SUEZ Desalination Plants

**PIOENEERS: OVER 45 YEARS EXPERIENCE FOR SUSTAINABLE DESALINATION**

World Desalination:
Around 20,000 plants built or under construction
Able to supply 99,500,000 m³/day
In 150 Countries

SUEZ’s Desalination:
More than 3300 plants built or under construction
Able to supply over 12,700,000 m³/day.
Including over 3,300,000 m³/day under SUEZ O&M

RO Leaders today: 15 RO Plants over 100,000 m³/day each
SUEZ (TI & WTS) Desalination References

TOTAL SW RO + SW THERM + BW M3/DAY

- SUEZ
- Veolia
- Doosan
- Fisia
- IDE
- Mitsubishi
- Acciona
- Hyflux
- Valoriza-Sacyr
- Abengoa
- Hitachi
- Metito
- Cadagua
- Aqualia
- GS Inima
- H2O Innovation
- Osmoflo
- RWL

SW RO M3/D
SW THER M3/D
BW M3/D

0 2,000,000 4,000,000 6,000,000 8,000,000 10,000,000 12,000,000 14,000,000
Some Desalination and Water Reuse Projects. DBO & DBFO

- Barcelona (Spain) - DBO, Desalination – 200 mld
- Sant Joan Despi (Spain) - DBO, Desalination – 150 mld
- Bahia de Palma (Spain) - DBO, Desalination – 70 mld
- Andratx (Spain) - BOT, Desalination – 15 mld
- Mutxamel (Spain) - DBO, Desalination – 50 mld
- Al Dur (Bahrein) – BOT/DB, Desalination – 218 mld
- Sulaibiya, Kuwait - BOT, WWTP – Reuse 600 mld
- Mirfa (U.A.E) – BOO/DBO, Desalination – 136 mld
- Perth (Australia) - DBO, Desalination – 143 mld
- Melbourne (Australia) - BOT, Desalination – 450 mld
- Rosarito Mexico- BOO, Desalination – 2 x 190 mld
- Pemex Mexico- BOT, Desalination – 19 mld
- Hamma, Algeria – BOT, Desalination - 200 mld
- Sulaibiya, Kuwait - BOT, Desalination – 600 mld

Other DBFO Projects:
- +25 Solid Waste
- +12 Waste Water
- +5 Drinking Water
BARKA IV (OMAN) DESALINATION PROJECT
BARKA IWP/DBFO: Phases & Overall Project Timeline & Milestones

Project Definition
  2 years

Prequalification
  Stage
  2 months

Bid preparation
  4 months

Evaluation
  Negotiations
  & Award
  (1+3 months)

Construction
  29 months

O&M
  20 years

RFQ issuance
  11 February 2015

RFP issuance
  6 April 2015

Submission of Technical Qualification
  29 June 2015

Bid submission
  17 August 2015

Award
  15 November 2016

SPC Incorporation
  21 January 2016

CONTRACT Signature
  (Execution of Project Docs)
  2 March 2016

Financial Close
  CP Completion
  (1st drawdown from Senior Loan)
  21 April 2016

COD Barka
  3x7 days
  P&R Tests
  June 2018

Prequal bidders selection based on:

1) Experimented developers in BOT
2) financing capacity of developers.
3) EPC Experience (size similar to BOT project)
4) O&M Experience (size similar to BOT project)

Bid with
1) financing commitment from banks
2) Model imposed by client with clear assumptions (NPV,...)

