



**EMPOWER**  
ENERGY  
SOLUTIONS

# *Emirates Central Cooling Systems Corporation*



**Presented by:**  
**Samer Khoudeir**  
Chief Sales & Marketing Officer

## ***Empower*** – The world's Largest District Cooling Provider

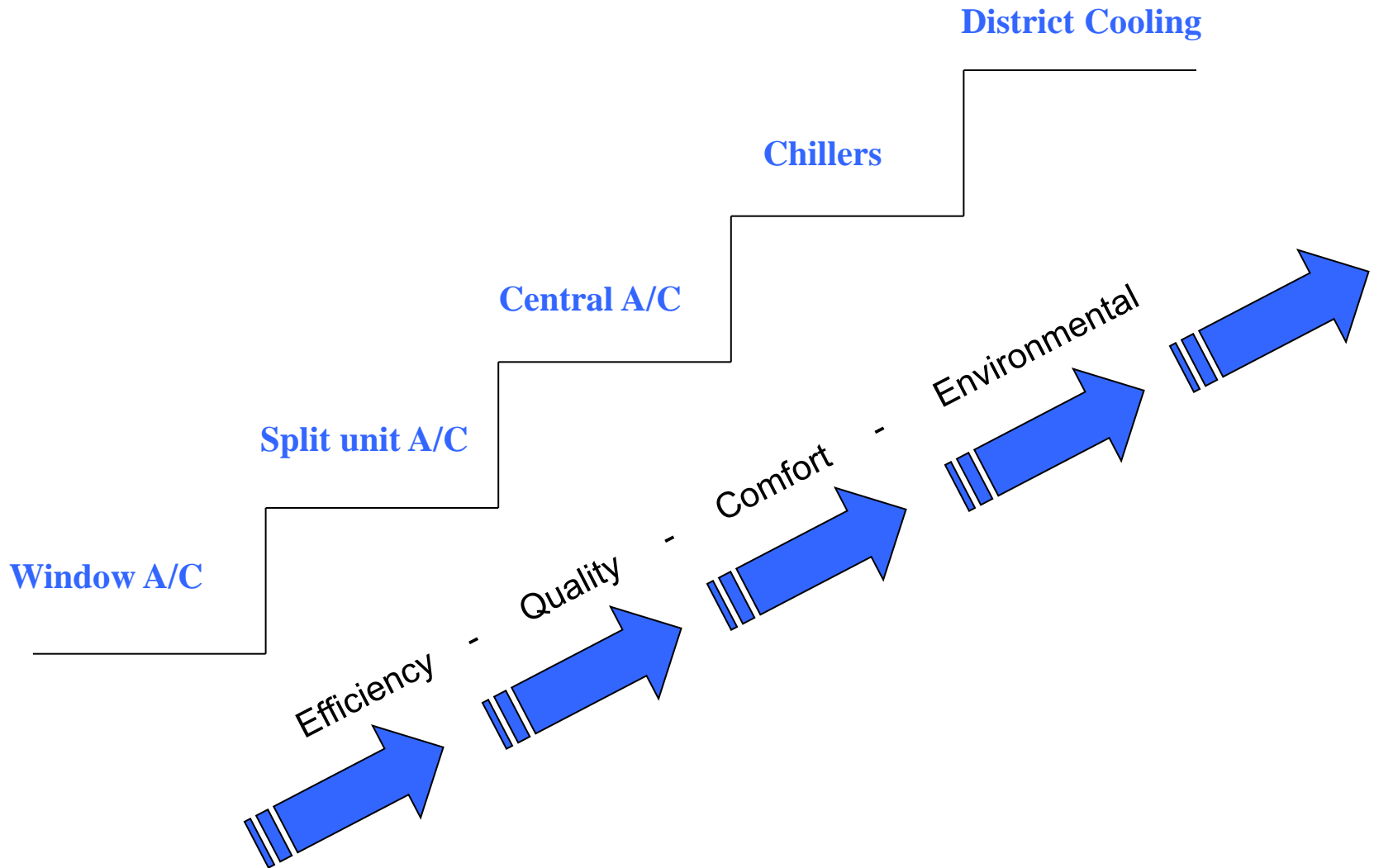
- ❖ Established in 2003 as a JV between DEWA and TECOM
- ❖ Decreed company established by the Government to promote effective utilization of energy resources
- ❖ Serves **30** large districts / projects with over **1,045,000 RT** (Refrigeration Tons)
- ❖ An end-to-end DCS provider

