



Impact of Global Economy on Promoting Wastewater Decentralization Project Options

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We provide Integrated Utility Solutions

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Palm Utilities



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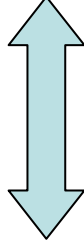
بالم ووتر
Palm Water



بالم ديسٽريڪٽ ڪولنج
Palm District Cooling



SYNERGY



PW supplies complete spectrum of water services:

- Potable water production from sea water desalination plants
- Polished and irrigation water production
- Sewage and wastewater treatment
- Wastewater reuse
- Water distribution

PDC supplies and distributes centrally chilled water

Scope of Services

**Market
Research &
Concept
Development**



**Master planning
& Design**



**Construction,
Operation
Planning &
Supervision**



**Operation
Management &
Customer
Service**



Customer sample



A model of PPP



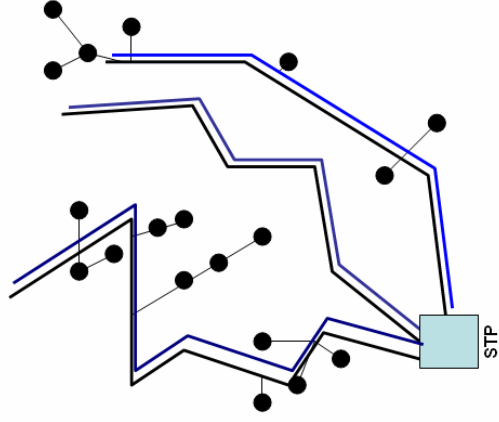
**Flexible to various business models:
DBOO, DBO, EPC, O&M, etc.
current models are:**

- **DBOO (Design, Build, Own, Operate)**
- **Lease to Own**
- **Direct Sales**
- **Operation Management**

