

Thailand's First Urban District Cooling System Launched

Full-scale Operation of District Cooling and Power Distribution Business in One Bangkok

Tokyo Gas Engineering Solutions Corporation

Tokyo Gas Engineering Solutions Corporation (President: Yasuhiro Konishi, hereinafter "TGES") launched full-scale operation of a district cooling and power distribution business (the "Project") for One Bangkok^{*1}, a largest holistically integrated district in Bangkok, developed by TCC Assets (Thailand) Co., Ltd.,^{*2} and Frasers Property Holdings (Thailand) Co., Ltd. through its joint venture company called Bangkok Smart Energy Co., Ltd. with Mitsui & Co., and Gulf Energy Development Public Company Limited^{*3}, which also forms joint venture companies^{*4} with TCC Group companies^{*5} to take care of the Project, on October 25 with an opening ceremony, celebrating the achievement of a significant milestone of the Project.



One Bangkok opening ceremony



Photo with Mr. Panote Sirivadhanabhakdi, CEO of Frasers Property Ltd. Group (Center-right), Mr. Yasuhiro Konishi, President of TGES (3rd from right)

District cooling is a system in which the cooling energy (chilled water) required within a city block is collectively produced at a district cooling center and supplied to each building through district pipelines. The system improves energy conservation and environmental friendliness through optimization of facility capacity by leveling demand and achieving higher efficiency due to utilization of large-scale equipments. It also eliminates the need to assign cooling facilities and operators, etc. to each building, enabling effective use of space and manpower saving. These characteristics of a district cooling center are of utmost importance to enable a large-scale urban development project as One Bangkok in a sustainable, efficient and environment-friendly manner.

TGES provides district cooling and heating services at 18 locations in Japan, including the Shinjuku District Heating and Cooling Center^{*6}, which has been in operation for more than 50 years. In addition, TGES has been providing on-site energy services^{*7} for more than 20 years, supplying electricity and heat using gas cogeneration systems, etc.

In this Project, TGES designs, constructs and will operate the plant for 30 years after the start of supply based on the know-how with regard to the long-term optimal operation of energy-related facilities that TGES has cultivated through those extensive business experiences. The plant will be equipped with an EMS^{*8}, which makes advanced predictions of cooling loads with different patterns for each facility based on the weather forecast for the next day and historical demand data, etc., and will produce and supply chilled water by optimally operating equipment consisting of the world's highest level of high-efficiency chillers and thermal storage facilities. In addition, the plant will further reduce its environmental impact by actively utilizing recycled water such as rainwater. One Bangkok has a development concept of improving environmental performance

and sustainability, and TGES solutions made a significant contribution to the acquisition of LEED Neighborhood Development Platinum certification^{*9} in February this year, the first of its kind in the country.

IGNITURE

IGNITE YOUR FUTURE

TGES aims to realize sustainable and smart business operations for corporate customers through solutions provided under IGNITURE^{*10}. TGES will keep striving to provide various solutions which contribute to the decarbonization, optimization, and resilience for the sustainable development of both consumers and communities in Thailand, utilizing the know-how TGES has cultivated through its domestic and overseas business experiences.



World's Most Efficient Chillers Installed at Plant



Image of One Bangkok as of the Opening

*1: One Bangkok is the largest holistically integrated district in The Heart of Bangkok. With an investment value of THB 120 billion on a total land area of 108 rai (42.7 acres), One Bangkok is being developed to hold a place in the hearts of all and support Bangkok in becoming one of the world's new influential global cities and thus the "Heart of Bangkok". Located at the corner of Wireless and Rama 4 roads with direct linkages to the city's burgeoning mass transit systems, One Bangkok comprises workplaces which elevates work-life quality, a rhythmic retail experience, luxury residences, hotels with the finest hospitality, a world-class LIVE entertainment arena, the presence of art and culture, and a vast, welcoming public realm that covers 50 rai (19.7 acre) of the district. As a well-equipped smart city with sustainable infrastructure, One Bangkok is the first project to be awarded with LEED for Neighborhood Development Platinum certification in Thailand with an aim to achieve WELL Building Standard to support human health and wellness.

*2: TCC Assets (Thailand) Company Limited (TCC Assets), established in 2013, is a fully integrated property development company, with a registered capital of 30 billion baht. It is part of the TCC Group, one of the most well-known companies in Thailand. TCC Assets' investment model focuses on creating added value to assets through product and service development. TCC Assets, subsidiary company, and affiliated company focus on the development of residential real estate projects, office building and retail space, along with hotel business and services related to IT.

