

# District Cooling System at the Kai Tak Development Phase III (Package C) Project

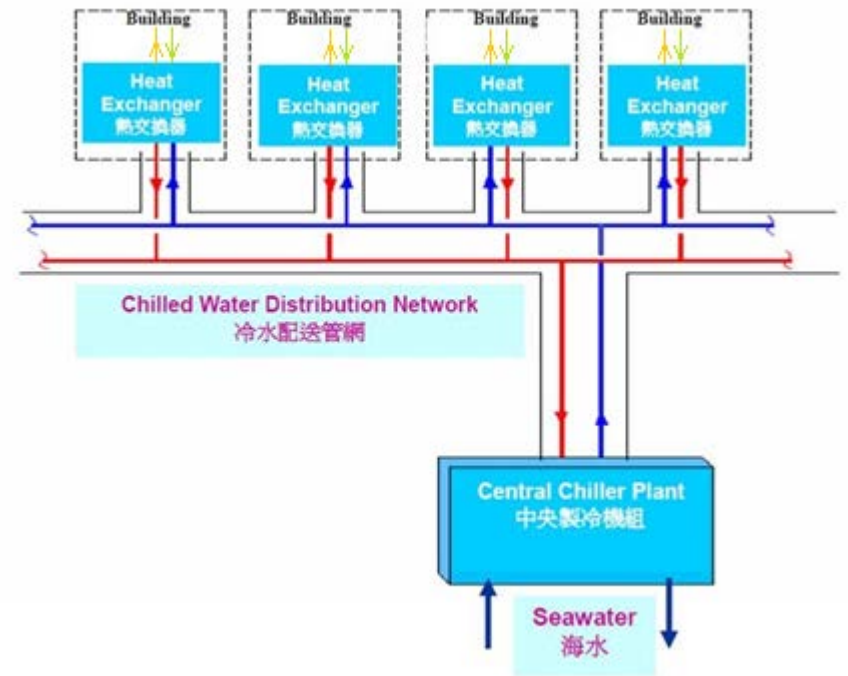
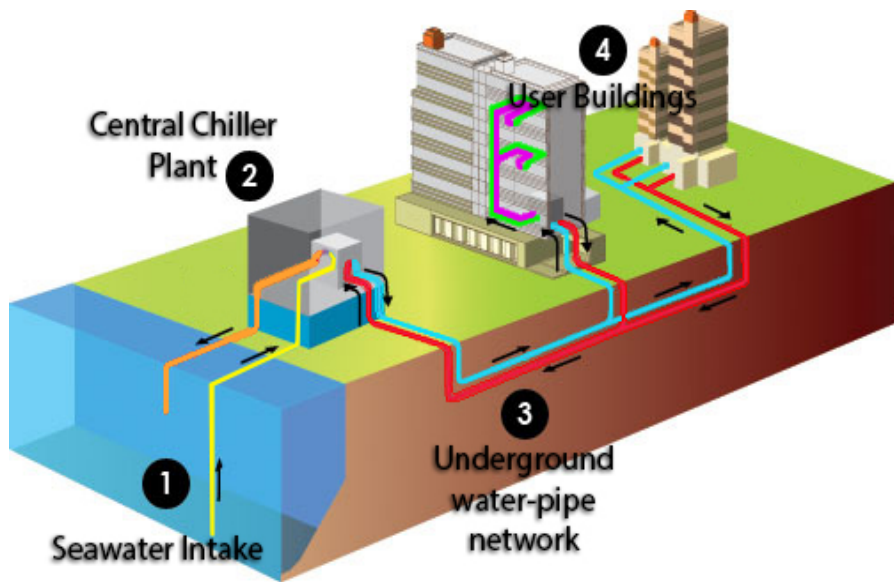
## 啟德發展計劃 區域供冷系統 第 III 期(組合丙)工程

