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For immediate release

Mitsui Fudosan Co., Ltd.  
Tokyo Gas Co., Ltd.

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## **Mitsui Fudosan and Tokyo Gas Collaborate in Nihonbashi Smart Energy Project Japan's First Stable Supply of Electricity and Heat to Surrounding Areas, Including Existing Buildings**

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Tokyo, Japan, April 15, 2019 - Mitsui Fudosan Co., Ltd., a leading global real estate company headquartered in Tokyo, and Tokyo Gas Co., Ltd. announced today that Mitsui Fudosan TG Smart Energy Co., Ltd., a company they jointly established, started the Nihonbashi Smart Energy Project, the first to provide a stable supply of electricity and heat to areas surrounding Nihonbashi Muromachi, including to existing buildings, on April 1. Construction on the Nihonbashi Energy Center inside Nihonbashi Muromachi Mitsui Tower was completed on March 31.

The Nihonbashi Smart Energy Project aims to realize attractive neighborhoods that enhance energy resilience\*<sup>1</sup> with stable energy supplies that are resilient to disasters and save energy and reduce CO<sub>2</sub> emissions. The project aims to make Nihonbashi robust in disasters and a highly competitive global neighborhood.

Mitsui Fudosan and Tokyo Gas plan to collaborate further going forward in other areas, such as Toyosu (where a project is scheduled for completion in 2020). By deepening and evolving their collaborative efforts, the companies will build an advanced smart energy business it can communicate within and outside of Japan.

### **■Project Overview**

- **Mitsui Fudosan and Tokyo Gas collaborate and renew the entire Nihonbashi neighborhood's energy**
  - Remake Nihonbashi's existing buildings with advanced environmental performance and disaster resilience to create a highly competitive global neighborhood
- **Raise energy resilience throughout the entire neighborhood, including existing buildings**
  - Realize multiplex electricity sources through a large-scale cogeneration system (CGS)\*<sup>2</sup> with dispersed electricity sources utilizing piped gas and grid electricity to implement Japan's first power transmission and specified distribution business\*<sup>3</sup> for surrounding areas, including existing buildings
  - Supply electricity continuously to existing buildings or facilities for those unable to return home following a disaster by generating electricity using medium-pressure gas during times of widespread power outage
  - Stably supply energy by using medium-pressure gas pipeline, which has a track record of high resilience to earthquakes
- **Environmentally friendly neighborhood creation through locally produced for locally consumed energy realizes energy saving and reduced CO<sub>2</sub>**
  - Locally produced for locally consumed energy through a heat supplying business\*<sup>4</sup> that utilizes waste heat created when a CGS generates power and highly efficient heat sources
  - Utilize information networks for optimal operations control, including heat source equipment for existing buildings
  - Reduce CO<sub>2</sub> emissions by approx. 30%\*<sup>5</sup>

\*1 Energy resilience: Toughening an energy supply network. Based not only on measures for emergencies, but also on the importance of all sorts of preparations made during ordinary times

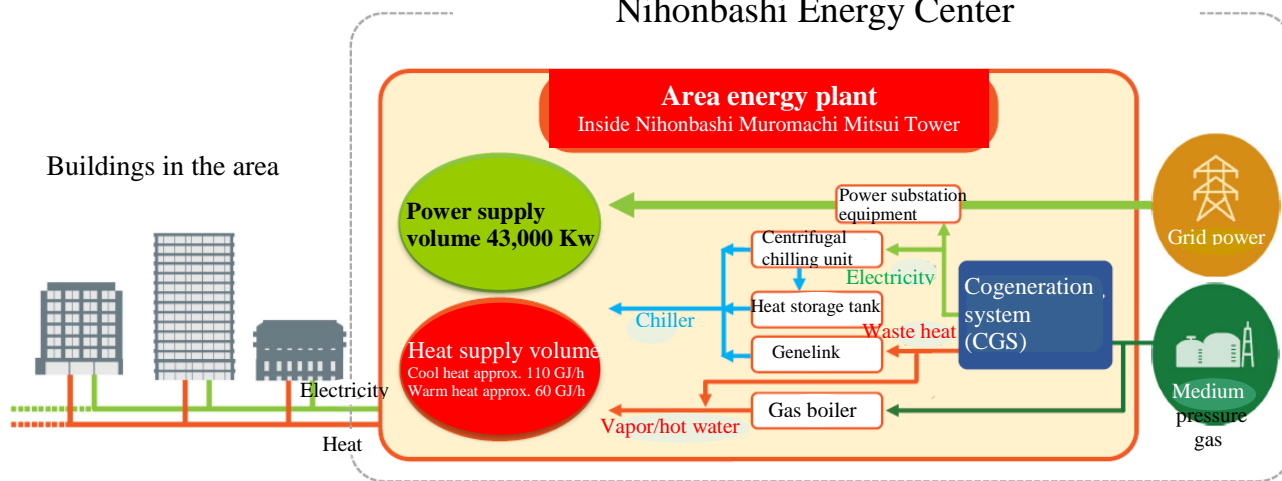
\*2 Cogeneration system (CGS): Producing electricity and heat through a heat source (city gas) and supplying energy with a high total energy efficiency

