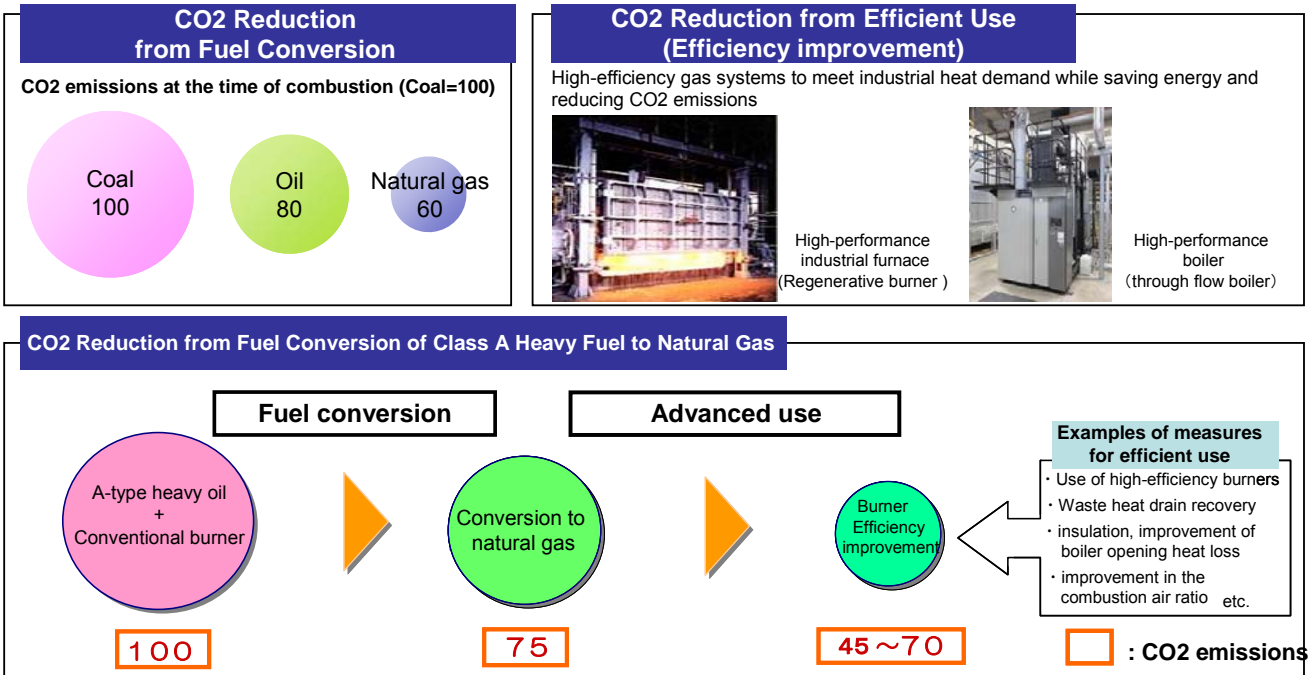
Shonai Wind-Power Generation
(From 2011, 15,910 kW, 30% interest)



(6) Promote advanced utilization of natural gas and fuel conversion.

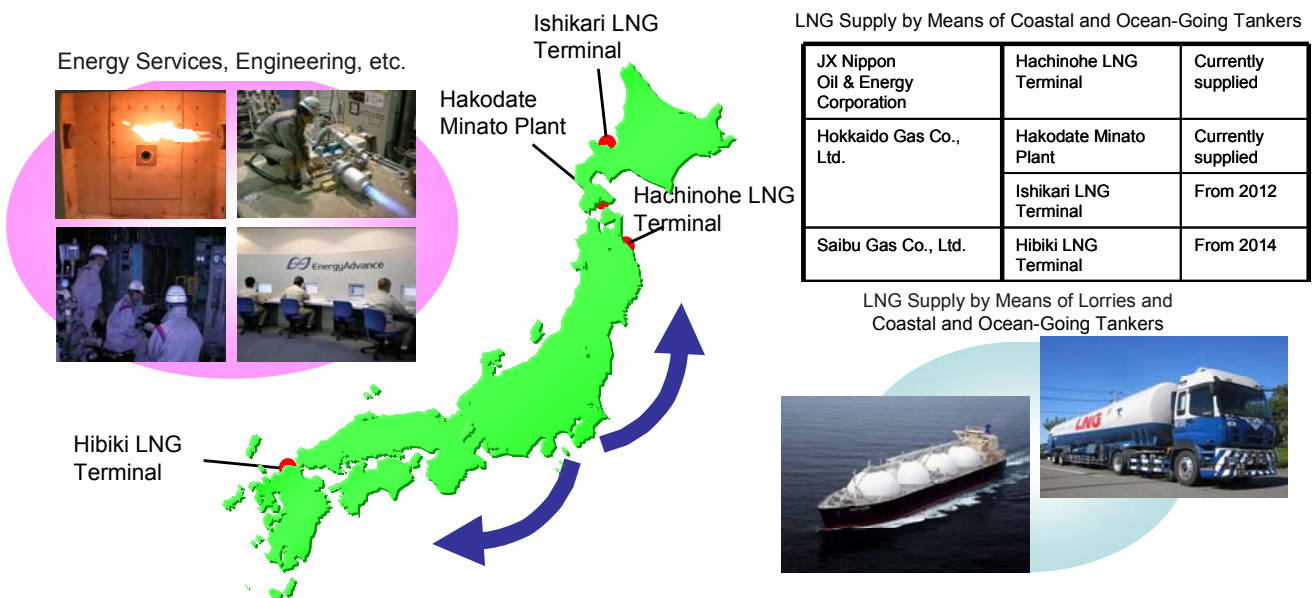
- Contribute to customers' energy conservation and CO2 emissions reduction efforts by fully leveraging the Tokyo Gas Group's technological capabilities and promoting advanced use of natural gas and fuel conversion.