23 February 2016  
2016年2月23日



# District Cooling System

## 區域供冷系統



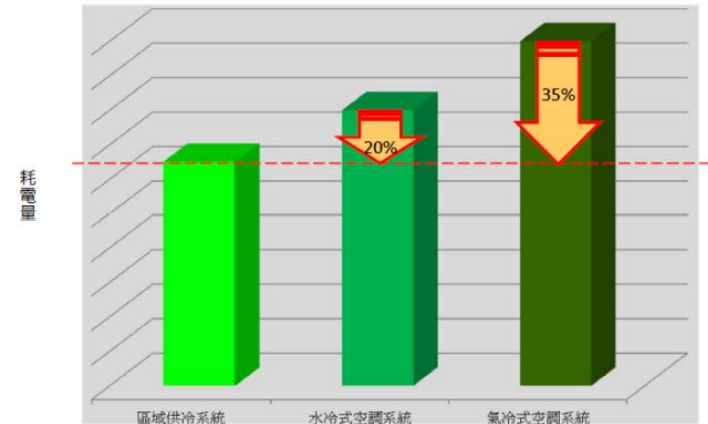
# Benefits of District Cooling System

## 區域供冷系統的優點

- More energy-efficient & less emission as compared to traditional air-conditioning system

For example, in Kai Tak Development:

- 85 million kWh annual saving in electricity consumption; and
- 59,500 tonnes annual reduction of CO<sub>2</sub> emission
- Not required to install individual chillers & associated electrical equipment
  - Reduced noise, vibration, heat, etc.
- 較傳統空調系統更加節能減排  
以啟德發展計劃為例，
  - 每年可節省8,500萬度電；及
  - 每年可減少59,500噸二氧化碳排放
- 無需個別安裝製冷機組和相關電氣設備
  - 減少噪音、震動、熱力等



Noise, Vibration, Heat



# Benefits of District Cooling System

## 區域供冷系統的優點

- Reduced "heat island effect"
  - More flexible building designs
  - More adaptable to varying demand as compared to individual air-conditioning system
- 
- 可減低「熱島效應」
  - 令建築物設計更具彈性
  - 較獨立空調系統更能配合不同空調需求



# Kai Tak Development 啟德發展計劃



# District Cooling Services Area

## 區域供冷覆蓋範圍

Kowloon East Regional Headquarters and Operational Base cum Ngau Tau Kok Divisional Police Station  
東九龍總區總部及行動基地暨牛頭角分區警署

