

District Heating & Cooling Systems

区域供热供冷系统





Keppel DHCS at a Glance

Keppel DHCS is the largest district cooling systems (DCS) developer and operator in Singapore, providing DCS services at major business and industrial parks.

Keppel DHCS currently operates three DCS plants in Singapore, with combined plant capacity exceeding 48,000 refrigeration tonnes (RT), at Changi Business Park, one-north and Woodlands Wafer Fab Park.

Established since 1998, Keppel DHCS presently provides DCS services in Singapore. In 2010, it made its first foray into China to provide district heating and cooling systems (DHCS) services in the Eco-Business Park of the Sino-Singapore Tianjin Eco-City.

吉宝区域供热供冷系统简介

吉宝区域供热供冷系统 (Keppel DHCS) 是新加坡最大的区域供冷系统发展商和营运商，为各大商业和工业园区提供区域供冷服务。

Keppel DHCS 目前在新加坡的樟宜商业园、纬壹科技城以及兀兰晶片园共经营三座区域供冷系统厂，总供冷能力超过 4 万 8000 制冷吨 (RT)。

自1998年成立以来，Keppel DHCS 在新加坡提供区域供冷服务。2010年，公司首次进军中国，为中新天津生态城生态科技园提供区域供热供冷服务。

“Largest district cooling service provider in Singapore”

“新加坡最大的区域供冷服务供应商”

Benefits

Energy-Efficient and Environmentally-Friendly

DCS and DHCS use a centralised plant, which houses energy-efficient chilled water production and thermal energy storage (TES) facilities, hot water production facilities and co-generation and waste heat management systems.

The plant distributes chilled and hot water to its customers' buildings through a network of pipes.

By aggregating the customers' energy loads through the DCS and DHCS, the overall installed capacity can be lower compared to if each building used a separate heating and cooling unit. The aggregation also reduces the overall carbon footprint.

As the centralised plant produces chilled and hot water during cheaper off-peak hours, it can realise cost savings while allowing the DCS plant to operate continuously and efficiently. This will translate to lower operation costs for customers.

With economy of scale and multiple energy sources (diesel, electricity and natural gas) coupled with TES, the system can provide uninterrupted chilled and hot water supply to customers in the event of power outage.

Cost Savings

DCS and DHCS are more cost-effective and greener choices for heating and cooling. Customers may enjoy lower initial capital investment from lower building and equipment costs in the heating and cooling facilities. Customers may also enjoy lower operating costs over its facilities lifecycle.

Space-saving

As most of the equipment are located at a centralised plant, customers can free-up space that would otherwise be used for the air-conditioning systems. Keppel DHCS customers can utilise these spaces as rentable areas, roof terraces, additional carpark lots and additional office space.

Uninterruptable Service Delivery

DCS and DHCS have built-in multi-layered redundancies to ensure uninterruptable supply of chilled and hot water to customers even in the event of power failure. These redundancies include mechanical, electrical and control systems backup, emergency generators, TES and looped pipe reticulation network.

Safer Workplace

By housing the production facilities at the centralised plant, noise and air pollution is reduced at customers' buildings.

Reliable and Quality Services

Keppel DHCS has a robust maintenance programme managed by our team of dedicated trained professionals. We provide round-the-clock, one-stop service technical support to our clients. Keppel DHCS is also ISO 9001, 14001, OHSAS 18001 and SS506-Part 1 certified.

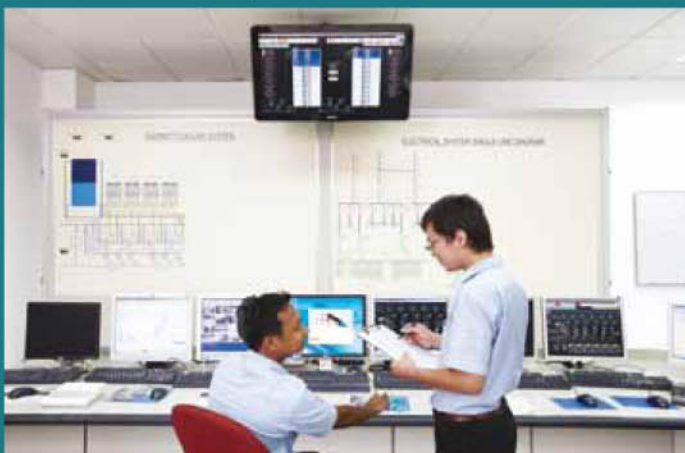
“Energy-Efficient” “节能”