## ❖ Key Projects:

- Dubai International Financial Centre (DIFC)
- Jumeirah Beach Residence (JBR)
- Business Bay
- Dubai Healthcare City (DHCC)
- Jumeirah Lakes Towers (JLT)
- Palm Jumeirah Trunk (PJT)
- Palm Jumeirah Crescent (PJC)
- Discovery Gardens (DG)
- Ibn Battuta Mall
- Mirdiff Buildings
- Al Khail Gat
- TECOM Site A, B & C

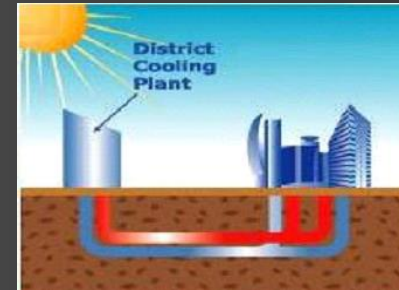
# Different kinds of cooling systems

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## District Cooling – The Concept

- ❖ Innovative, efficient and cost-effective concept for air-conditioning
- ❖ Production of chilled water at a central plant and then distribution of that cooling energy via an underground pre-insulated pipe network to buildings within a district
- ❖ Provide savings of up to 50% on power requirements for cooling as DCS utilizes 0.9-1.0 KW of energy compared to 1.6-1.8 KW of energy used by traditional cooling methods
- ❖ DCS results in cost savings for the master developers, building owners and individual unit owners



# *District Cooling – Benefits*

<b>Eco-Efficient Energy</b>	<ul style="list-style-type: none"> <li>▪ 50% reduction in power consumption</li> <li>▪ Reduces power generation infrastructure</li> <li>▪ Reduces greenhouse gas emissions</li> </ul>
<b>Lower life-cycle costs</b>	<ul style="list-style-type: none"> <li>▪ Reduces upfront capital investment</li> <li>▪ Less financial risks</li> <li>▪ Longer life cycle (30-50 years) vs. traditional A/Cs (12-15 years)</li> </ul>
<b>Reliable</b>	<ul style="list-style-type: none"> <li>▪ Around-the-clock availability</li> <li>▪ Reliable (“five nines – 99.999%”)</li> <li>▪ Redundancy</li> </ul>
<b>Added Value to Buildings</b>	<ul style="list-style-type: none"> <li>▪ DCS free up significant space in buildings</li> <li>▪ Reduces vibration and noise problems</li> </ul>
<b>Easy to operate and maintain</b>	<ul style="list-style-type: none"> <li>▪ Outsourcing of cooling operations</li> <li>▪ Developers to focus on their core business</li> </ul>

# *Thermal Energy Storage (TES)*

- ❖ TES helps in storing cooling energy at off-peak periods
- ❖ TES helps in managing the load profile by shaving off peak load requirements
- ❖ DCS with TES delivers reliable and consistent cooling services



*Thermal Storage units in Empower's  
Business Bay District Cooling Plant*

## Treated Sewage Effluent (TSE)

- ❖ Utilization of TSE water in District Cooling plants helps conserving potable water resources
- ❖ The advantages of implementing TSE are:
  - Environmental benefits of re-use
  - Equivalent or higher cycles of concentration for district cooling
  - Economic feasibility ensures cost savings compared to the use of desalinated water
- ❖ Empower has been a pioneer in implementing and utilizing TSE water at its various District Cooling plants - for e.g. DHCC, DIFC, etc.



# *Rationalized Use of Energy through District Cooling*

- ❖ Utilization of District Cooling Services leads to rationalized use of energy by:
  - Better utilization of available energy resources
  - Lower utilities infrastructure
  - Better energy accountability from end users resulting in energy savings (through sub-metering)
  
- ❖ District Cooling is a cost-effective alternative for individuals, master developers, government and the community as a whole
  
- ❖ District Cooling is the Way Forward!



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# *District Cooling*

Thank You