

Qatar's Potable Water Sector

Kahramaa

The Qatar General Electricity and Water Corporation *KAHRAMAA* was established in 2000 further to the Emiri Law #10, to regulate and maintain supply of electricity and water to customers. KAHRAMAA has the privilege of being the sole transmission and distribution system owner and operator for the electricity and water sector in Qatar.

Kahramaa Core area of business:

Kahramaa buys, distribute and sells electricity and water as follows:

1. Formulate Power & Water Purchase Agreements (PWPA) and provide necessary technical and corporate support for establishment of generation & desalination ventures.
2. Own, construct and operate electricity & water transmission and distribution networks in the State of Qatar.
3. Set-up plans and programs for development of electricity & water transmission and distribution networks.
4. Layout regulations, standards and codes of practices for electricity & water supplies to buildings and facilities.
5. Provide consultancy services related to its activities and operations. towards accomplishing the above businesses in an efficient way and achieve commercial performance, Kahramaa formulated its Mission and Objectives as follows.

Mission:

Provide our customers with high quality electricity & water services, whilst creating value for our shareholders.

Objectives:

1. Efficiently meet our obligation to supply Qatar's need for electricity and water.
2. Operate on a commercial basis.
3. Comply with local and international health, safety, and environmental standards.
4. Maximize the employment of capable Qatari nationals and develop them to the competence level of employees in leading international companies.

Qatar's Potable water Resources:

Qatar's Potable water resources are derived from the following.

- A.Sea Water Desalination
- B.Underground water

Use of underground water for domestic use had been gradually stopped and kept as a strategic reserve since 2004 except in the remote area of Abu Samara where it is extracted (< 0.1%) for desalination using RO technology and supply to the customers in that area.

Qatar's potable water is mainly from Seawater Desalination Plants.



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Potable water supply system :

The Potable Water supply system broadly covers two major areas,

1. The Seawater Desalination plants (Water Production) and
2. The Water storage and Transmission & Distribution networks system.

The Seawater Desalination Plants are owned and operated by Independent Power & Water producers (IPWPs).

The water storage and Transmission & Distribution to the customers through network system is under the management of Qatar General Electricity and Water Corporation (KAHRAMAA). KAHRAMAA purchase the water from the IPWPs under a long term Purchase Agreement and distribute to the customers on 24X7 basis by maintaining a strategic water reserve to meet the demand during an emergency situation when the Desalination Plant/ Plants cease production.

There are 07 nos. of Desalination Plants currently in operation in Qatar. These Plants are located in the South at Ras Abu Funtas and in the North at Ras Laffan as shown in the adjacent map.

There are 04 nos. of Desalination Plants at Ras Abu Funtas and 03 nos. at Ras Laffan.

Name of Plant	Operated BY	Capacity (MIGD)	Location
Ras Abu Fontas 'A'	Qatar Elect & water Co.	55	Ras Abu Fontas
Ras Abu Fontas 'A1'	Qatar Elect & water Co.	45	
Ras Abu Fontas 'B'	Qatar Elect & water Co.	33	
Ras Abu Fontas 'B2'	Qatar Elect & water Co.	29	
Ras Laffan 'A'	Ras Laffan Power Co.	40	Ras Laffan
Ras Laffan 'B'	Qatar Power Co.	60	
Ras Laffan 'C'	Ras Girtas Power Co.	63	
Total		325	

Installed Capacity of Desalination Plants

The water production capacity has been steadily increased over the years to cope up with the increasing demand.

Potable Water Demand in Qatar:

The present per capita water consumption in Qatar is an average of 440 l/p/d. The Potable water demand in Qatar has grown at an average of 9% from the year 2000 - 2010 and the supply during the same period had grown at 10%. The average annual demand is expected to grow at the rate of about 10.00% per year until the year 2017.

Strategic Water storage reserve:

KAHRAMAA's present strategy is having a strategic storage reserve at KAHRAMAA Networks (KAHRAMAA RPS) to meet 02 day's demand of the customers in case there is a total interruption in water supply from the Desalination Plants.

This is in addition to 01 day's water production storage at the Desalination plants (IWPP Reservoirs).

The present storage capacity of reservoirs at KAHRAMAA's Networks is 303 MIG and at IWPPs is 293 MIG which together will be able to supply the customers for 2 days in case of emergency. As a strategy for long term security of water, KAHRAMAA has already started the plan for additional storage capacity for 05 day's demand which would ultimately increase the total storage capacity to 07 days' demand.

Water Networks:

KAHRAMAA's Water Network consists of Transmission pipeline of size varying from 1200 mm to 1600 mm and these pipelines transmit the water produced at the Desalination plants to KAHRAMAA's Reservoir Pumping Stations (RPS).

There are 23 RPS spread over the whole areas of Qatar from where water is distributed to the customers on 24x7 basis with sufficient pressure and flow. Water Distribution Network has been steadily expanded to cover all the inhabited areas of the State and it has been expanded extensively in recent years to cover almost 99.20% of the areas.

The total length of the Transmission & Distribution pipelines as of 2009 is 4279 KM and this is expected to be increased to 4486 KM by 2015.

Water Quality:

The Water distributed to the customers is safe, clean meeting the WHO potable water standards. Water is subject to daily random bacteriological and laboratory test undertaken by Kahramaa from the Water Production Plants to storage reservoirs and to the networks up to the customers' storage facilities.

KAHRAMAA has its own Central Water Laboratory in Doha. Laboratory has the capability to carry out drinking water analysis for

1. Aesthetic;
2. physical;
3. Chemical; and microbiological parameters.

The Laboratory is equipped with high-tech drinking water analytical equipment such as UVI Visible spectrophotometers,

flame atomic emission, Gas Chromatography Mass Spectrometer (GC/MS), Ion Chromatography, Inductively Coupled Plasma Mass Spectrometer (ICP/MS), Total Organic Carbon Analyzer (TOC), wet chemistry and microbiology.

Analysis and testing of drinking water samples are carried out in accordance with WHO and the Gulf Cooperation Council (GCC) GSO methods.

National water Control Centre:

Presently the Water distribution system is controlled from the National water Control Center in Doha. Pumping, storage, and flow of water controlled from the center through Fiber optic and GPRS communication system by the latest modern SCADA system. The National water Control Centre functions 24 hours a day by closely monitoring and controlling the water distributed to the customers. The quality of the water distributed is continuously monitored and immediate corrective actions taken in case of any deviation from the standard quality.