Cost Saving 节约成本



Uninterruptable Service Delivery 不间断的服务



Reliable and Quality Services 可靠与高质量的服务

优点 节能环保

区域供冷系统和区域供热供冷系统的核心设备是一个包含了节能的冷冻水生产与热能储存设施、热水生产设施以及电热联产余热管理系统的中央供热供冷厂房。

中央供热供冷厂房通过管网将冷冻水与热水分送到用户的建筑内。

区域供冷系统及区域供热供冷系统能够有效地整合所有用户的能量需求，相比每栋建筑使用各自的供热供冷装置，集中供能可以大大减少总装机容量，并能够降低总体的碳排放量。

中央供热供冷厂房在收费较低的非繁忙时间内生产冷冻水与热水，因此在降低成本费用的同时，也能使区域供冷厂房持续而有效地操作，从而进一步帮助用户节省能源开支。

借助规模经济和多种能源资源（柴油、电与天然气）以及热能储存，系统即使在停电时也可为用户提供不间断的冷冻水与热水供应。

节约成本

区域供冷系统与区域供热供冷系统是更具成本效益与环保的供热供冷方式。用户的初期资本投资因为较低的建筑和设备费用而降低，并且能够在设施的整个工作周期内享有更低的营运成本。

节省空间

由于大多数设备都位于中央供热供冷厂房，原本用于空气调节系统的空间可作为出租面积，屋顶平台和额外的停车位和办公空间。

不间断的服务

区域供冷系统与区域供热供冷系统配置有多组后备设施以确保即使在停电情况下也可为用户提供不间断的冷冻水与热水供应。这些后备措施包括备份机械、电气以及控制系统、紧急发电机组、热能储存以及循环管网。

更安全的工作环境

生产设施放置于中央供热供冷厂房内，从而大幅降低了用户建筑物内的噪音和空气污染。

可靠与高质量的服务

Keppel DHCS全面的维护计划由一支训练有素的专业团队管理。我们为顾
客提供24小时的一站式技术支持服务。Keppel DHCS也通过了 ISO
9001、14001、OHSAS 18001和SS506-Part 1认证。

“Cooling solutions with
a host of benefits”
“供冷解决方案体
现众多优势”



“Round-the-clock, one-stop service technical support”

“全天候一站式技术支持服务”



Changi Business Park 樟宜商业园



Biopolis@one-north 启奥园@纬壹科技城



Woodlands Wafer Fab Park 兀兰晶片园

Changi Business Park

The first DCS plant in Singapore commenced operation in June 2000. It has a design cooling capacity of 30,000 RT to provide district cooling services to the 66-hectares business park. This translates to meeting the cooling load demand for business space usage of over 1 million square metres of gross floor area.

Biopolis@one-north

With its commercial operation since July 2003, this DCS plant with design cooling capacity of 25,000 RT aims to serve Biopolis-I (first Bio-medical park in Singapore) and other developments in its vicinity. This existing DCS plant is able to integrate with other future satellite DCS plants to provide cooling services to the entire 200 hectares one-north development.

Woodlands Wafer Fab Park

This DCS plant commenced commercial operation in July 2006, with a plant capacity of 11,000 RT to serve the cooling needs of semiconductor industries. This plant is able to expand to serve the entire 48.5 hectares Woodlands Wafer Fab Park and its vicinity.

樟宜商业园

新加坡首个区域供冷系统于2000年6月投入运行，其设计供冷能力为3万制冷吨，能为占地66公顷的商业园区提供区域供冷服务，相当于为总楼面面积超过100万平方米的商务空间提供供冷服务。

