

Progress toward Achieving “Challenge 2020 Vision”

Tokyo Gas Co., Ltd.

Tokyo Gas Co., Ltd. (President: Mr. Tsuyoshi Okamoto; “Tokyo Gas”) compiled Challenge 2020 Vision (“Vision”) in November 2011 to indicate the path for the Tokyo Gas Group toward 2020 as a top runner in the field of natural gas, in order to boost the value we provide to customers and society and contribute to national economic development and the improvement of the national standard of living. The Vision aims at enhancing the LNG value chain from LNG procurement and transportation through to the production and supply of city gas and the provision of energy solutions which resolve diverse customer energy issues. The Group has been steadily implementing efforts toward achieving the Vision, and this release summarizes the main efforts since April 26, 2013 when the progress status was last announced.

In raw materials procurement and overseas business, Tokyo Gas has been working to reduce raw materials prices by diversifying suppliers and contract contents, and to expand overseas business. Specifically, in September 2013 **the U.S. Cove Point LNG Project**, from which LNG purchases (1.4 million tons per year) have already been set, received approval from the U.S. Department of Energy to export LNG to countries with which the U.S. has not signed Free Trade Agreements. With the acquisition of this export approval, LNG imports from this project, which are being advanced with a target around 2017, took a major step forward.

In efforts to upgrade and expand the production and supply infrastructure, the construction of **the Ohgishima Terminal No. 4 LNG Tank**, which has the world’s largest storage capacity of 250,000 kl, was completed in October 2013, and the tank will be put into operation soon. Additionally, construction works on the **Hitachi LNG Terminal** and the **Ibaraki-Tochigi Line**, which were already underway, proceeded steadily, while construction also began in August 2013 on the **Hitachi Line**, which will provide pipe supply from the Hitachi LNG Terminal to the existing Hitachi Branch area.

In energy solutions, Tokyo Gas developed and initiated sales in October 2013 of the world’s first **ENE-FARM residential fuel cells for condominiums** and of **packaged miniature co-generation systems** that greatly reduce total costs through improved equipment efficiency gains and optimal combinations.

In the electric power business, construction began on the **Ohgishima Power Station No. 3** (400,000 kW) in June 2013 toward starting operations in FY2015. Efforts to promote the advanced utilization of natural gas and fuel conversion are steadily moving forward with the development of approximately 800 million m³ in demand by the end of FY2013 along with the initiation of supply through the Chiba-Kashima Line in March 2012

Tokyo Gas will continue striving to enhance the LNG value chain toward achieving Challenge Vision 2020.

Current Status of Progress of Main Themes in Challenge 2020 Vision

(Main efforts since April 26, 2013 release)