Trade and Industry Tower  
工業貿易大樓

SCL Kai Tak Station  
啟德站

SCL To Kwa Wan Station  
土瓜灣站

Kai Ching Estate 啟晴邨

Schools 學校

Tak Long Estate 德朗邨

North DCS Plant Room  
區域供冷北廠

EMSD HQs  
機電工程署總部

Hong Kong Children's Hospital  
香港兒童醫院

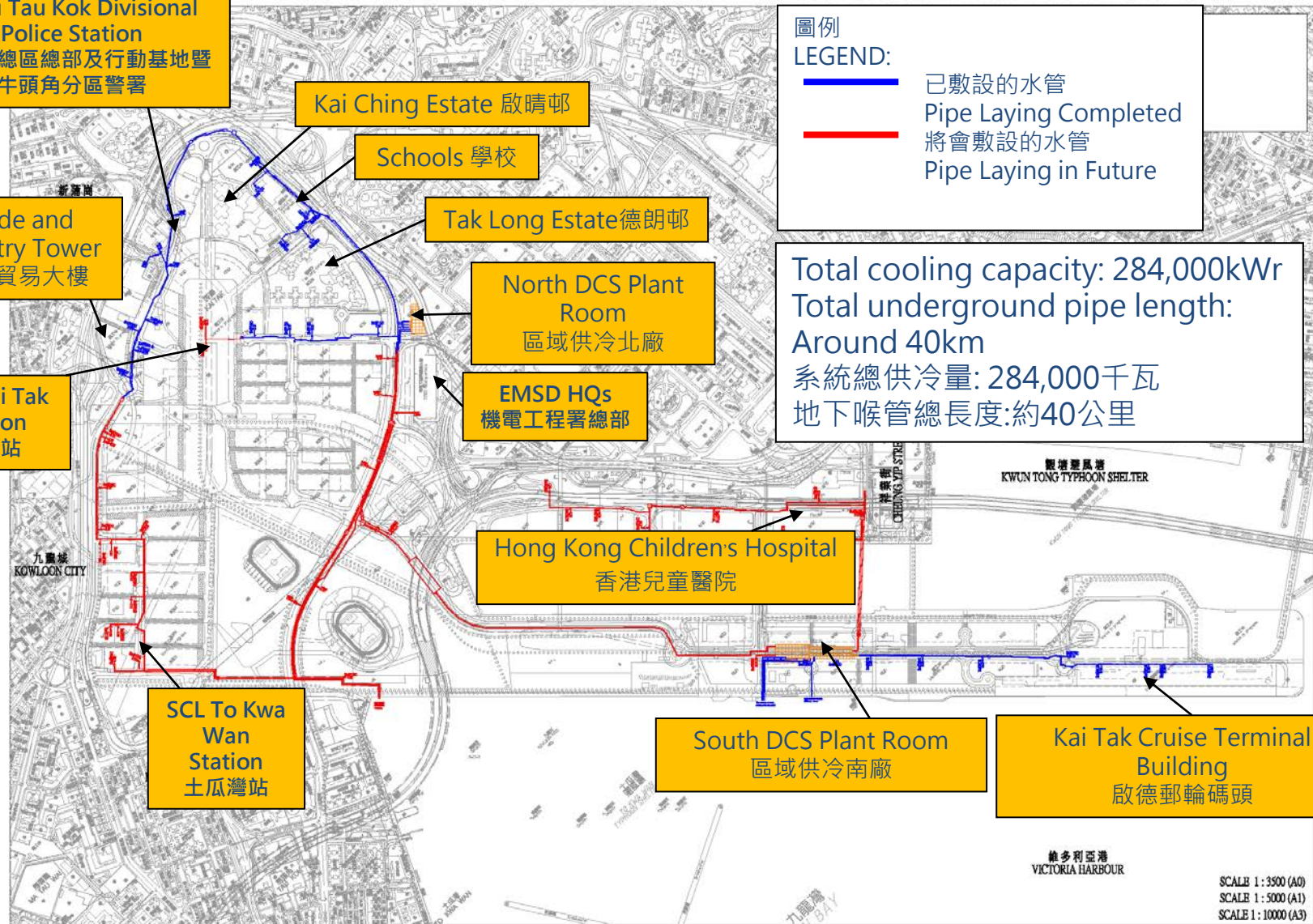
South DCS Plant Room  
區域供冷南廠

Kai Tak Cruise Terminal Building  
啟德郵輪碼頭

圖例  
LEGEND:

- 已敷設的水管  
Pipe Laying Completed
- 將會敷設的水管  
Pipe Laying in Future

Total cooling capacity: 284,000kW  
Total underground pipe length: Around 40km  
系統總供冷量: 284,000千瓦  
地下喉管總長度: 約40公里



維多利亞港  
VICTORIA HARBOUR

SCALE 1: 3500 (A0)  
SCALE 1: 5000 (A1)  
SCALE 1: 10000 (A3)