Progress with Fuel Conversion by 2020 - Approx. 2.5 Billion m³



(7) Promote the spread and expansion of natural gas use and nationwide development of energy services.

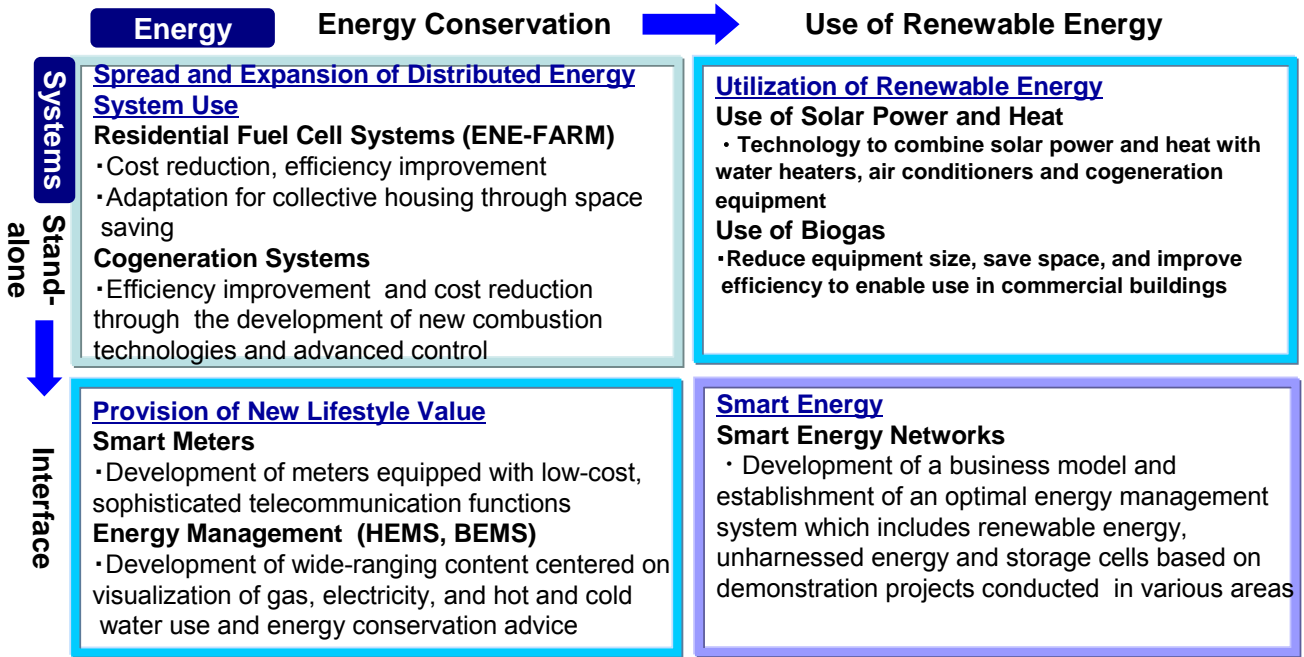
- In addition to promoting the spread and expansion of natural gas use in the Tokyo metropolitan area through locally based activities, Tokyo Gas will expand LNG supply coverage to all of Japan by means of lorries, ocean-going tankers, and coastal tankers. We will also contribute to the spread and expansion of natural gas use by taking maximum advantage of the Group's marketing and technological capabilities, such as energy services and engineering, to meet the needs of domestic gas and other companies.



