

شركة مرافق الكهرباء والمياه بالجبيل وينبع  
Power and Water Utility Company for Jubail and Yanbu

مرافق  
MARAFIQ

# Sustainable Development

5 February 2013



## Water Arabia 2013



الجمعية العربية السعودية للبيئة المائية  
Saudi Arabian Water Environment Association

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# Marafiq at a Glance

Marafiq undertakes operation, maintenance, management, expansion and construction of utility systems for

**Power Generation, Transmission and Distribution**

**Seawater Cooling**

**Potable and Process Water**

**Sanitary and Industrial Wastewater**

**Sales Gas Distribution**

**District Cooling**

to provide essential utility services to industrial, commercial and residential customers in Jubail and Yanbu Industrial Cities

## Power Generation, Transmission and Distribution

### JWAP (Jubail IWPP)

- 2,745 Mw supplied to SEC

### Yanbu

- Existing capacity 1,030 Mw
- Two new STG units – 500 Mw in 2013
- Yanbu 2 – minimum capacity 850 Mw





## Seawater Cooling

### Jubail

- 36 km canals
- 29,894,400 m<sup>3</sup>/day

### Yanbu

- 85 km pipelines
- 2012: 15,360,000 m<sup>3</sup>/day
- 2016: 26,040,000 m<sup>3</sup>/day





## Potable and Process Water Jubail

### Potable water

- JWAP – 800,000 m<sup>3</sup>/day with firm commitment to SWCC of 500,000 m<sup>3</sup>/day
- Marafiq quantity contracted with JWAP and Al-Fatah – 375,000 m<sup>3</sup>/day

## Yanbu

### Potable water

- Yanbu 2 Phase 1 – 20,000 m<sup>3</sup>/day in 2014
- Yanbu 2 Phase 2 – 35,000 m<sup>3</sup>/day in 2017
- Yanbu 2 Phase 3 – 25,000 m<sup>3</sup>/day in 2024

Total  
80,000 m<sup>3</sup>/day

### Process water

- Yanbu 2 Phase 1 – 40,000 m<sup>3</sup>/day in 2014
- Yanbu 2 Phase 3 – 30,000 m<sup>3</sup>/day in 2024

Total  
70,000 m<sup>3</sup>/day

## Industrial and Sanitary Wastewater

### Jubail

Expanded capacities

- Industrial wastewater treatment 97,000 m<sup>3</sup>/day
- Sanitary wastewater treatment 159,000 m<sup>3</sup>/day

### Yanbu

Expanded capacities

- Industrial wastewater treatment 72,000 m<sup>3</sup>/day
- Sanitary wastewater treatment 47,000 m<sup>3</sup>/day

### Future additional capacities by 2015

- Industrial Waste Water – 60,000 m<sup>3</sup>/day
- Sanitary Waste Water – 60,000, m<sup>3</sup>/day