\*3 (Registered) Power transmission and distribution business: Maintain and operate power transmission and distribution facilities such as transmission lines, substations and specified distribution lines. The business has applied for permission to the Minister for Economy, Trade and Industry to transmit energy to specified supply points and is registered as a retail supplier

\*4 Heat supply business: A business operator as specified under the Heat Supply Business Act, registered with the Minister of Economy Trade and Industry, supplying heat through the operation and maintenance of its own heat supply facility such as heat source facilities and piping

\*5 Reduce CO<sub>2</sub> by approx. 30% through effective use of waste heat, highly efficient equipment and optimization of supply

# Nihonbashi Energy Center



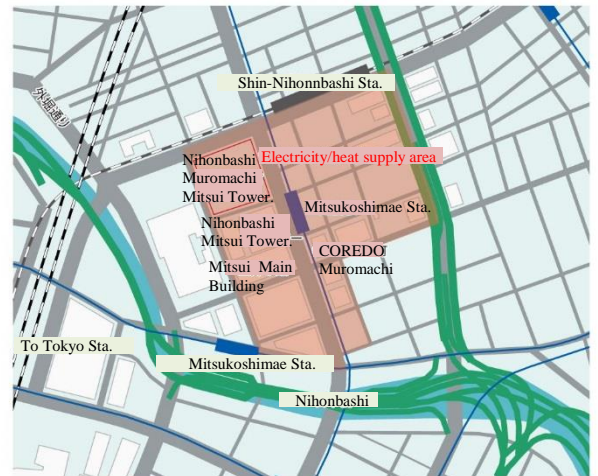
## Nihonbashi Smart Energy Project

## ■Project Features

### 1. Mitsui Fudosan and Tokyo Gas collaborate and renew the entire neighborhood

Mitsui Fudosan has aimed to establish a sustainable society through the creation of neighborhoods that solves social issues such as energy and environmental problems, low birthrate and rapid aging and industrial renovation. In Nihonbashi, Mitsui Fudosan has worked on the Nihonbashi Revitalization Plan, a collaborative public, private and community initiative based on the concept of “Proceeding to Create While Retaining and Reviving” and moved forward based on the four key phrases of industry creation, neighborhood creation, community cohesion and renewal of an aqua metropolis. Furthermore, the Great East Japan Earthquake reaffirmed the importance of energy. Promotion of smart cities in central urban areas such as Nihonbashi, which have a concentration of office buildings and retail facilities, are of urgent priority from the viewpoint of stable economic activity and maintenance of city functions, and Mitsui Fudosan believes it is necessary to enhance energy resilience throughout the whole area to achieve that.

The Fundamental Plan for National Resilience calls for energy resilience, and Tokyo Gas has prepared medium-pressure gas pipelines, which provided stable energy supply following both the Hanshin-Awaji and Great East Japan Earthquakes, as part of its efforts to strengthen its disaster readiness and introduced independent distributed power supplies, including CGS. Tokyo Gas has been involved in initiatives regarding the effective use of energy in electricity and heat as a local energy supplier for approx. half a century and aims to realize cities with enhanced energy resilience that are in harmony with the environment.



Supply area

Mitsui Fudosan and Tokyo Gas are aware that enhancement of overall energy resilience and environmentally friendly neighborhoods are significant issues for Japanese cities, and this initiative, the first of its kind in Japan, will leverage their strengths and knowledge in renewing the entire neighborhood’s energy, including existing buildings.