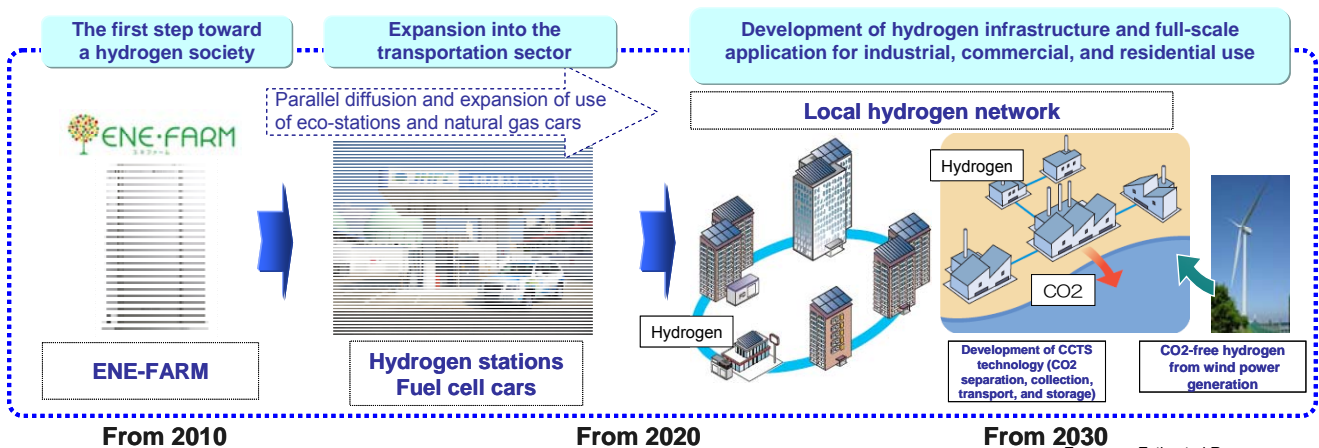
4. Pursue technical development and IT utilization with a focus on the future.

(1) Engage in technical development with a focus on the future.

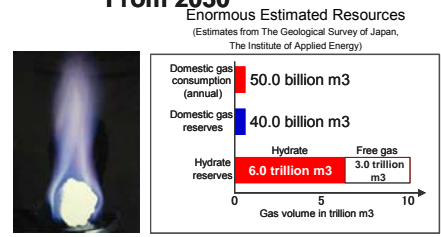
- Engage in technical development of distributed energy systems, renewable energy, smart energy, and other innovations with an eye on 2020.



- With a view to the 2020s and beyond, engage in technical development for the realization of a hydrogen society, technical development in the separation, collection, transport, and storage of CO2 (carbon capture, transport and storage, or CCTS), and research and development relating to methane hydrate.