EPC mobilisation

NTP for EPC

CONTRACT Signature
  (Execution of Project Docs)
  2 March 2016

Financial Close
  CP Completion
  (1st drawdown from Senior Loan)
  21 April 2016

COD Barka
  3x7 days
  P&R Tests
  June 2018
MAIN STAKEHOLDERS

SPC – EPC – O&M

BANKS

LENDERS (Consultant / LTA: Parsons Brinckerhoff)

Owner Engineer / OE

PROJECT COMPANY FOR BARKA 4
BARKA DESALINATION COMPANY

Oman Power and Water Procurement (OPWP)

EPC Contract

O&M Contract, 20 years

EPC

O&M

EPC SUBCONTRACTORS
Design, Civil works, Marine Works, Electromechanical, Installation,…

Execution Consultant: AECOM

Bid Stage Consultant: FICHTNER

WPA - Water Purchase Agreement signed on March 2016

OPWP - Oman Power and Water Procurement

SPC - SUEZ
A stable whole-life tariff remunerating performance
Target: Lowest Water Tariff

1- The “TAKE-or-PAY” principle applies

2- Tariff breakdown: **FIXED part** + **VARIABLE part**

Water Tariff = T1 + T2 + T3

- **Investment**
  - EPC CAPEX
  - SPC DB costs
  - Interests DB phase
  - ...etc

- **Fixed OM**
  - Fixed O&M costs
  - O&M staff
  - ...etc

- **Variable O&M**
  - chemical costs
  - electricity costs
  - renewal costs
  - ...etc

3- Tariff adjustment (formula): Indexation / Inflation

4- Design and Tariff calculated in the future use
BARKA IV, OMAN – 280 000 m³/d

- IWP-BOO, SPC: Itochu, Suez, Engie & Towell Eng.
- First Desal in Oman without Power Plant - IWP
- The largest Desalination Plant in Oman
- Suez TI is the only EPC Contractor
- O&M by Suez for 20 years
BARKA IV, OMAN – 280 000 m³/d

Sea Water Open Intake

Sea Water 42 g/L 22-35ºC

Sea Water Pumps

SeaDAF™

9

16 DMGF

Filtrated Water Tank

6+6 Filtered Water Pumps

11+12 Cartridge Filters

12 HP pumps

Saltwater

Open Intake

16 DMGF

Permeate to potabilisation

Permeate Tank

Permeate water Pumps

Remineralization Limestone filters

Limestone filters

Reject

3 BW R.O.Trains

Recovery 85%

39 300m³/d each

12 SW R.O.Trains

Recovery 46%

26 000 m³/d each

Permeate water

Pumps
Global Water Awards:

2018 o Desalination Company of the Year
- Suez (Winner)
  o Water Plant of the Year
    - Mirfa Desalination Plant – Suez (Winner)

2016 o Water Deal of the Year
- Barka IV (Distinction)

2015 o Water Company of the Year
- Aqualogy (Distinction)
  o Desalination Company of the Year
    - SUEZ environnement (Distinction)

2014 o Desalination Deal of the Year
- Victorian Desalination Plant refinancing (Winner)
  o Water Project of the Year
    - Riyadh water supply enhancement (Winner)

2013 o Desalination Plant of the Year
- Victorian Desalination Plant (Winner)
  o Desalination Company of the Year
    - Degrémont (Distinction)

2012 o Water Company of the Year
- Degrémont (Distinction)
  o Desalination Plant of the Year
    - Al Dur (Highly commended)

2010 o Desalination Company of the Year
- Degrémont (Winner)
  o Desalination Plant of the Year
    - Barcelona-Llobregat (Winner)
  o Desalination Deal of the Year
    - Victorian Desalination Plant (Winner)
    - Al Dur (Highly commended)
  o Energy & Water Plant of the Year
    - Barka II (Distinction)

2009 o Water Company of the Year
- SUEZ environnement (Distinction)
  o Water Project of the Year
    - As Samra WWTP (Highly commended)

2008 o Water Deal of the Year
- Jumeirah Golf Estates (Winner)

2007 o Desalination Plant of the Year
- Kwinana, Perth (Winner)
  - Wadi Ma’in (Highly commended)

2006 o Water Project of the Year
- Gabal El Asfar WWTP (Distinction)
  - Milano San Rocco WWTP (Highly commended)

THANK YOU FOR YOUR ATTENTION