

News Release

BRINGING DISTRIBUTED DISTRICT COOLING TO OUR TOWN CENTRES – A COOL SOLUTION FOR A GREENER SINGAPORE

- *Feasibility study at Tampines Central demonstrates 17 percent savings in electricity consumption, 18 percent reduction in carbon emissions, and monetary benefits for existing buildings while providing cool comfort*
- *Letter of Intent signed with existing building owners – CapitaLand, Frasers Property, OCBC Bank, People’s Association and UOB, bringing Tampines one step closer to its Eco Town ambitions*

Singapore, 19 August 2021 – An interconnected, centralised cooling system across Tampines Central could achieve energy savings and reductions in carbon emissions to support Tampines’ green ambitions to transform into an Eco Town by 2025, according to a white paper study on the feasibility of brownfield distributed district cooling. The study, by Temasek and SP Group (SP), was supported by the Tampines Group Representation Constituency (GRC) and the Ministry of Sustainability and the Environment (MSE).

Fourteen existing buildings within the Tampines Central Area were involved in the study, representing a range of various uses, including retail malls, commercial and public offices, data centres, and a community sports hub. According to findings outlined in the white paper, consolidating the cooling loads of the 14 buildings under a distributed district cooling (DDC) network would result in:

- 17% lower energy consumption – enough to power 1,665 three-room HDB households for a year;
- An 18% reduction in carbon emissions, from both energy savings and refrigerant reduction – equivalent to removing 2,250 cars from roads annually; and
- S\$4.3 million annually from energy savings, reduction in equipment replacement and maintenance costs and potential earnings from freeing up chiller plant space, which can be converted into retail or office space.

In a signing ceremony witnessed by Mr Masagos Zulkifli, Adviser to Tampines GROs, Minister for Social and Family Development, Second Minister for Health and Minister-in-charge of Muslim Affairs, at Our Tampines Hub earlier this afternoon, property owners CapitaLand, Frasers Property, OCBC Bank, People's Association and UOB have each signed a Letter of Intent (LOI) with SP to affirm their interest in subscribing to this sustainable cooling solution. These building owners were part of the white paper study and are the existing owners of Tampines Mall, Telepark, Century Square, Tampines 1, OCBC Tampines Centre Two, Our Tampines Hub and UOB Tampines Centre respectively. The commitment of these building owners brings the DDC network one step closer to materialisation in Tampines.

Mr Masagos Zulkifli, Adviser to Tampines GROs, Minister for Social and Family Development, Second Minister for Health and Minister-in-charge of Muslim Affairs said: "Sustainable towns and districts are essential for Singapore to meet our sustainability goals under the Singapore Green Plan 2030. The results from the feasibility study at Tampines Central look promising. I am hopeful that the adoption of this green cooling solution will bring Tampines closer to our ambition to be an Eco Town by 2025 and pave the way for district cooling to be explored across other towns and built-up areas."

"A more efficient way to cool buildings would cut down on energy, carbon and cut costs. Temasek is delighted to partner SP Group to study the feasibility of a novel distributed district cooling concept for brownfield developments which could provide cities worldwide with a proof-of-concept for a more sustainable way to cool buildings," said Dr Steve Howard, Chief Sustainability Officer, Temasek.

SP's Group Chief Executive Officer, Mr Stanley Huang, said, "In Singapore's highly urbanised landscape, it is necessary to innovate and deploy sustainable solutions to existing infrastructure. This white paper illustrates the potential of district cooling as a core solution to empower existing townships to go green, demonstrating its potential to support Tampines' Eco Town ambitions. Tampines residents can enjoy the same sustainable and reliable cooling comfort, similar to our district cooling solution at Marina Bay. Through a

widespread adoption of distributed district cooling, building owners of mature developments can reap significant energy savings and contribute to our national decarbonisation efforts, without any compromise in the comfort for users.”

Ms Amy Hing, 1 Deputy Secretary, MSE, said: “This study explores an innovative district cooling solution in a brownfield site that can potentially enhance energy efficiency and lower the carbon footprint. We hope that the insights gained from the study will encourage more ideas and collaboration on innovative district-level solutions that contribute to the Singapore Green Plan 2030.”

The hot issue of keeping cool

In Singapore’s tropical climate, air conditioning is widely used to provide cool comfort. However, air conditioners consume a lot of electricity, which itself can be up to 50 per cent of a building’s total consumption. Air conditioners also contain hydrofluorocarbons (HFCs) that trap heat – making them potent greenhouse gases. In addition, the usage of air conditioners tends to lead to warmer temperatures outside due to the exchange and release of heat into the environment. There is an urgent need to find a cleaner and more sustainable way to cool our living environment.

District Cooling

One cooling solution that has gained traction is district cooling. This involves centralising cooling plants that distribute chilled water to various buildings through an underground network of insulated pipes to provide air conditioning. Through economies of scale, district cooling consumes less energy for the same amount of cooling and reduces carbon emissions. As the individual buildings do not need to invest in their own chillers and maintain them, this approach enhances reliability and frees up space that would be needed if the building installed its own chillers. Building owners also save on maintenance costs by tapping on the district cooling network.

SP designed and built the world’s largest underground district cooling network at Marina Bay, which has been in operation with zero supply interruption since 2006. However, the

design and integration of this solution was conceptualised when Marina Bay was in a greenfield state.

The concept of district cooling can be applied in a brownfield, or existing urban setting, where existing buildings already have their own chiller plant systems. This is where the DDC network comes in. In Singapore, where majority of land is already built upon and developed, connecting existing buildings on to a brownfield DDC network can be a game changer, supporting Singapore's Green Plan 2030 to address climate change and promote sustainable living.