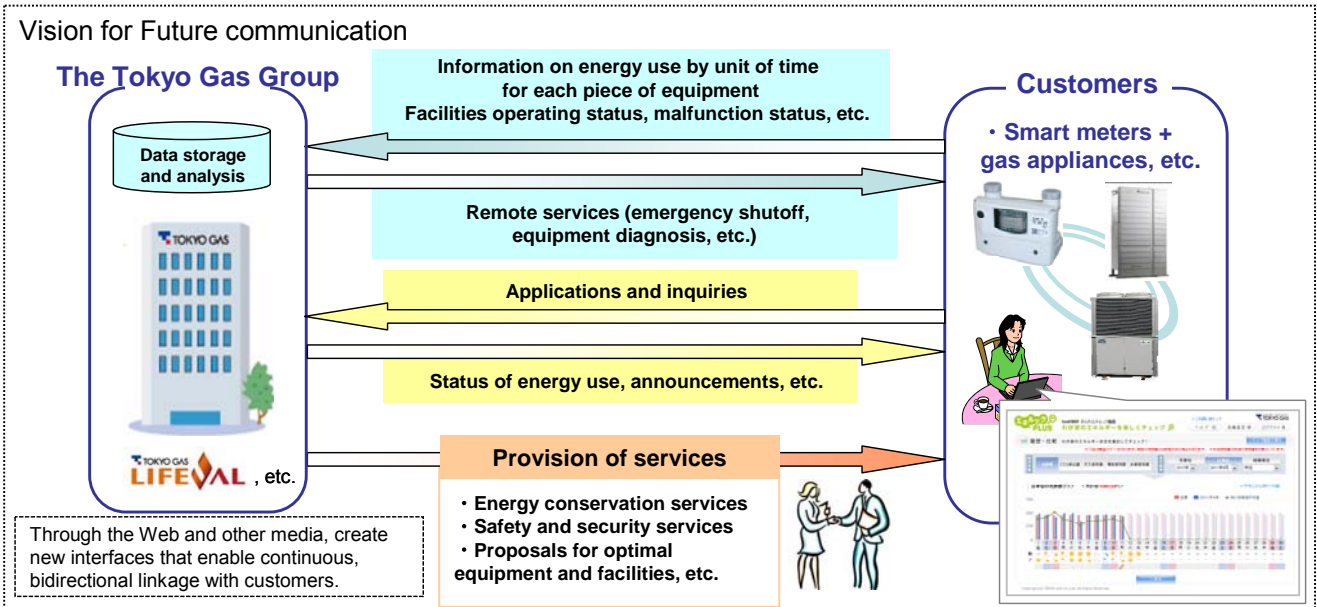


Methane Hydrate
 • In cooperation with the government of Japan, Tokyo Gas will explore the development potential of methane hydrate, which is said to exist in abundance under the seabed in waters close to Japan and is expected to become an important future gas resource.



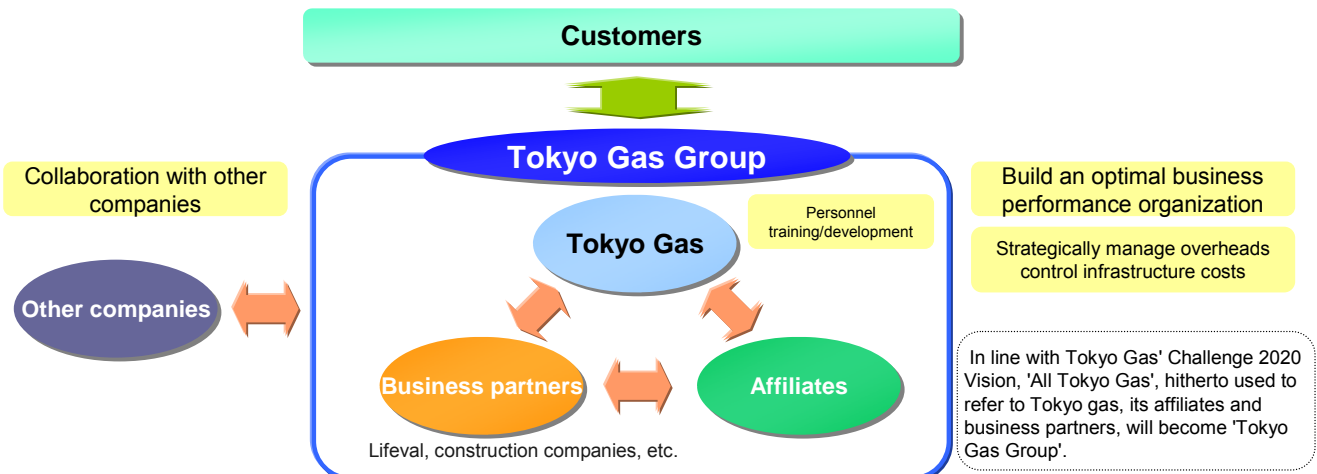
(2) Use IT to enable closer communication with customers

- In addition to meeting new needs, such as for smart houses and smart meters that apply IT, achieve closer interaction with customers.
- Realize business-supporting information systems that are resistant to disasters and accidents and stable at all times.



5. Realize a leaner, stronger business structure.

- Build an optimal business performance organization from the whole Tokyo Gas Group (business partners such as affiliates, Lifeval, etc.) so as to realize the Group's collective strength. When doing this, effect a review of duties and ensure the suitable conduct of all group personnel. Consider and pursue collaboration with other companies in the performance of duties.
- Strategically manage overheads, Control infrastructure costs, and pursue the establishment of efficient facilities.
- Develop and reinforce human resources throughout the group to enhance the LNG value chain.