# Scope of Project under Phase III (Package C)

## 第III期(組合丙)的工程範圍

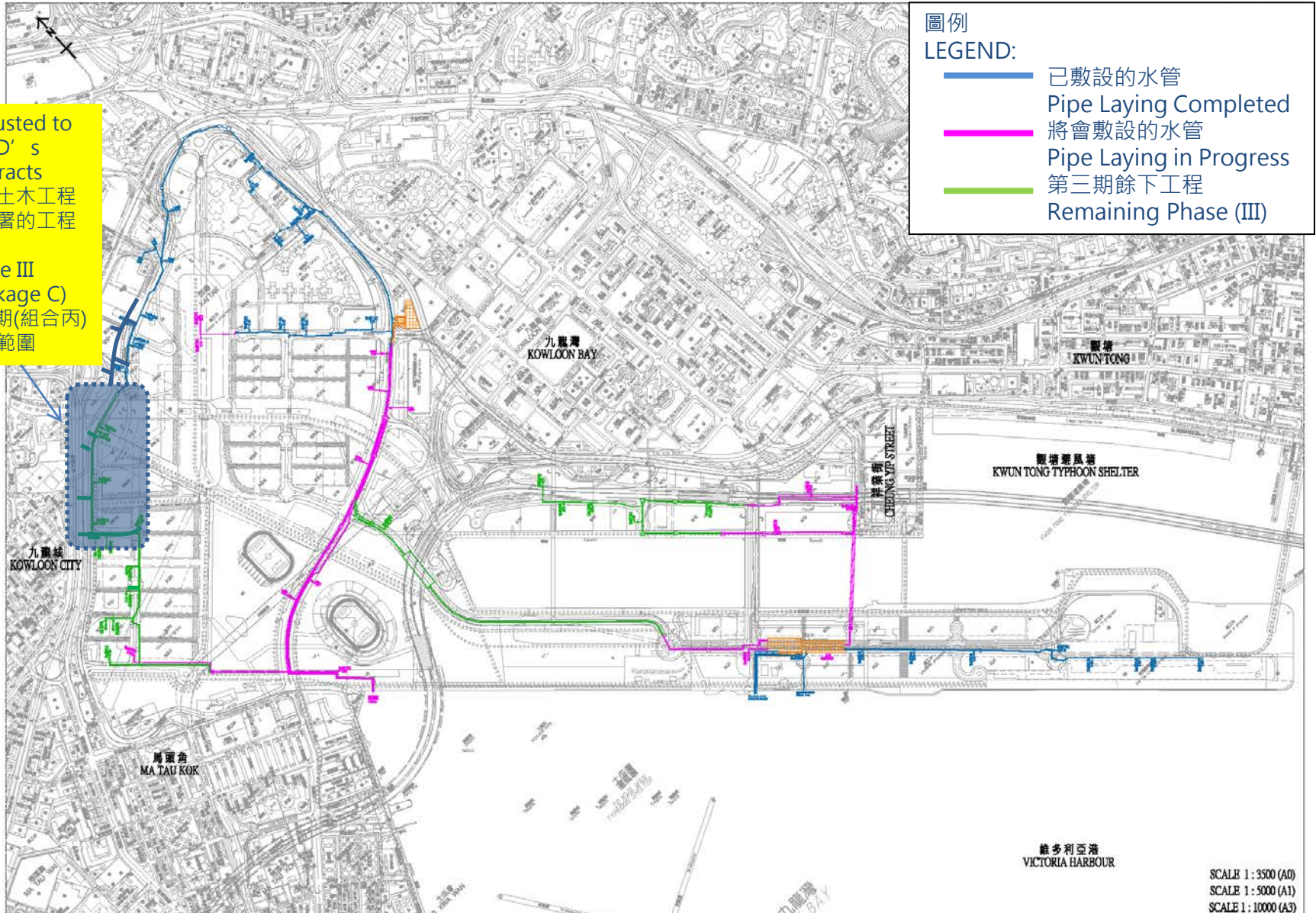
Entrusted to  
CEDD's  
contracts  
委托土木工程  
拓展署的工程

Phase III  
(Package C)  
第III期(組合丙)  
工程範圍

圖例

LEGEND:

- 已敷設的水管  
Pipe Laying Completed
- 將會敷設的水管  
Pipe Laying in Progress
- 第三期餘下工程  
Remaining Phase (III)



SCALE 1:3500 (A0)  
SCALE 1:5000 (A1)  
SCALE 1:10000 (A3)

# Estimated Cost of the Project

## 工程估計所需費用

- The total project cost of **45CG** is estimated to be **\$4,945.5 million** in MOD prices.
- Funding approval from LegCo has been secured for Phases I, II, III (Package A) and III (Package B) at an APE of \$3,752 million in MOD prices. Together with the estimated cost of **\$153.7 million** in MOD prices for Phase III (Package C), we plan to seek endorsement and funding approval from PWSC and FC in the Q2-2016 to increase the APE of **45CG** to \$3,905.7 million in MOD prices.
- **45CG**號整項工程計劃的預算費用估計為49億4,550萬元。
- **45CG**號工程計劃的第I、II、III期(組合甲)和III期(組合乙)的核准預算費，按付款當日價格計算，為37億5,200萬元，並已獲立法會批准撥款。第III期(組合丙)擬議工程的建設費用，按付款當日價格計算，約為1億5,370萬元。我們希望按計劃在2016年第2季提請工務小組委員會和財務委員會(“財委會”)支持計劃並批准撥款，把**45CG**號工程計劃的核准預算費提高至39億570萬元。