## Sales Gas Distribution and District Cooling

### District Cooling

Marafiq Cool Co formed in 2010 as Marafiq and Saudi Tabreed Joint Venture

Centralized production and distribution of chilled water to multiple users

### Sales Gas Distribution

Oct 2011: Start of natural gas distribution to Yanbu light industries

Nine km pipelines providing 15 million cubic feet per day





# SUPPLY-DEMAND MANAGEMENT



## Ongoing Projects

Ten-year CapEx program of more than SR 17 billion

Ras Al-Khair Industrial City

Yanbu 2 Power and Water facility

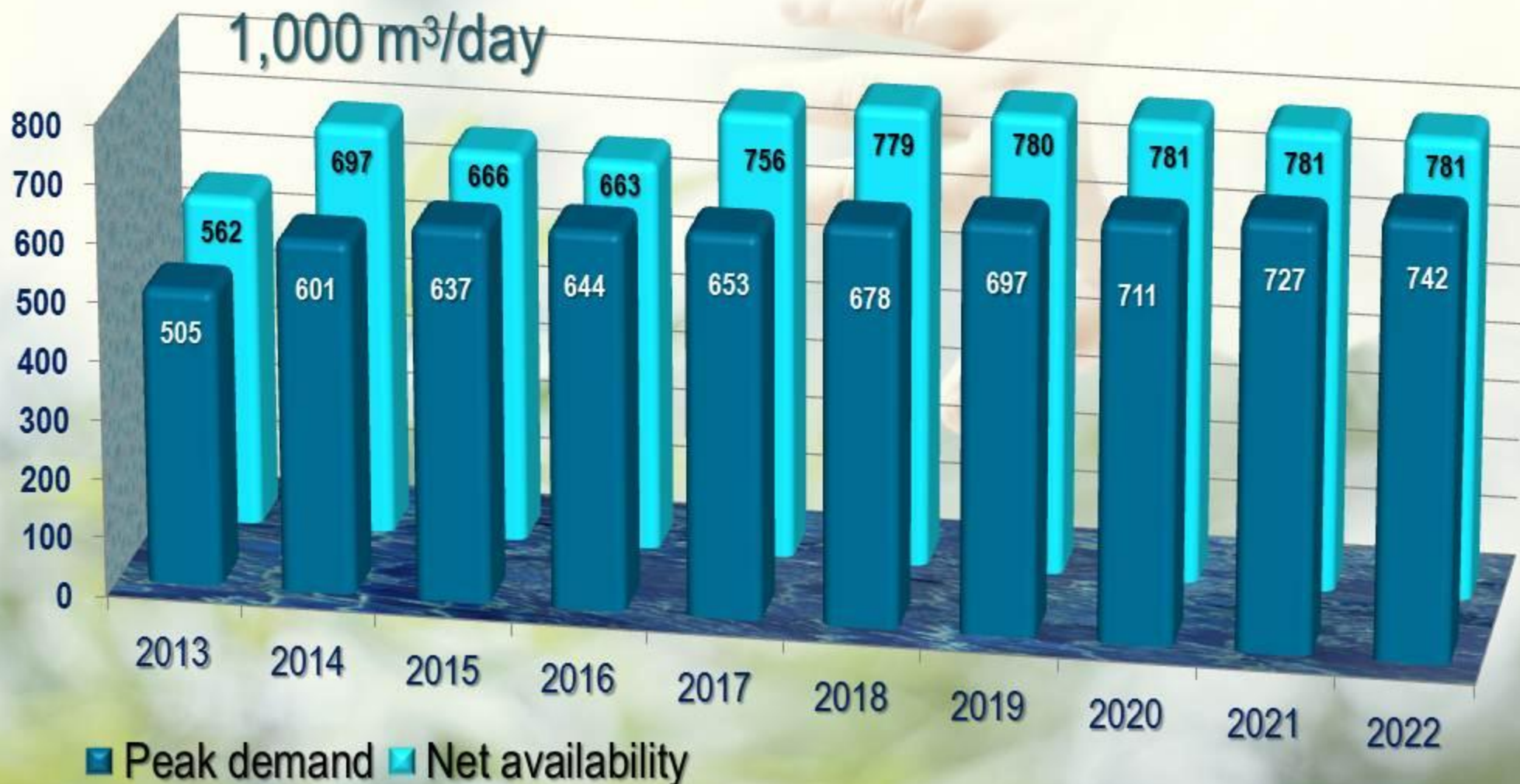
Steam Turbine Generator units in Yanbu

Industrial water supply on take-or-pay basis for Sadara



# Ten Year Supply-Demand Horizon

## Potable and Process Water Production – Jubail and Yanbu

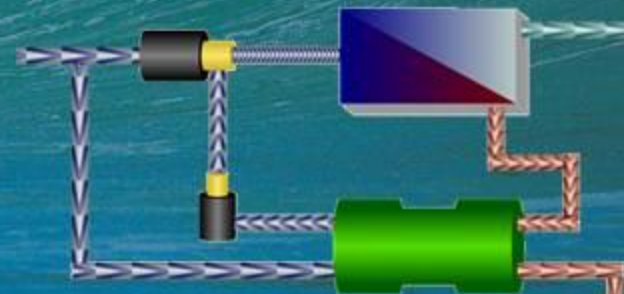




## Jubail

Three new Seawater Reverse Osmosis plants to be commissioned in next five years

Plant	Commissioning	Capacity
SWRO-4	2014	100,000 m <sup>3</sup> /day
SWRO-5	2017	100,000 m <sup>3</sup> /day
Sadara SWRO	2015	150,000 m <sup>3</sup> /day

