

Seven buildings in Tampines begin using shared cooling system

It will help to cut emissions, save energy and enhance efficiency: SP Group

Chin Hui Shan

A shared cooling system connecting seven buildings in Tampines began operations in early March, and talks are under way to bring more neighbouring buildings into the network.

Tampines is Singapore's first town centre to be retrofitted with this system. The project is the first of its kind to be built on already developed land.

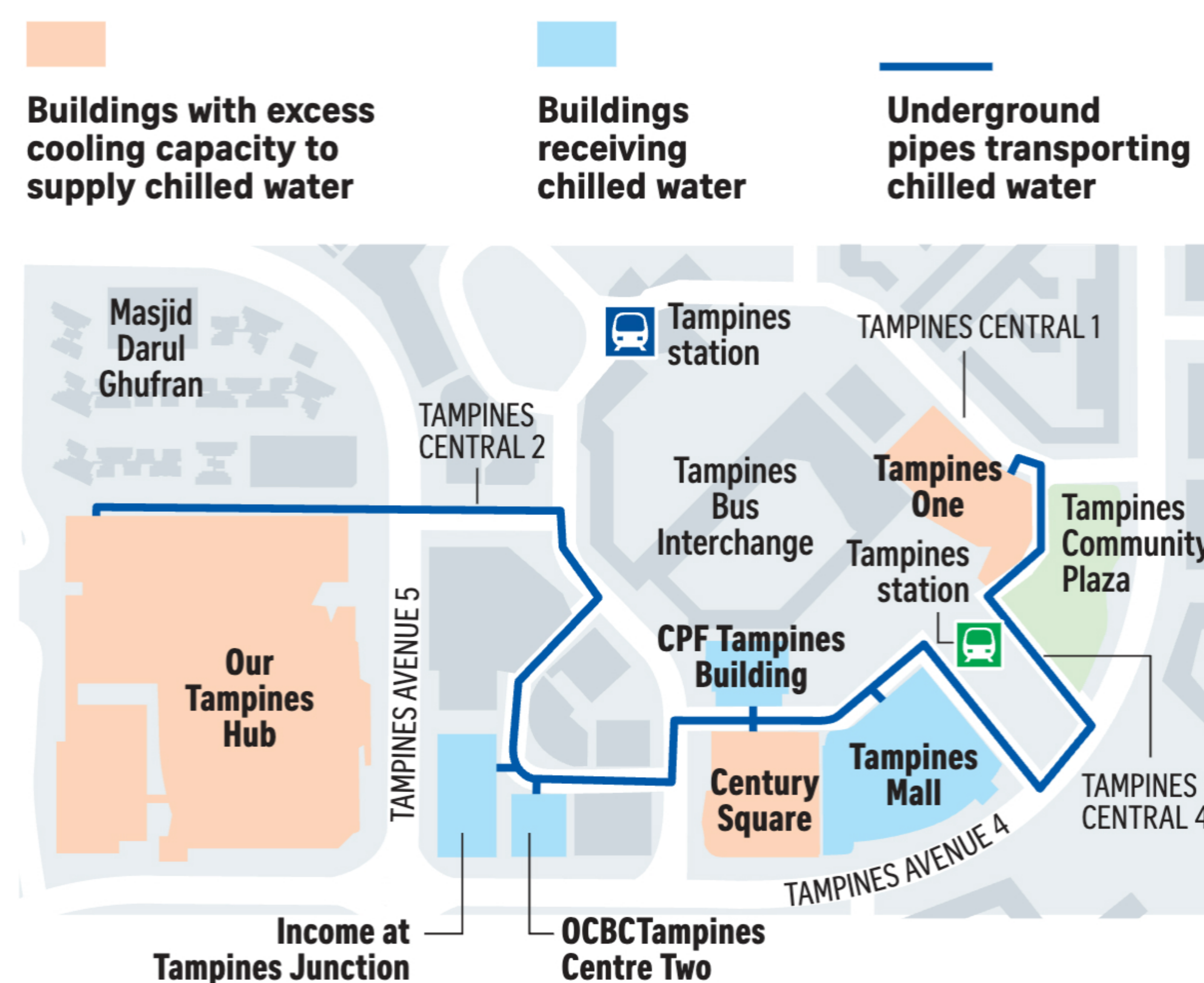
In this distributed district cooling network, which will slash the environmental cost of air-conditioning, some buildings in the town centre have taken over the cooling load for others.