# Capital Cost and Latest Development of the Project

## 工程費用及最新狀況

Phases (期)	Capital Cost and Latest Development (工程費用及最新狀況)
<b>Phases I and II</b> <b>第I及第II期</b>	<p>APE of \$1,861.8 million (in MOD prices) approved in 2011; the construction works for Phases I and II were completed (within budget) in Q1 2013 and Q3 2014 respectively.</p> <p>2011年獲得核准預算費為18億6,180萬元(按付款當日價格計算)；第I期及第II期的建造工程已分別在2013年第1季及2014年第3季完成(在預算內)。</p>
<b>Phase IIIA</b> <b>第III期(組合甲)</b>	<p>APE of \$1,284.1 million (in MOD prices) approved in 2013; works are on schedule and within budget, and are expected to be completed by the end of 2017.</p> <p>2013年獲得核准預算費為12億8,410萬元(按付款當日價格計算)；工程現正如期及在預算內進行，預計最遲在2017年年底完成。</p>
<b>Phase IIIB</b> <b>第III期(組合乙)</b>	<p>APE of \$606.1 million (in MOD prices) approved in 2015; works are on schedule and within budget, and are expected to be completed by the end of 2018.</p> <p>2015年獲得核准預算費為6億610萬元(按付款當日價格計算)；工程現正如期及在預算內進行，預計最遲在2018年年底完成。</p>
<b>Phase IIIC</b> <b>第III期(組合丙)</b>	<p>Estimated cost of about \$153.7 million (in MOD prices), to dovetail with the latest progress of infrastructure developments at Kai Tak.</p> <p>估計所需費用約為1億5,370萬元(按付款當日價格計算)，以配合啟德基建設施的最新發展進度。</p>
<b>Remaining works under Phase III</b> <b>第III期餘下工程</b>	<p>To seek FC's approval for the funding, which is estimated to be \$1,039.8 million (in MOD prices), by phases in next few years depending on the development schedule of KTD.</p> <p>視乎啟德發展計劃的發展時間表，未來以分期方式，尋求財委會批准撥款，按付款當日價格計算，估計為10億3,980萬元。</p>

# Entrustment of Contracts for Phase III (Package C)

## 第III期(組合丙)的委託工程

- Laying of chilled water distribution pipe network under Phase III (Package C) will be entrusted to CEDD' s project PWP no. 7469CL “Kai Tak development – infrastructure at north apron area of Kai Tak Airport”
- 將會委託土木工程拓展署在工務計劃項目第7469CL 號 “啟德發展計劃 - 啟德機場北面停機坪的基礎設施” 敷設第III期(組合丙)的冷凍水配水管道網絡。

# Charging Principles

## 收費原則

- Cost of district cooling services comparable to that of individual water-cooled air-conditioning system using cooling towers
- Recovering both capital and operating costs within the system operating life, which is estimated to be 30 years
- 使用區域供冷服務與自行安裝使用冷卻塔的水冷式空調系統費用相若
- 系統使用期(估計約30年)內收回建造和營運成本

# District Cooling Services Ordinance (Cap 624)

## 第624章區域供冷服務條例

- “District Cooling Services Ordinance (Cap 624)” was passed by LegCo and enacted in March 2015.
- The Ordinance provides for the imposition of charges for the District Cooling Services and other related matters. The key tariff components include:
  - Capacity charge (calculated based on contract cooling capacity)
  - Consumption charge (calculated based on actual cooling consumption)
- 第624章《區域供冷服務條例》已於2015年3月獲立法會通過並生效。
- 條例訂明區域供冷服務收費及其他相關事宜。收費主要組成部份：
  - 製冷量收費 (按合約製冷量計算)
  - 耗冷量收費 (按實際耗冷量計算)

Thank you  
多謝