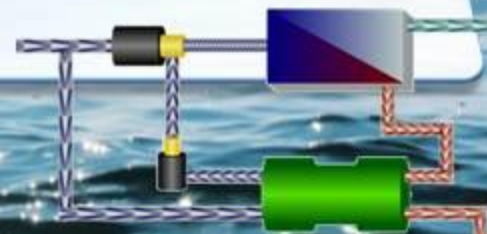




صدارة  
Sadara

## Sadara SWRO

- Agreement signed between Marafiq and Sadara for supply of desalinated water for industrial use at Sadara's integrated chemical complex at Jubail II
- Agreement provides for the construction and operation of a seawater reverse osmosis desalination plant inside Sadara's premises
- The plant's entire output will be supplied on a take-or-pay basis to Sadara
- To be established on a build, own and operate (BOO) basis
- Capacity 150,000 m<sup>3</sup>/day
- Target commissioning of full capacity by 2nd quarter of 2015



## Agreement signed with Royal Commission to extend Marafiq utility services to Ras Al-Khair



### Seawater Cooling

- Initial intake 75,000 m<sup>3</sup>/hour

### Potable Water

- Jubail seawater reverse osmosis plants 60,000 m<sup>3</sup>/day

### Industrial Wastewater

- Ultimate capacity 50,000 m<sup>3</sup>/day

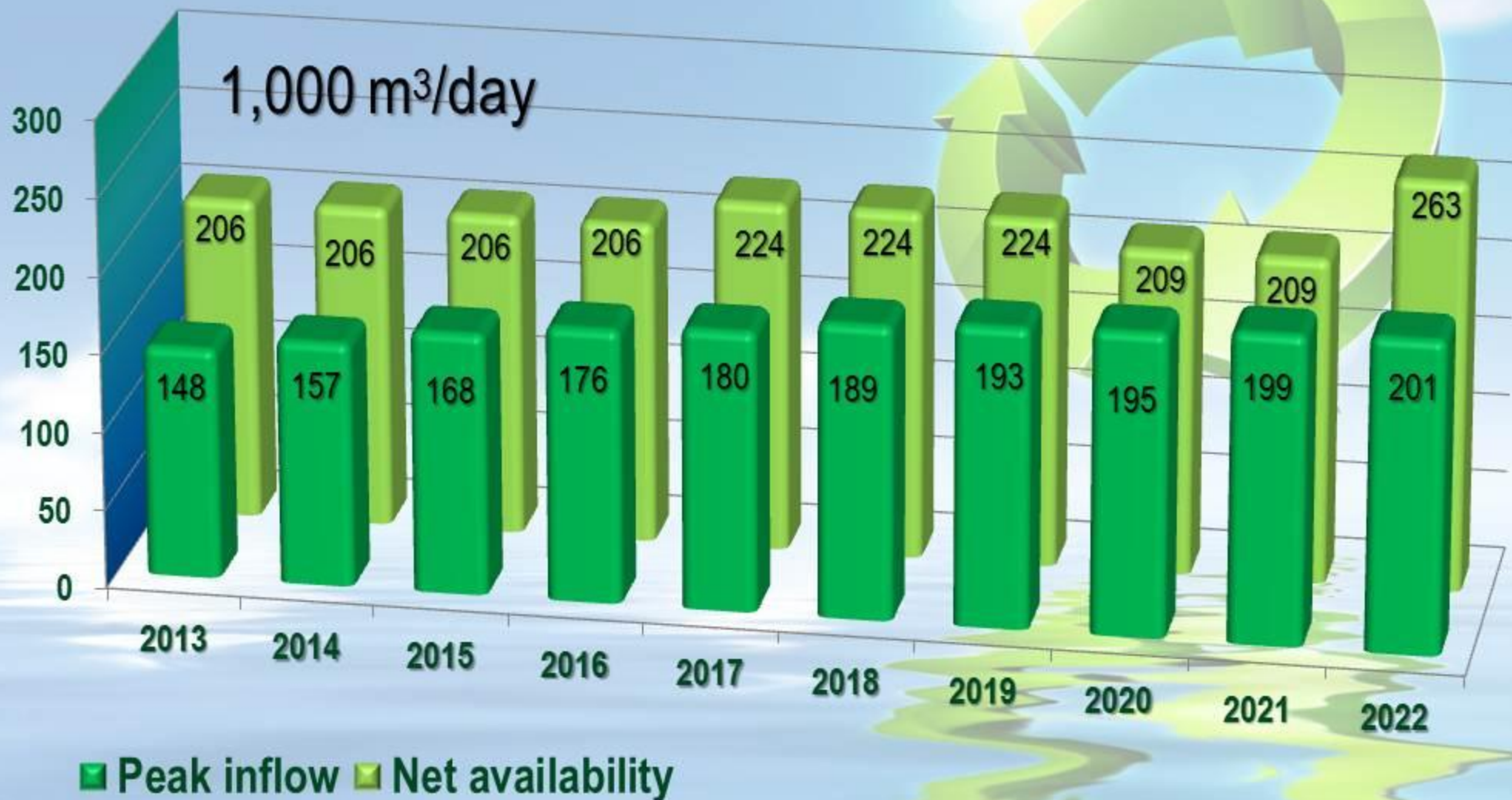
### Sanitary Wastewater

- Ultimate capacity 12,500 m<sup>3</sup>/day



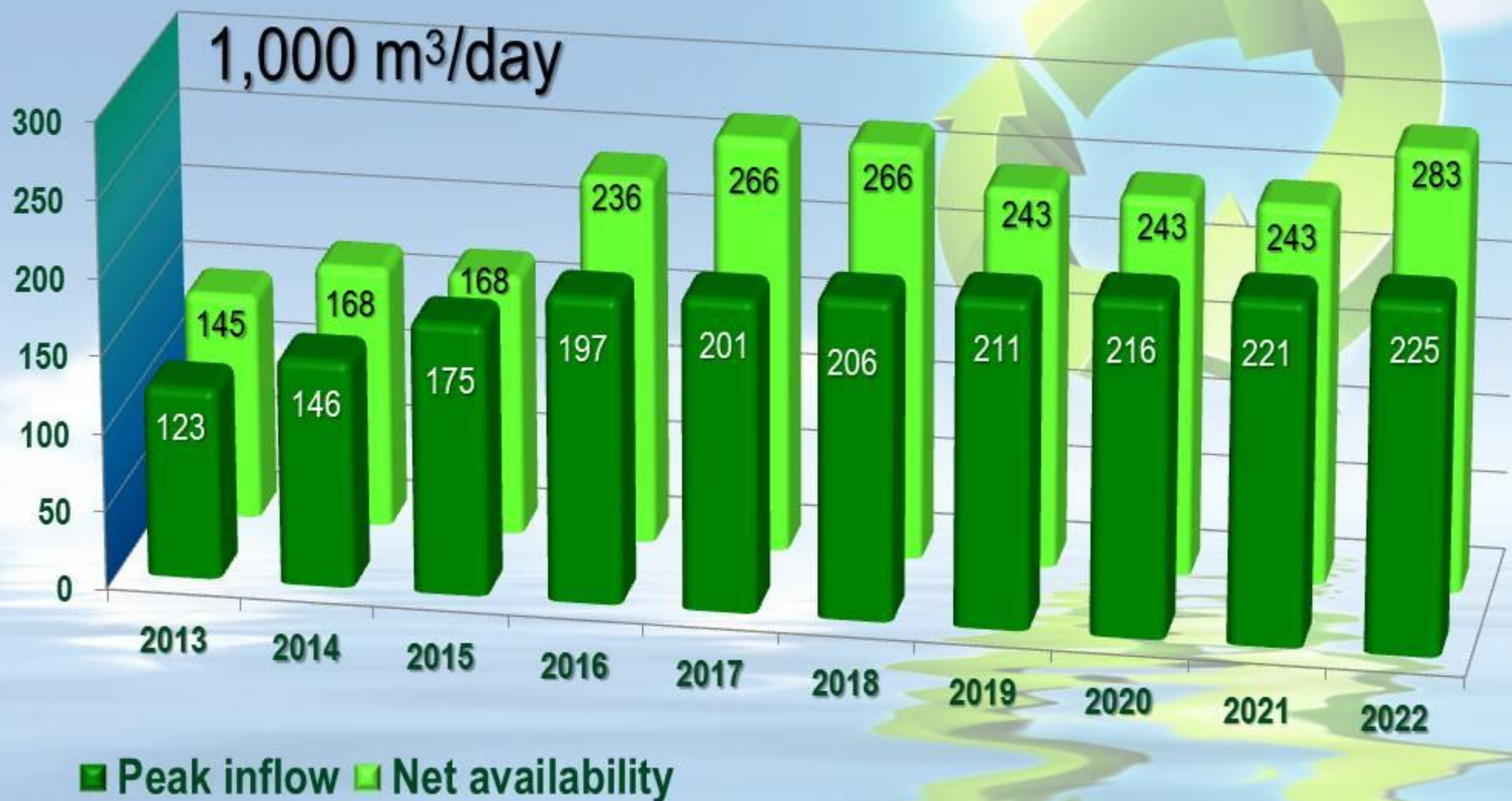
# 15 Wastewater: Ten-Year Supply Horizon