As a result, Nihonbashi will undergo full-fledged development as an urban-style smart city, with expected improvements in its environmental performance and disaster preparedness and a boost in its global competitiveness.

### 2. Raise energy resilience throughout the entire neighborhood, including existing buildings like important cultural properties

Mitsui Fudosan and Tokyo Gas have built Japan’s first energy network by installing a large-scale CGS in a plant located in the basement of Nihonbashi Muromachi Mitsui Tower and at the same time laying out an independent power line to supply surrounding buildings and retail facilities with energy on a regular basis and during emergencies.

The large-scale CGS installed uses highly reliable medium-pressure gas pipelines to generate electricity following a disaster, providing the power supply required (50% of peak level) for a building’s business continuity plan (BCP) at a time of widespread power outage. The range of power supply will extend to a total area of approx. 10.8 million ft<sup>2</sup> (approx. 1,000,000 m<sup>2</sup>) encompassing approx. 20 buildings including important cultural properties such as the Mitsui Main Building and Nihombashi Mitsukoshi Main Store, as well as other existing buildings, such as the head office of Takeda Pharmaceutical Company Limited. Energy can also be supplied to facilities to temporarily accommodate those unable to return to their homes following a disaster, which contributes to safe and secure neighborhoods with enhanced energy resilience in the entire area.

Planned supply capacity of the plant is approx. 43,000 kW of electricity, approx. 110 GJ/h of cool heat and approx. 60 GJ/h of warm heat, which can be a stable energy supply for the entire neighborhood, while installing the power generation plant within the facility will mean energy is locally produced for locally consumed, which saves energy and reduces CO<sub>2</sub> emissions.

Welded steel pipes have been used for the piped medium-pressure gas



Image of the large-scale CGS

pipelines as they have the excellent strength and flexibility needed to withstand a large-scale land transformation, and gas supply basically does not end. The pipes are known to have had high seismic resistance during the Hanshin-Awaji and Great East Japan Earthquakes and enable stable energy supply during emergencies. Looped medium-pressure gas pipelines ensure multiple supply routes and enhance supply stability.

◆ **Basic Plant Data**

Date supply starts	April 1 2019
Plant location	3-2-1 Nihonbashi Muromachi, Chuo-ku, Tokyo
Supply area	Nihonbashi Muromachi, part of the Nihonbashi Honcho district
Applicable area	Approx. 1.6 million ft <sup>2</sup> (approx. 150,000 m <sup>2</sup> )
Total floor area	Approx. 10.7 million ft <sup>2</sup> (approx. 1,000,000 m <sup>2</sup> ) *Includes space to temporarily accommodate those unable to return home
Planned supply capacity	Electricity: Approx. 43,000 kW
	Cool heat: Approx. 110 GJ/h
	Warm heat: Approx. 60 GJ/h
Main facilities	Gas engines 7,800 kW × 3 units Waste heat boilers 4t/h × 3 units Absorption refrigerating machines with exhaust heat recovery 1,400 RT × 3 units Centrifugal chillers 1,350 RT × 2, 800 RT × 1, 300 RT × 1 units Steam boilers 3t/h × 2 (single-fuel fired, gas), 2t/h × 3 units (dual-fuel fired, gas and oil)

**3. Environmentally friendly neighborhood creation through effective energy use realizing energy saving and reduced CO2**

This project makes effective use of power generation through CGS and waste heat resulting from power generation. Locally produced, locally consumed energy realizes energy saving and reduced CO2 throughout the year.

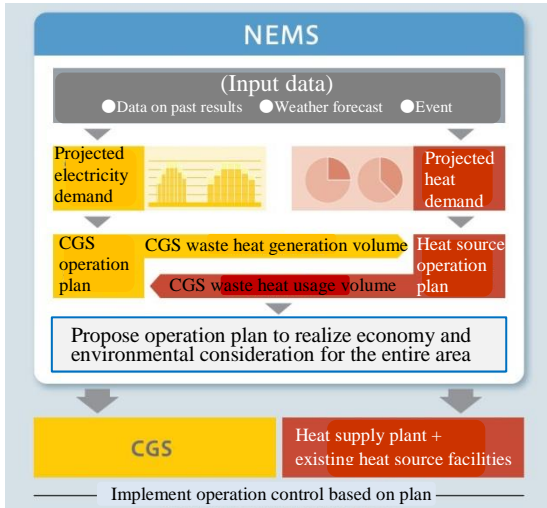
Moreover, building the Nihonbashi Energy Management System (NEMS)\*6 to utilize information networks not only enabled newly establishing a CGS within the plant’s self-heating source facilities, it also became Japan’s first optimally operated heat source facility capable of servicing an entire community, including existing buildings.

