

District Cooling Workshop

Wednesday 18/6/2014

Towards Cooperative District Cooling Society



MARAFEQ QATAR

Major District Cooling Provider in Qatar – Experience & Expansion Plans

Dated: 18th June 2014



Marafeq Qatar – Brief Introduction

One of the leading Utility Development Company, providing;

- Master Planning**
- Infrastructure design and Construction Supervision**
- Utility Operation and Maintenance and**
- Customer Services Support**

Marafeq provides opportunities for Developers to focus on their business and be confident of Marafeq Qatar's experienced engineers and professional technical team to carry out the complete package of utility services

Current Projects



Lusail City – District Cooling, Gas and Pneumatic Waste Systems

- **38 square kilometers of Master Planned City**
- **Five Islands**
- **Residential, Mixed use, Entertainment, Commercial Districts, Avenues and Public Marinas**
- **More than 22 Hotels**
- **Light Rail Transit, Rail and Metro connections.**
- **200,000 Residents, 170,000 Employees, 80,000 Visitors**

Marafeq Role As Utility Developer/Provider

- **Project Management**
- **Design Management**
 - **District Cooling**
 - **Gas System**
 - **Environmental Services**
- **Construction Supervision**
- **Operation and Maintenance**
- **Customer Services**

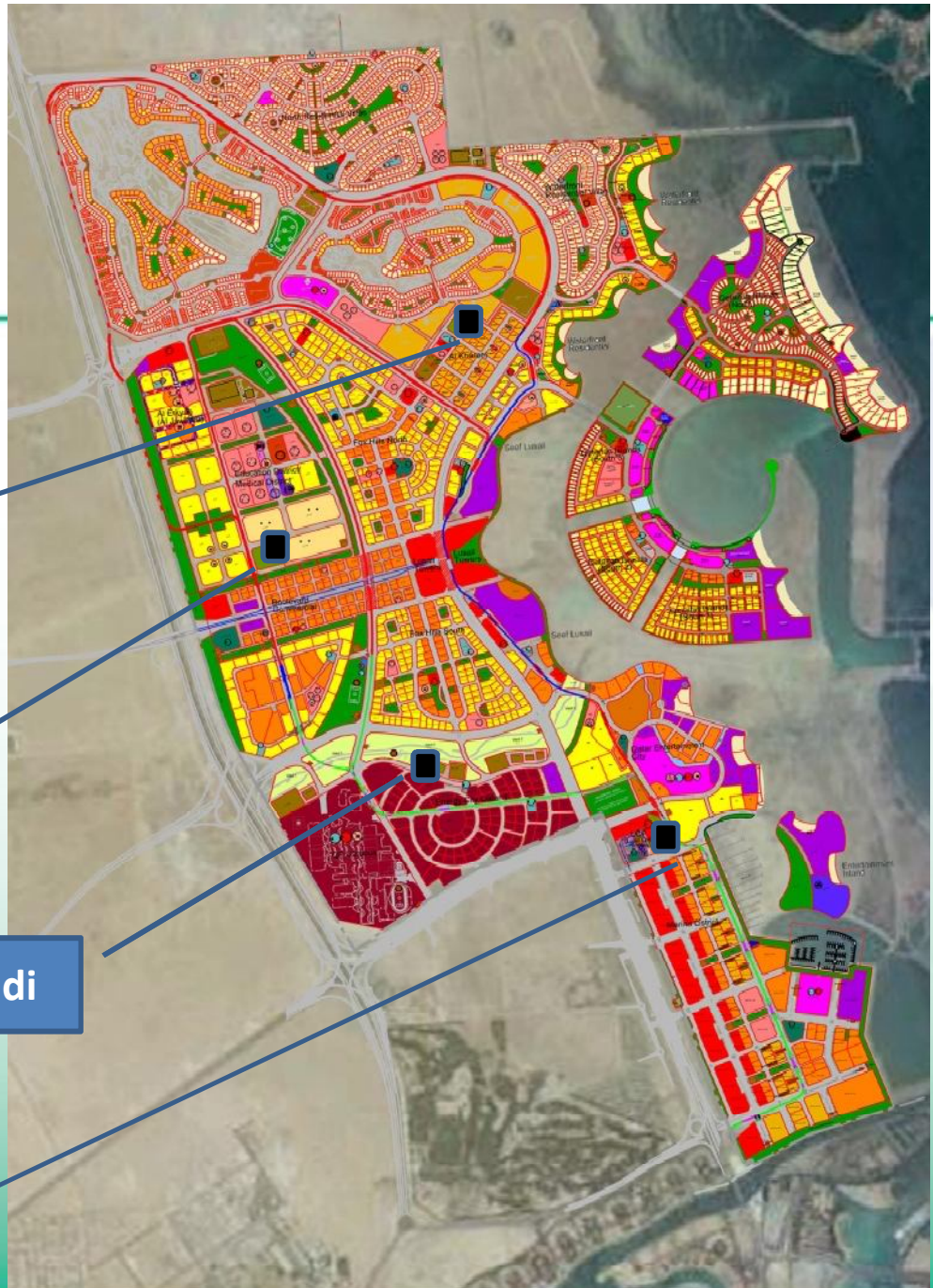


District Cooling Summary

- **Approximately 400,000 TR will be installed**
 - **Phased in approach by Year 2030**
 - **As required**
- **175 kilometers of District Cooling Network**
- **200mm to 1800mm diameter pre-insulated pipe**
- **1000+ Energy Transfer Stations**

**Once completed, this will be the world's largest
District Cooling System**

Master Plan



DCP North

DCP West

DCP Wadi

DCP Mariana

■ Cooling Plant

Lusail City

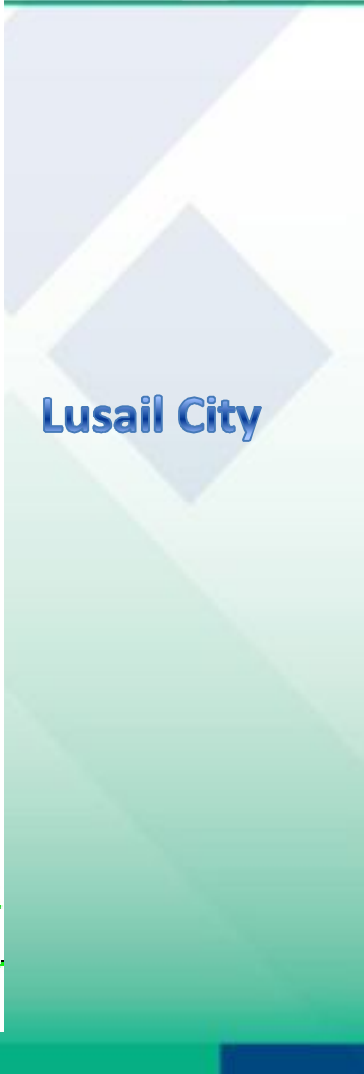
DC Network

DCP North

DCP West

DCP Wadi

DCP Mariana



Current Status

- **Marina Phase 1 (33,250 TR) scheduled for completion by April 2015**
- **More than 70% of the infrastructure design is completed**
- **Many buildings are under construction**
- **Several towers under Marina DC Plant Phase1 are ready and connected to temporary utility plants.**