Capacity sample

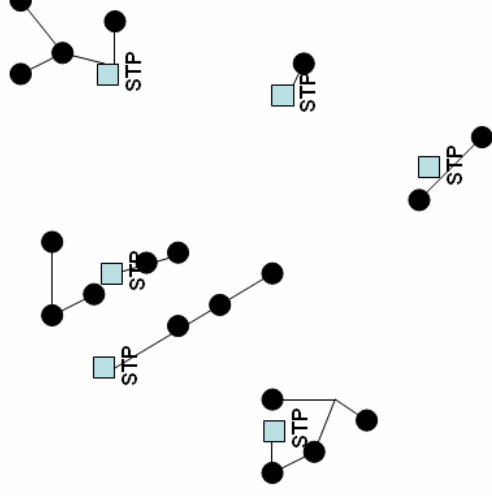


Comparison of Systems



Centralized

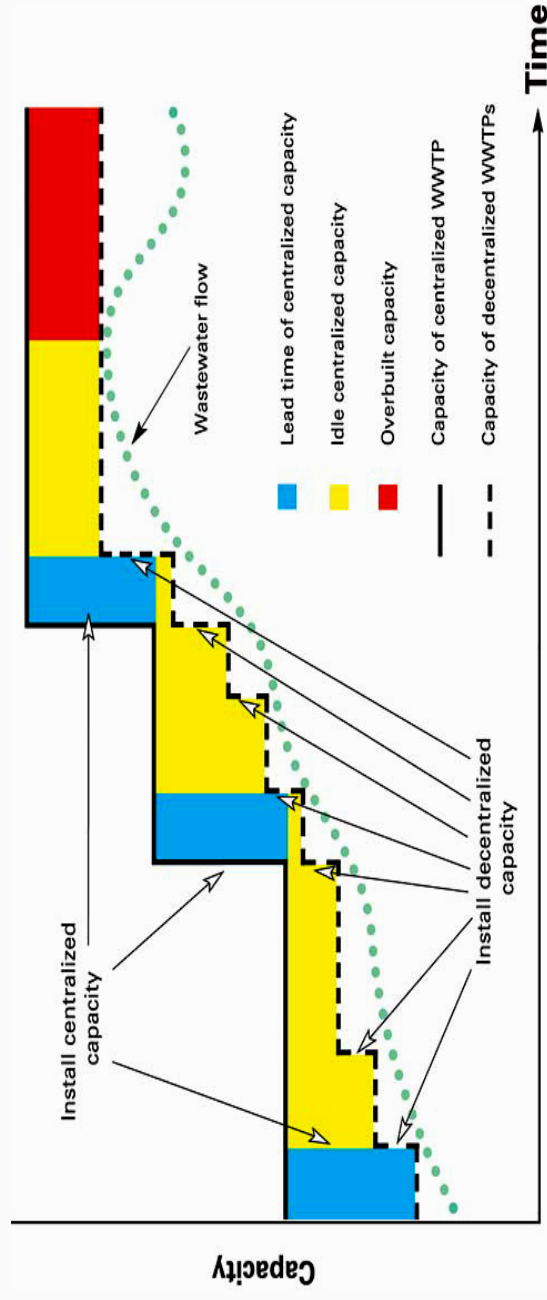
- **Service**
 - **Network**
 - **Plant**
 - **Location**
 - **Financial risk**
 - **O & M**
 - **Plant Cost**
 - **Infrastructure**
 - **Developer**
 - **Value adding**
 - **Flow quality**
- All communities within a region**
 - Primary + Secondary + Lift Stations**
 - Large capacity ($> 200,000 \text{ m}^3/\text{D}$)**
 - At least 20 – 25 Km from closest community**
 - Burdened by government**
 - Simple and cheap but extensive**
 - Cheaper (technology & economy of scale)**
 - Extensive and expensive (passes through)**
 - Government (Long term investment)**
 - Minimal**
 - Designed for a universal influent**



Decentralized

- 5 communities/ plant at most**
- Smaller size network**
- Small capacity ($< 20,000 \text{ m}^3/\text{D}$)**
- Within communities**
- mitigated to end-users**
- Costly and sophisticated but limited**
- More expensive (better technology)**
- Smaller and cheaper**
- PPP**
- Product upgrade in value chain**
- Customized per community type**

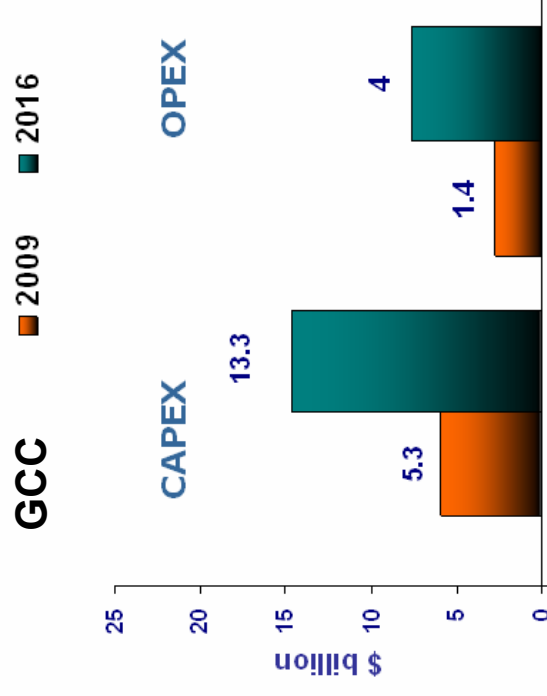
Impact of Global Economy



- **Slow down in developments requires**
 - modular systems
 - closer capacity match to actual demand growth
- **Tight cash demands**
 - deferral of capital costs to future
 - Spreading costs over time rather than upfront concentration
 - faster project implementation
 - smaller networks
 - Incurrence of less debt on the community
- **Financers' guarantees focus on:**
 - sustainable businesses
 - reliable and more efficient systems
 - value utilization of end products

Impact of Global Economy

- **Bigger financial burden on government**
 - Prioritization of network connections
 - Alternative solutions (decentralization)
- **Delayed implementation of new tariff**
 - Greater involvement of private sector with controlled autonomy
- **Resource optimization:**
 - Centralized management of decentralized plants
 - Integration of services with other opportunities (synergy)
 - Comparative resilience



* Source: GWI Global Report



Thank You!