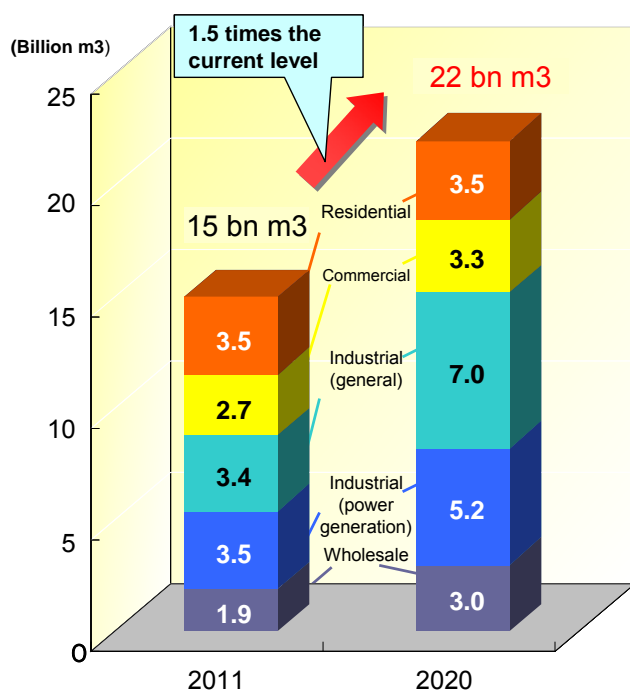


V. Challenge performance indicators for the year 2020

1. Key Indicators for the Spread and Expansion of Natural Gas

- Through the previously mentioned initiatives, Tokyo Gas will undertake to achieve the following key performance indicators.

	Current Situation (Forecast for Fiscal 2011)	2020
Supply gas volume (including LNG supply)	15 billion m ³ /year	22 billion m ³ /year
ENE-FARM (stock)	9,000 units	300,000 units
Cogeneration (stock)	1.5 million kW	4.0 million kW
Gas air conditioning (stock)	4.0 million RT	5.7 million RT
Power generation business (including interests of other companies)	Domestic: 2.0 million kW Overseas: 3.3 million kW	Domestic: 3.0 to 5.0 million kW Overseas: 5.0 million kW



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%

Gas Supply Volume

2. Financial Performance Indicators

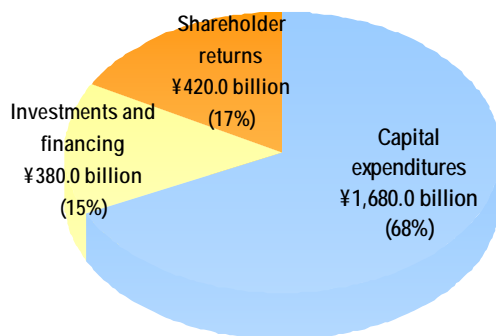
- Tokyo Gas will actively invest capital to prepare for sustained growth and has established the following performance indicators, taking into consideration investment efficiency, the financial position, and shareholder returns.

	Current Situation (2009–2011 average)	Future Vision (Fiscal 2020)
Consolidated operating cash flow	Approx. 210 bn ¥/yr	Approx. 250 bn ¥/yr (2012-2020 total : 2,240 bn ¥)
ROE	7.3%	Approx. 8%
ROA	3.3%	Approx. 4%
D/E ratio	0.7	Approx. 0.8 (each fiscal year)
Total payout ratio	60.6% (2009-2010 average)	Approx. 60%

Cash Flow Distribution

Capex·Investments and financing· Shareholder return

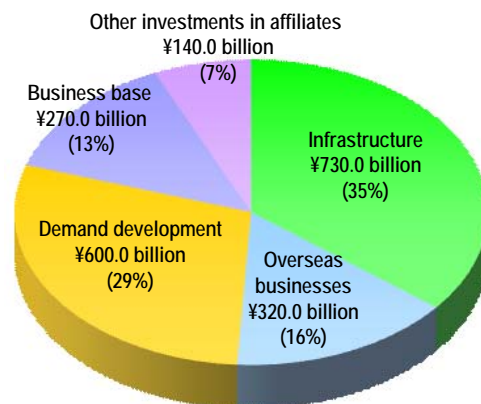
Fiscal 2012 to 2020 total: approx. ¥2,480 bn



Consolidated operating cash flow	¥2,240 bn
External debt (interest bearing debt) etc	¥240 bn
Capex · Investments and financing · Shareholder return	¥2,480 bn

Use of Capital Expenditures and Investments and Financing

Fiscal 2012 to 2020 total: approx. ¥2,060 bn
(Approx. ¥230.0 billion/year)



Reference: Capital investments and investments and financing in the medium-term management plan for FY 2009 to 2013 : Approx. ¥180.0 billion/year

3. Business Structure (Consolidated Net Income Ratio by Business)

- Through the initiatives outlined heretofore, Tokyo Gas will grow the LNG sales, power generation, other, and overseas business while expanding the domestic gas business. We will aim to change the current 7 to 2 to 1 ratio of net income from the Gas Business, LNG Sales, Electric Power Business and Others, and Overseas Business to a ratio of 2 to 1 to 1.