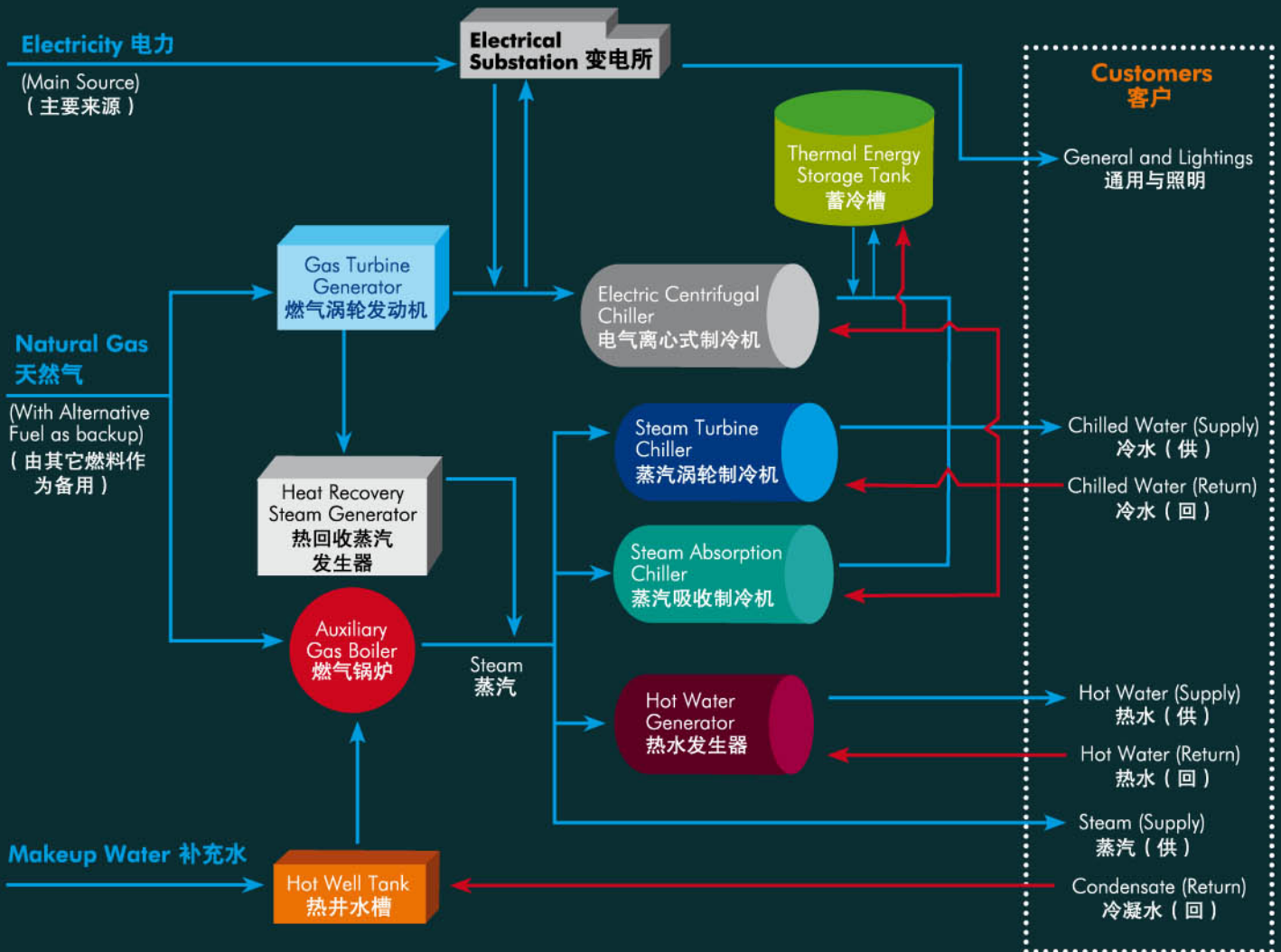
启奥园@纬壹科技城

自2003年7月投入商业营运以来，这个设计供冷能力为2万5000制冷吨的区域供冷系统旨在为启奥园1期（即新加坡首个生物医药园区）及其周围的其它开发项目提供服务。现有的区域供冷厂房能够结合未来其它分散的区域供冷厂房，为总面积为200公顷的纬壹科技城提供所需的供冷服务。

兀兰晶片园

位于兀兰晶片园的区域供冷厂于2006年7月开始商业运营，其供冷能力为1万1000制冷吨，主要满足半导体工业的供冷需要。此厂可以扩建，为占地48.5公顷的兀兰晶片园及其周边区域提供服务。

Flow Diagram



Location:

Changi Business Park, Biopolis@one-north, Woodlands Wafer Fab Park

Total Capacity for three Plants:

48,000 RT

地点:

樟宜商业园、启奥园@纬壹科技城、兀兰晶片园

三座区域供冷厂的总供冷能力为:

4万8000制冷吨

Keppel Integrated Engineering



Keppel Integrated Engineering

Keppel Integrated Engineering (KIE) is the environmental technology and engineering division of Keppel Corporation Limited, a leading company listed on the Singapore Exchange Securities Trading Limited.

Keppel DHCS, a member of the KIE Group, is the largest district cooling service provider in Singapore, whose primary business is in the development and operation of district cooling system at major business and industrial parks.

吉宝组合工程

吉宝组合工程 (KIE) 为新加坡证券交易所上市的领先公司——吉宝企业属下的环境科技与工程公司。

Keppel DHCS 为 KIE 集团的成员之一，是新加坡最大的区域供冷服务供应商，其主要业务为开发和营运主要商业和工业园区所需的区域供冷系统。

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Plant Locations:

厂址:

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Biopolis@one-north (启奥园@纬壹科技城)

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Woodlands Wafer Fab Park (兀兰晶圆园)

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