The white paper by Temasek and SP Group titled "Taking The Heat Off Cooling: A Greener Way To Cool" can be downloaded at www.ecosperity.sg/en/ideas/taking-the-heat-off-cooling-a-greener-way-to-cool.html

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Quotes from Property Owners

Quote from CapitaLand

"As part of the CapitaLand Group, one of the most sustainable corporations in the world, CICT is firmly committed to embedding sustainability in our business strategy and the daily operations of our portfolio, which is 100% green-rated. To continue advancing in our sustainability journey under CapitaLand's 2030 Sustainability Master Plan, we believe in supporting innovation and collaborating with like-minded partners. We are therefore pleased to take part in the distributed district cooling (DDC) network feasibility study in Tampines Central, where Tampines Mall is located. To date, the results of the study have been encouraging, and we expect to see some reduction in the energy consumption for

Tampines Mall going forward. We welcome and look forward to more of such collaborative efforts that benefit the communities served by CICT's properties and support Singapore's overall climate resilience."

Mr Tony Tan, Chief Executive Officer, CapitaLand Integrated Commercial Trust (CICT) Management Limited

Quote from Frasers Property

"We are pleased to be a part of this initiative to adopt a cleaner and greener cooling solution across our properties in Tampines, which aligns with Frasers Property's corporate goal to be a net-zero carbon corporation by 2050. This opportunity to play an instrumental role in building a distributed district cooling network in the township reaffirms our commitment to tackling urgent sustainability challenges and creating places for good. As we continue to develop innovative solutions to tackle climate change, we look forward to working alongside our partners to enable a more energy-efficient and resilient ecosystem for the communities we operate in."

Mr Low Chee Wah, Chief Executive Officer, Frasers Property Retail

Quote from OCBC Bank

"It is exciting to see such an eco-system being created by like-minded organisations in a unified push for sustainability in Singapore. Climate action cannot be achieved by any single party; it has to be a collective one to truly make an impact. OCBC is therefore very pleased to participate in the study and initiative. We take this collective approach for all our OCBC-owned buildings too. Not only do we adopt best practices in the use of energy, water and waste management, we also do our part to nudge our suppliers, customers, tenants and other stakeholders to adopt more environmentally-friendly practices. It is also our goal to get all our buildings and branches to achieve the BCA Green Mark Award by 2030. So far, nine have received the Mark."

Ms Helen Wong, Group Chief Executive Officer, OCBC Bank

Quote from UOB

“At UOB, we are mindful of the environmental impact of our buildings and operations and target to have all our wholly-owned buildings certified green by 2030. To this end, we continue to make improvements in our buildings in areas such as energy efficiency and resource conservation. This is why we are pleased to work with Temasek, SP Group and other building owners to make Tampines an Eco Town in this pioneering brownfield initiative for an interconnected and sustainable cooling system. We believe the collective efforts to make the brownfield built environment more sustainable will have a multiplier effect as we strive to be more efficient in managing our environmental impact. Together, we can help to forge a sustainable future for all.”

Mr Wee Ee Cheong, Deputy Chairman and Chief Executive Officer, UOB

Quote from People’s Association

“Our Tampines Hub, led by People’s Association (PA) is happy to support this green initiative in enabling Tampines to be an Eco Town by 2025. Serving as a platform that connects and engages with the community, we will be able to create better awareness and nurture an appreciation for more energy efficient solutions among our residents. We look forward to partnering SP Group, Temasek and our neighbouring building owners to bring this initiative to fruition; and to further outreach efforts in our sustainability plan.”

Mr Lim Hock Yu, Chief Executive Director People’s Association

About Temasek

Temasek is an investment company with a net portfolio value of S\$381 billion as at 31 March 2021.

Our Temasek Charter defines our three roles as an Investor, Institution and Steward, and shapes our ethos to do well, do right, and do good.

As a provider of catalytic capital, we seek to enable solutions to key global challenges. We deploy financial capital to stimulate innovation and growth; develop human capital to uplift capabilities and enhance potential; enable natural capital and foster sustainable solutions for the climate and a better living environment; and seed social capital to transform lives for a more inclusive and resilient world.

Sustainability is at the core of all that we do. We actively seek sustainable solutions to address present and future challenges, as we capture investible opportunities to bring about a sustainable future for all.

Temasek has had overall corporate credit ratings of Aaa/AAA by rating agencies Moody's Investors Service and S&P Global Ratings respectively, since our inaugural credit ratings in 2004.

Headquartered in Singapore, we have 13 offices in 9 countries around the world: Beijing, Hanoi, Mumbai, Shanghai, Shenzhen and Singapore in Asia; and London, Brussels, New York, San Francisco, Washington DC, Mexico City, and Sao Paulo outside Asia.

For more information on Temasek, please visit www.temasek.com.sg

For Temasek Review 2021, please visit www.temasekreview.com.sg

About SP Group

SP Group is a leading utilities group in the Asia Pacific, empowering the future of energy with low-carbon, smart energy solutions for its customers. It owns and operates electricity and gas transmission and distribution businesses in Singapore and Australia, and sustainable energy solutions in Singapore and China.

As Singapore's national grid operator, about 1.6 million industrial, commercial and residential customers benefit from its world-class transmission, distribution and market support services. These networks are amongst the most reliable and cost-effective world-wide.

Beyond traditional utilities services, SP Group provides a suite of sustainable and renewable energy solutions such as microgrids, cooling and heating systems for business districts and residential townships, solar energy solutions, electric vehicle fast charging and digital energy solutions for customers in Singapore and the region.

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