<p>Raw Materials Procurement</p> <p>Overseas Business</p>	<p>(1) Diversification of raw materials sources</p> <ul style="list-style-type: none"> In September 2013 the U.S. Cove Point LNG Project, from which LNG purchases (1.4 million tons per year) have already been decided, received approval from the U.S. Department of Energy to export LNG to non-FTA countries. The project developed toward beginning LNG imports in 2017. Imports of U.S. produced LPG at prices indexed to U.S. propane market prices are scheduled to begin from January 2014. <p>(2) Promotion of overseas business</p> <ul style="list-style-type: none"> In the shale gas development business at the Barnett basin in Texas, U.S. where Tokyo Gas began participation this April, new gas well drilling and gas production proceeded as planned (projected production volume of 350,000 tons/year LNG equivalent). 								
<p>Production & Supply</p>	<p>(1) Construction of Ohgishima Terminal No. 4 LNG Tank</p> <ul style="list-style-type: none"> Completed construction of the Ohgishima Terminal No. 4 LNG tank (storage capacity of 250,000 kl; operation from Nov. 2013), upgrading the foundation for stable supply toward 2020 along with the Hitachi LNG Terminal. <p>(2) Upgrading the natural gas infrastructure centered on Ibaraki Prefecture</p> <p>[1] Hitachi LNG Terminal & Ibaraki-Tochigi Line</p> <ul style="list-style-type: none"> At the Hitachi LNG Terminal, in addition to advancing tank and berth engineering works, construction works began for water intake and discharge, piping, and equipment installation. Construction was completed for about 40% of the total length of the Ibaraki-Tochigi Line (approx. 84km), with works advancing steadily toward starting operations in FY2015. <p>[2] Hitachi Line</p> <ul style="list-style-type: none"> Began construction on the Hitachi Line (August 2013), which will provide pipe supply from the Hitachi LNG Terminal to the existing Hitachi Branch area. <p>(3) Advancing the enhancement of trunk lines</p> <ul style="list-style-type: none"> Yokohama Line II and the New Negishi Line began operations from August 2013 and October 2013, respectively, to reinforce gas transport capacity in response to increased demand in Kanagawa Prefecture and western Tokyo. <p>(4) Disaster countermeasures and ensuring security</p> <ul style="list-style-type: none"> Increased flow and pressure control equipment at the points connecting the pipelines of INPEX Corporation with Tokyo Gas pipelines, and upgraded the system for prompt gas sharing between the companies during emergencies (June 2013). Divided the 179 disaster prevention blocks into 191 blocks (June 2013) to minimize the number of blocks undergoing supply suspensions during earthquakes, toward the target of 200 blocks by around 2018. 								
<p>Energy Solutions</p>	<p>(1) Promoting the spread and expansion of distributed energy systems and gas air conditioning</p> <p>[1] Accelerating efforts to spread and expand the ENE-FARM residential fuel cell</p> <ul style="list-style-type: none"> Established ENE-FARM Partners (a cooperative body with 5 organizations and 82 companies participating) to strengthen inter-industry ties among housing-related companies, manufacturers, and energy businesses (May 2013). Jointly developed the world's first ENE-FARM residential fuel cells for condominiums with improved installation, earthquake resistance and wind resistance together with Panasonic Corporation, and began taking orders (October 2013). <table border="1" data-bbox="406 1951 1469 2056"> <thead> <tr> <th>No. of units sold</th> <th>FY2011</th> <th>FY2012</th> <th>FY2013 Outlook (Plan)</th> </tr> </thead> <tbody> <tr> <td>ENE-FARM</td> <td>5,700 units</td> <td>7,600 units</td> <td>12,000 units (12,000 units)</td> </tr> </tbody> </table>	No. of units sold	FY2011	FY2012	FY2013 Outlook (Plan)	ENE-FARM	5,700 units	7,600 units	12,000 units (12,000 units)
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[2] Promoting the spread and expansion of cogeneration systems and gas air conditioning

- Promoted the spread and expansion of distributed energy systems and gas air conditioning using all types of subsidies in response to customer demand for improved energy security, energy conservation and CO₂ reduction.
- Initiated sales of packaged miniature co-generation systems that greatly reduce total costs through improved equipment efficiency and optimal combinations and are easier to install (Oct. 2013).

Developed volume	FY2011	FY2012	FY2013 Outlook (Plan)
Cogeneration	50,000 kW	150,000 kW	220,000 kW (220,000 kW)
Commercial gas air conditioning	140,000 RT	170,000 RT	180,000 RT (180,000 RT)

(2) Expansion of the electric power business

- Began construction of Ohgishima Power Station Unit 3 (June 2013) toward commencing operations within FY2015.

(3) Nationwide development of LNG sales

- Promoted LNG sales for trucks, coastal vessels and ocean vessels to meet the needs of gas utilities and other businesses nationwide.

	FY2011	FY2012	FY2013 Outlook (Plan)
LNG Sales	440,000 tons	600,000 tons	790,000 tons (790,000 tons)

(4) Promotion of advanced utilization of natural gas and fuel conversion

- With the initiation of supply through the Chiba-Kashima Line in March 2012, developing cumulative demand of approx. 800 million m³ along the line by the end of FY2013.

(5) Promotion of smart energy systems

- In the smart energy network being planned for the north district of Tamachi Station east exit, the construction work is underway on an energy supply plant introducing the SENEMS system which optimizes area energy supply and demand and makes it visible using solar and other renewable energies, gas engine cogeneration and ICT (electricity and heat supply scheduled to begin from July 2014).
- In the smart energy network being planned for the Toyosu wharf district, an energy supply plant is being designed which complies with the Business Continuity Plan by installing a world-class, large-scale, high-efficiency gas engine cogeneration system, which surpasses the average efficiency of thermal power plants, and private electric power lines, and which incorporates environmental contributions from gas pressure differential power generation (construction scheduled to begin at the end of FY2013; electricity and heat supply scheduled to begin from the end of FY2015).
- In the detached housing area of the Fujisawa Sustainable Smart Town (approximately 600 lots, construction started Sept. 2013), promoted overall CO₂ reduction and boosted energy security by introducing a system combining ENE-FARM, solar power generation and storage batteries.