*3: Gulf Energy Development Co., Ltd. is Thailand's largest private power generation company.

*4: The district cooling company is Bangkok Smart DCS Co., Ltd. The electricity distribution company is Bangkok Smart Power Co., Ltd.

*5: TCC Group companies are One DCS Services Co., Ltd. for district cooling and One Power Services Co., Ltd. for electricity distribution.

*6: One of the largest district cooling and heating centers in Japan to supply cold and heat energy to 22 high-rise buildings including the Tokyo Metropolitan Government in the heart of Shinjuku, a sub-center of Tokyo. (The supply started in 1971)

*7: A one-stop service performed by energy service providers which design, install, own, and maintain energy systems. Users pay energy service fees without initial investment.

*8: Energy Management System is a system for optimal operation control by visualizing energy consumption and predicting load trends.

*9: Obtained in February 2024. LEED is an environmental performance evaluation system for buildings and site use developed and operated by the US Green Building Council (USGBC). One Bangkok obtained Platinum certification, the highest rating in the Neighborhood Development (LEED-ND) division.

*10: Details of IGNITURE [\[LINK\]](#)

About Tokyo Gas Engineering Solutions Corporation

Tokyo Gas Engineering Solutions Corporation (TGES) is a global engineering company based in Japan. TGES focuses on energy efficiency and sustainability, providing innovative energy solutions. TGES aim is to offer customized solutions to meet customer's needs while considering the environment.

TGES provides end-to-end services for energy solutions and value collaboration with local communities. TGES works towards achieving sustainable energy solutions by addressing challenges such as global warming and energy security.

By combining TGES technical expertise with community vitality, TGES contributes to a sustainable society. TGES is a leader in the energy industry, constantly pursuing innovation to realize a sustainable future.

TGES provides solutions that add value to the customer's businesses and improve energy efficiency. TGES is committed to further growth and development.

For more information, visit www.tokyogas-es.co.jp/en

About One Bangkok

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About Frasers Property Limited

Frasers Property Limited ("Frasers Property" and together with its subsidiaries, the "Frasers Property Group" or the "Group"), is a multinational investor-developer-manager of real estate products and services across the property value chain. Listed on the Main Board of the Singapore Exchange Securities Trading Limited ("SGX-ST") and headquartered in Singapore, the Group has total assets of approximately S\$40.1 billion as at 31 March 2024.

Frasers Property's multinational businesses operate across five asset classes, namely, commercial & business parks, hospitality, industrial & logistics, residential and retail. The Group has businesses in Southeast Asia, Australia, the EU, the UK and China, and its well-established hospitality business owns and/or operates serviced apartments and hotels in over 20 countries across Asia, Australia, Europe, the Middle East and Africa.

Frasers Property is also the sponsor of two real estate investment trusts ("REITs") and one stapled trust listed on the SGX-ST. Frasers Centrepoint Trust and Frasers Logistics & Commercial Trust are focused on retail, and industrial & commercial properties, respectively. Frasers Hospitality Trust (comprising Frasers Hospitality Real Estate Investment Trust and Frasers Hospitality Business Trust) is a stapled trust focused on hospitality properties. In addition, the Group has two REITs listed on the Stock Exchange of Thailand. Frasers Property (Thailand) Public Company Limited is the sponsor of Frasers Property Thailand Industrial Freehold & Leasehold REIT, which is focused on industrial & logistics properties in Thailand, and Golden Ventures Leasehold Real Estate Investment Trust, which is focused on commercial properties.

The Group is committed to inspiring experiences and creating places for good for its stakeholders. By acting progressively, producing and consuming responsibly, and focusing on its people, Frasers Property aspires to raise sustainability ideals across its value chain, and build a more resilient business. It is committed to be a net-zero carbon corporation by 2050. Building on its heritage as well as leveraging its knowledge and capabilities, the Group aims to create lasting shared value for its people, the businesses and

communities it serves. Frasers Property believes in the diversity of its people and are invested in promoting a progressive, collaborative and respectful culture.

For more information on Frasers Property, please visit frasersproperty.com or follow us on [LinkedIn](#).

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For more information on TCC Assets, please visit www.tccassets.com