



EMPOWER
ENERGY
SOLUTIONS

Emirates Central Cooling Systems Corporation



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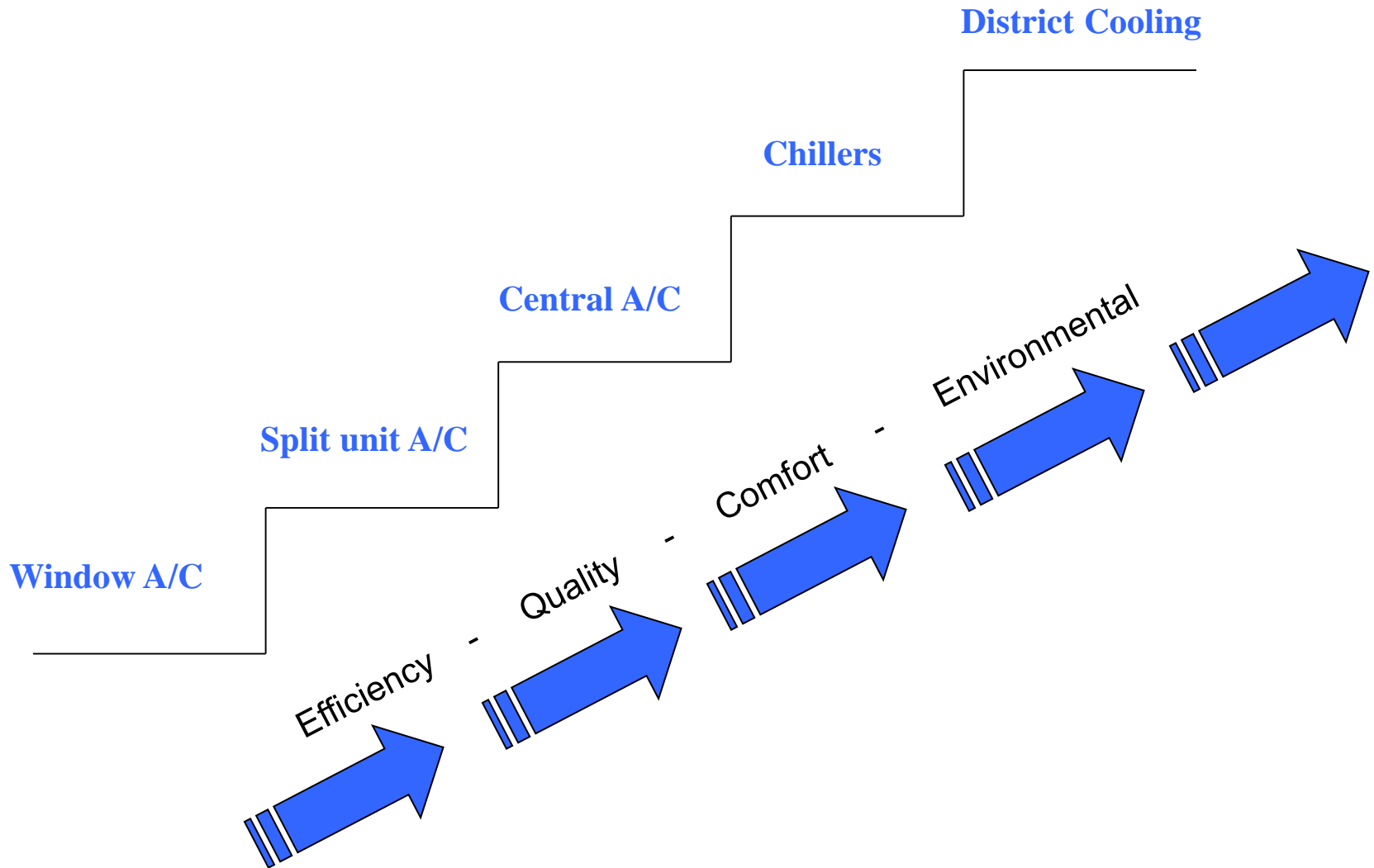
Empower – The world's Largest District Cooling Provider

- ❖ 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:

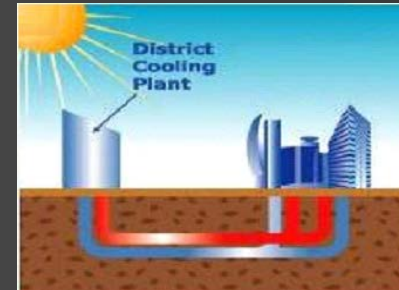
- Dubai International Financial Centre (DIFC)
- Jumeirah Beach Residence (JBR)
- Business Bay
- Dubai Healthcare City (DHCC)
- Jumeirah Lakes Towers (JLT)
- Palm Jumeirah Trunk (PJT)
- Palm Jumeirah Crescent (PJC)
- Discovery Gardens (DG)
- Ibn Battuta Mall
- Mirdiff Buildings
- Al Khail Gat
- TECOM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

Different kinds of cooling systems



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

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

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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Thank You