Such a shared system will help to cut carbon emissions, save energy and enhance efficiency through economies of scale, said SP Group, which built and operates the system, on March 14.

Mr S. Harsha, managing director for sustainable energy solutions at SP Group, said: "For years, we have understood the crucial role air-conditioning plays in our tropical climate, but traditional in-building air-conditioning systems, especial-

The distributed district cooling network

Instead of constructing a new centralised cooling plant, a distributed cooling system will utilise existing chiller plants in multiple buildings within the network to supply chilled water for cooling needs. This approach enhances efficiency through economies of scale while reducing carbon emissions and saving energy.



Source: SP GROUP STRAITS TIMES GRAPHICS

ly the ones in older buildings, are usually less efficient and designed with standby capacity.

"These buildings consume vast amounts of energy for cooling, and many of them will be around for

years to come. As we strive to reduce our carbon footprint and build a greener Singapore, we need to implement a more sustainable cooling solution that can be adapted for existing buildings."

In district cooling technology, water is chilled in a centralised location and then sent through a network to multiple buildings. In conventional cooling systems, individual buildings have their own chillers.

This cooling network will help the town centre cut its carbon emissions by 1,000 tonnes a year, equivalent to removing 910 cars from the roads.

It will also achieve energy savings of more than 2.3 million kilowatt-hours a year, enough to power over 710 three-room Housing Board households for a year.

About 25,000 sq ft of space previously used by the several chiller plants can also be repurposed, SP Group said. In addition, those buildings will save on the cost of maintaining the equipment.

The seven buildings connected to the network are Century Square, CPF Tampines Building, Income at Tampines Junction, OCBC Tampines Centre 2, Our Tampines Hub, Tampines Mall and Tampines 1.

Instead of constructing a new centralised cooling plant, the network uses the existing chiller plants of Century Square, Our Tampines Hub and Tampines 1.

These were selected to be the chilled water supply nodes as evaluations showed they had excess cooling capacity and superior energy efficiency.

They supply the chilled water through an underground pipe about 1.3km long to the other buildings in the network.

Construction began in March 2023 to retrofit the buildings and install infrastructure such as chilled water pipes.

Mr Harsha said the Tampines town centre is a densely built environment, lacking the space to build a district cooling plant.

"What we have done here today is not just launch the Tampines distributed district cooling network; we have also developed a blueprint or reference architecture that can

Plans to add 7 more buildings to network

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be used to implement a similar concept in other precincts or districts and other areas where it's fairly built up," he said.

But given the density of the area, it was challenging to build the network while minimising inconvenience and disruption to residents, he added.

To tackle this, SP Group regularly engaged with building owners, residents and the public to mitigate the inconvenience to the community over the two years of construction.

Mr David Chua, chief investment officer at Income Insurance, which owns one of the buildings receiving the chilled water, said the network allows the building to better optimise energy efficiency.

"As a building owner, the implementation of the network will free up space with the removal of air-conditioning equipment which is no longer needed, and we can potentially consider other sustainable practices such as solar renewable energy in the future."

For the next phase, SP Group is in discussions to add seven more buildings in the vicinity to the network, further enhancing Tampines' ambitions to be an eco-town.

The launch of the network is a key milestone in the Tampines eco-town masterplan, which serves as a blueprint for how cities can be built and lived in sustainably, said Tampines GRC MP Masagos Zulkifli at the launch event on March 14.

The brownfield project is one of the efforts in the masterplan – which was created in line with the Singapore Green Plan 2030, a national blueprint for sustainability targets.

"We are not just constructing green infrastructure, we are enabling every resident to live the green life," said Mr Masagos, who is also Minister for Social and Family Development.

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