■ Nihonbashi Energy Management System (NEMS)

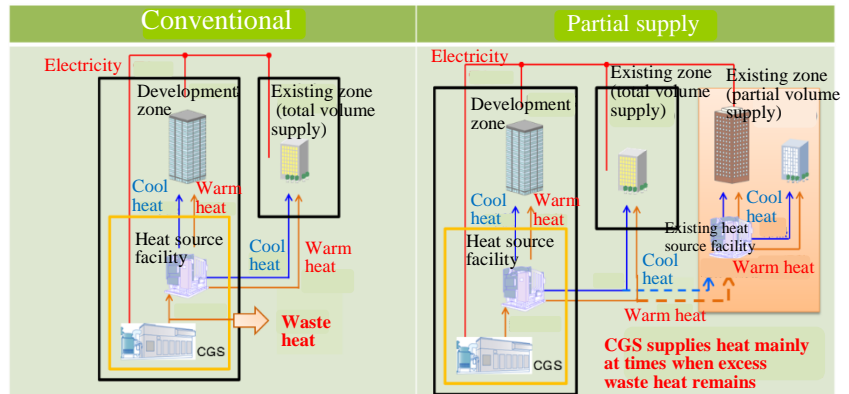
NEMS projects an area’s load and through a highly efficient CGS and optimal operation of heat source facility contributes to saving energy and reducing CO2 throughout the entire neighborhood by raising the efficiency rate of waste heat produced by the CGS.

Furthermore, due to partial supply using heat source facilities in surrounding neighborhoods, heat that would have been disposed of during heating off-peak times is used effectively to enhance the CGS waste heat use rate, which saves energy and reduces CO2.

\*6 NEMS is an acronym for Nihonbashi Energy Management System



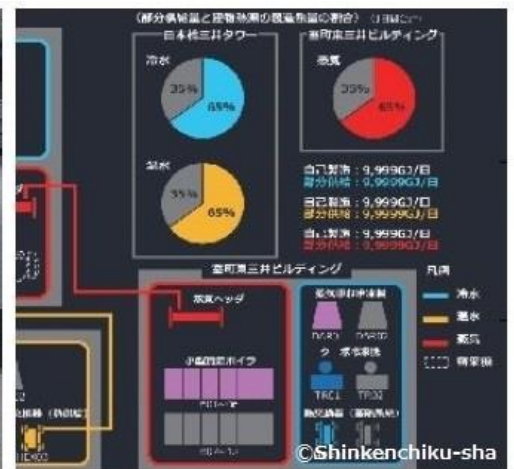
NEMS Conceptual Chart



Partial supply image



Central monitoring room



Collate various data

■ Future Smart Energy Projects

Mitsui Fudosan and Tokyo Gas will continue to move ahead with the urban-style smart city initiatives being carried out in Nihonbashi and also plan to collaborate on other smart energy projects in other areas in the future, such as Toyosu. By leveraging their expertise and deepening and evolving their collaboration, the two companies will create attractive neighborhoods supported by stable energy supplies that are environmentally friendly and resilient to disasters, and build an advanced model of a smart city to communicate within Japan and overseas.



Smart City Project in the Toyosu Area  
Toyosu 2-Chome Station Area Type-I Urban Area  
Redevelopment Project (tentative name)  
Completion scheduled for March 2020

## ■ Nihonbashi Muromachi Mitsui Tower Accelerates the Nihonbashi Revitalization Plan

Nihonbashi Muromachi Mitsui Tower is iconic of the Nihonbashi Revitalization Plan Stage II that Mitsui Fudosan has been carrying out since 2014 under the concept of “Proceeding to Create While Retaining and Reviving,” and is a large-scale, multipurpose building that contributes to the globalization of the Nihonbashi area, as well as a flagship project that accelerates the Nihonbashi Revitalization Plan. Located on the corner of Chuo-dori and Edo-dori streets, the project expands Nihonbashi's core northward to areas in the vicinity of Kanda and Tokyo Stations, tying them to Nihonbashi as a new base for the area.