Phasing Plan

- **Total of 4 DC Plants (DCP Marina, North, West and Wadi) + 2 possible additions (Lusail Stadium Plant and Medical Education City Plant)**
- **Installed capacity of 33,250 TR in year 2015 to approx. 400,000 TR by year 2030.**
- **Multiple phasing within each DC plant to meet development demand**

DC Projects Under Operation

Barwa City – District Cooling Plant

- **Operated by Marafeq Qatar with JV Partner**
- **2 DC Plants of total capacity 37,600 TR in Phase 1**
- **Operational since December 2011**
- **Probable addition of another 10,000 to 12,000 TR being studied now**
- **Plants have space to add 37,600 TR more in Phase 2**

Makeup Water Use and Associated Issues

Lusail City

- **Plants are designed to use TSE Water and Potable Water as makeup**
- **When TSE water is available in adequate quality and quantity, DC Plants will use the same after treating in in-house RO Plant**
- **Discharge location for reject water from RO Plant + Cooling Tower blow down is under review by Lusail**

Barwa City

- **Plants are currently operated with Potable Water as makeup**
- **TSE Water changeover in progress - RO plant tendering, procurement and obtaining TSE water of required quantity ongoing**

Challenges of using TSE Water as Makeup

- **Availability of required quality and quantity (many developments gives priority to irrigation over DC plants)**
- **Sustained availability of same quality**
- **Discharge from RO Plant + Cooling Tower makeup**
 - **Current ASHGAL/ MoE discharge regulations to storm and sewer need to be reviewed and amended for TSE water use**

Other Supports from Authorities

- **To make District Cooling more attractive and cost effective:**
 - District Cooling to be made mandatory for large developments (say 10,000 TR and above diversified load)
 - Preferential power and water tariff from Kahramaa
 - Day/ night power tariff to encourage Thermal energy Storage use at off peak time.
 - Public Private Partnership (PPP) in capital investment (E.g. Network by public utility, sharing of capex for plants)

ANY QUESTIONS ??





مـرـافـقـ قـطـر
Marafeq Qatar

Thank You...