## Sanitary Wastewater Treatment – Jubail and Yanbu



# 16 Wastewater: Ten-Year Supply Horizon

## Industrial Wastewater Treatment – Jubail and Yanbu





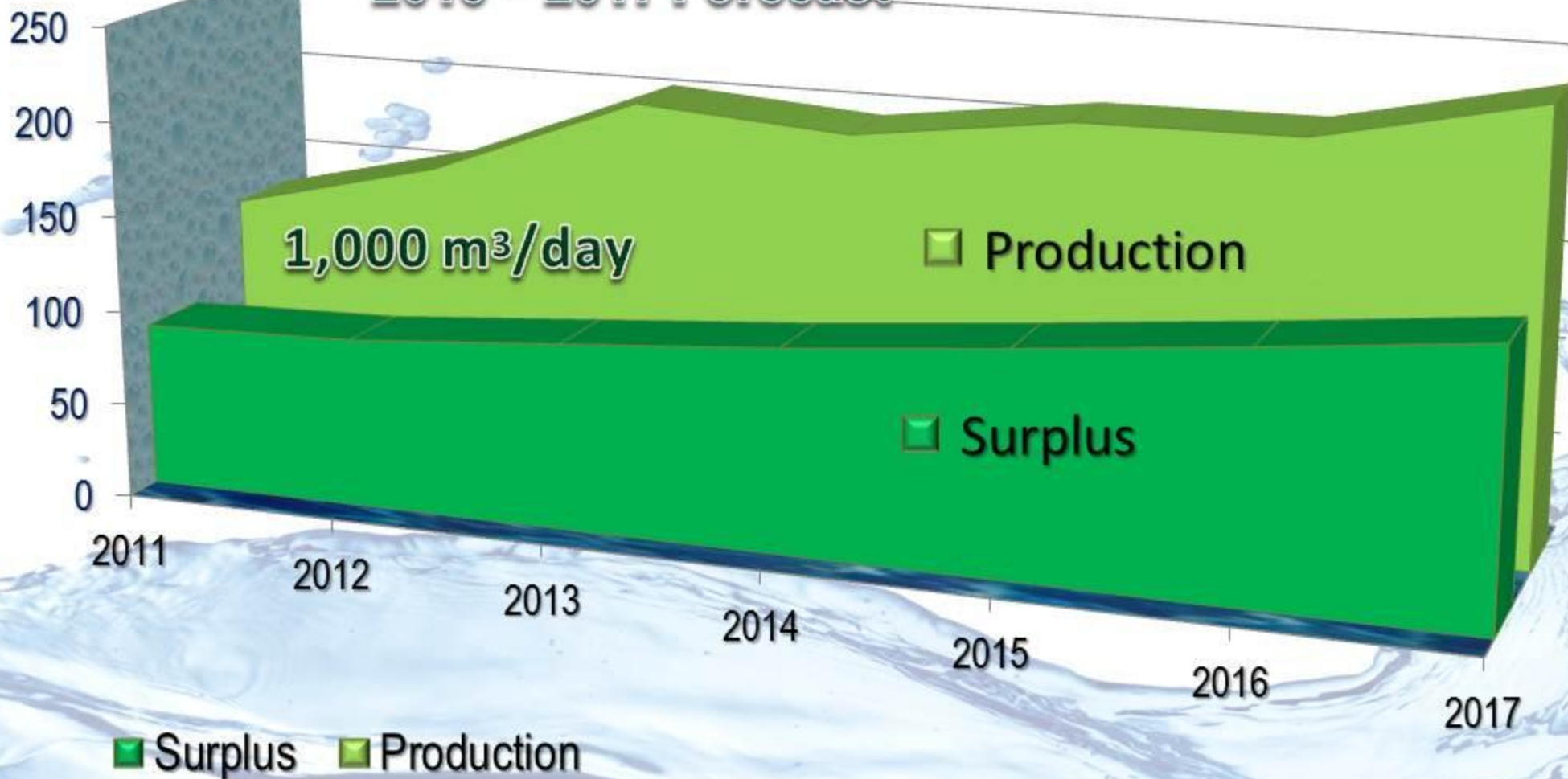
# Wastewater Reuse



# Wastewater Reuse

2011 – 2012 Actual

2013 – 2017 Forecast





*Marafiq's constant aim is to reuse every drop of water while remaining in full compliance with Royal Commission environmental regulations*

## Treated wastewater reused for:



Irrigation



Fire  
hydrants



Process  
water



District  
Cooling



**Process water generation from recycled wastewater is being marketed for potential customers**



# TOWARDS SUSTAINABILITY





شركة مِرافِيق للتبريد في  
جُبَيل و يَنبُوع

## JUBAIL AND YANBU DISTRICT COOLING COMPANY (MARAFIQ COOL)

Joint Venture between Marafiq and Saudi Tabreed

Established in 2010 to provide district cooling services in Jubail and Yanbu

Potential customers: commercial centers, government buildings, new districts

مرفاق  
MARAFIQ

## O&M Joint Venture

ماسا  
masa

## Operation and Maintenance Company

*Innovative approach to sustainable O&M solutions*

*Global expertise and experience in water business*

*O&M contract for Marafiq water facilities in Jubail IC*

*Scope – seawater cooling, potable water, wastewater*

*1,000 permanent employees; 200 contract workers*

*Shareholding – Marafiq 51%; Saur 49%*

*Revenue USD 80 million per year*



Marafiq's development strategy is in line with the international definition of Sustainable Development:



Marafiq Sustainability Award  
Presented annually at SWPF

**“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”**

*United Nations World Commission on Environment and Development*



**POWER FOR LIVING.  
WATER FOR LIFE.**

## What does *Sustainable Development* mean for utilities?

Utility provider keeping realistic pace with demand growth

Precision in long-term infrastructure planning

Accurate future demand data from customers

Optimal capital expenditure based on reliable demand forecasting

Open, transparent partnership between utility provider and customer

# SUSTAINABILITY