With the installation of a hall and conference rooms for various functions, a large outdoor plaza with an extensive roof and landscapes rich in greenery, and 31 stores including those making their debut in Japan such as eslite spectrum nihonbashi in the retail business area, development for this mixed-use property will solidify into a facility that creates prosperity for many different people through added intangible value.



External view of Nihonbashi Muromachi Mitsui Tower

<Attachment 1>

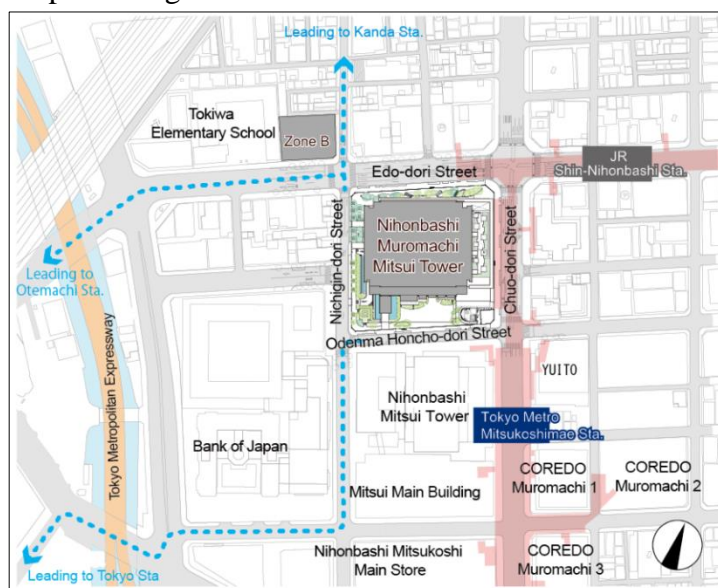
■ Overview of the Nihonbashi Muromachi 3rd District Project

Project name	Nihonbashi Muromachi 3rd District Project
Project manager	Nihonbashi Muromachi 3rd District Project Association (Chair: Hiroshi Tanaka, President, Tanacho & Co., Ltd.)
Zone land area	Approximately 2.1 hectares
Addresses	(A Zone) Muromachi 3-chome, Nihonbashi, Chuo-ku, Tokyo (B Zone) Hongokuchō 4-chome, Nihonbashi, Chuo-ku, Tokyo
Site areas	(A Zone): 11,480m <sup>2</sup> (B Zone): 1,390m <sup>2</sup>
Main uses	(A Zone) Offices, retail facilities, parking, etc. (B Zone) Public facilities and parking
Schedule	Completion March 28 2019

■ Overview of Nihonbashi Muromachi Tower (A Zone)

Access	Direct access from Mitsukoshimae Station on the Tokyo Metro Ginza and Hanzomon lines Direct access from Shin-Nihonbashi Station on the JR Yokosuka and Sobu lines Four minutes' walk from Kanda Station on the JR Chuo, Yamanote and Keihin-Tohoku lines Nine minutes' walk from Tokyo Station, which is on many JR lines
Gross floor area	approximately 168,000m <sup>2</sup>
No. of floors/height	26 floors above ground, 3 floors below ground; approximately 140 m high
Design	Basic design: NIHON SEKKEI, INC. Design execution: KAJIMA DESIGN (Kajima Corporation) Design architects: Pelli Clarke Pelli Architects (Pelli Clarke Pelli Architects Japan) Landscape design: Landscape Plus Ltd. Lighting Design : Uchihara Creative Lighting Design Inc.
Construction	Joint venture between Kajima Corporation, Shimizu Corporation and Sato Kogyo Co., Ltd.

■ Map showing location



<Attachment 2>

■ Mitsui Fudosan TG Smart Energy Co., Ltd. Company Overview

Company Name	Mitsui Fudosan TG Smart Energy Co., Ltd.
Location	1-1, Nihonbashi-Muromachi 2-chome, Chuo-ku, Tokyo
Established	March 9, 2016
Capital	¥1 million
Representative	President Michihiro Maruyama
Shareholders	Mitsui Fudosan Co., Ltd. (70%) Tokyo Gas Co., Ltd. (30%)