



# MENA DESALINATION MARKET

PREPARED BY VENTURES ONSITE  
FOR MENA DESALINATION PROJECTS  
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## MIDDLE EAST AND NORTH AFRICA (MENA) DESALINATION MARKET OUTLOOK

Desalination plays a pivotal role in the water industry and to mitigate water scarcity, the governments in the MENA countries have substantially increased their investment in the sector. Desalination plants in the MENA region produce 48% of the world's desalinated water. According to the World Bank, the MENA region accounts for nearly half the world's desalination capacity, making it the largest desalination market in the world.

According to the Global Water Intelligence, the world's desalination market is projected to reach US\$ 7 Bn by 2022, with the MENA region accounting for US\$ 4.3 Bn. Desalination capacities in the MENA region are anticipated to rise in the future as a result of supporting government initiatives in the GCC and South Africa. A study by International Energy Agency has found that the six biggest users of desalination in MENA namely Algeria, Kuwait, Libya, Qatar, Kingdom of Saudi Arabia (KSA), and the UAE use approximately 10% of the primary energy for desalination.

The MENA region has huge wind and solar energy potential, which can be significantly utilised in the desalination processes. Concentrating solar power (CSP) offers a lucrative option to power industrial-scale desalination plants that require both high temperature fluids and electricity. The UAE, KSA, Jordan, Tunisia and Morocco, have ambitious solar power generation goals and are ideal destinations for CSP desalination projects.

Industry experts believe that the establishment of the manufacturing sector in the Middle East is also set to open new opportunities for the desalination sector over the next few years. Moreover, North Africa is witnessing a rise in the number of investments in the water sector that is likely to boost desalination in the region in the near future, predict experts.



# MAJOR MENA DESALINATION PROJECTS

MENA's major desalination projects (excluding GCC).

Name	Country	Project Status	Project Value (US\$ Mn)	Client	Consultant	Contractor
Power and Desalination Plant in Egypt	Egypt	Construction	500	General Authority for the Suez Canal Economic Zone, Egypt	AF Consult Limited	Hyflux Ltd, Singapore
Jordan Red Sea Project (JRSP) - Phase 1	Jordan	Tender for Construction	500	Jordan Red Sea Project, Jordan Valley Authority	Arabtech Jardaneh, MWH Global, US	--
Seawater Desalination Plant in Agadir	Morocco	Construction	353	Office Nationale de l'Electricite et de l'Eau Potable (ONEE)	--	Abengoa
Desalination Plant in Al-Zarrat	Tunisia	Design	109	Societe Nationale d'Exploitation et de Distribution des Eaux (SONEDE)	Eurostudios-Studi	Wabag India
Desalination Plant in Casablanca-Settat Region	Morocco	Planned	50	Office Nationale de l'Electricite et de l'Eau Potable (ONEE)	--	--

Source: Ventures ONSITE Project Intelligence Platform: [www.venturesonsite.com](http://www.venturesonsite.com)

MENA's major desalination projects using PPP schemes.

Name	Country	Project Status	Project Value (US\$ Mn)	Client	Consultant	Contractor
Al Zour North IWPP	Kuwait	Construction	8,387	Kuwait Authority for Partnership Projects (KAPP), Shamal Az Zour Al Oula KSC, Ministry of Electricity & Water (MEW), Kuwait	Lahmeyer International GmbH, Parsons Brinckerhoff (PB)	Multiple Contractors
Facility E - IWPP	Qatar	Planned	3,000	Qatar General Electricity & Water Corporation (Kahramaa)	--	--
Independent Power and Water Project (IWPP) at Al Dur - Phase 2	Bahrain	Construction	1,500	Bahrain Ministry of Finance, Ministry of Electricity & Water, Bahrain	WSP, KPMG	ACWA Holding, Sidem
Independent Water Project (IWP) in Sohar	Oman	Construction	1,200	Oman Power and Water Procurement Company	Fichtner Consulting Engineers	Valoriza Agua (Spain), Oman Brunei Investment Company (SAOC), Sogex Oman
Al-Khiran Power & Desalination Plant (IWPP)	Kuwait	Design	950	Kuwait Authority for Partnership Projects (KAPP)	Parsons Brinckerhoff (PB)	--
Red Sea-Dead Sea Water Conveyance Project - Phase 1	Jordan	Design	950	Ministry of Water and Irrigation (MWI), Jordan	Tractebel Engineering, Dar Al Handasah Consultants (Shair and Partners), Jordan, Coyne Et Bellier	--
Duqm Power And Desalination Plant	Oman	Construction	700	Takamol Investment Company, Sembcorp Industries	Fichtner Consulting Engineers	Sojitz Corporation, Alghanim International General Trading & Contracting, Tedagua
Shuqaiq Desalination Plant (IWP) - Phase 3	KSA	Construction	700	Saline Water Conversion Corporation (SWCC), Water & Electricity Company (WEC)	ILF Consulting Engineers	Marubeni Corporation, Acciona, Al Rawafid Engineering & Contracting Co., Abdul Latif Jameel Group

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## GCC DESALINATION MARKET OVERVIEW

According to IDA, the expected rise in desalination is largely due to increase in construction activities in the Middle East, especially GCC countries. Expenditure on new desalination capacity is expected to reach US\$ 100 Bn by 2020, according to industry experts, as the region aims to increase its total seawater desalination capacity by nearly 40% by 2020. KSA, the UAE, Kuwait and Qatar are all among the world's 10 largest users of desalination. KSA and the UAE have some of the biggest desalination projects. KSA is launching huge desalination plants and sewage treatment plants in the PPP model.

Veolia is looking to develop around US\$ 2.5 Bn worth of desalination projects in the industrial cities Shuqaiq, Yanbu as well as Jubail, and has looked at the privatisation of the kingdom's water sector and distribution business as part of the its Vision 2030 programme. Abu Dhabi and KSA's Abdul Latif Jameel Energy have plans to develop carbon-neutral desalination plants using renewables such as wind and solar to power them.

A large number of desalinated plants in the UAE are built on the independent water and power producer model. Kuwait plans to build eight facilities capable of desalinating seawater by 2025 to meet its water needs. Oman plans to develop a number of seawater desalination facilities to meet its increasing demand for water.

Name	Country	Project Status	Project Value (US\$ Mn)	Client	Consultant	Contractor
Expansion of Jubail IWPP - Phase 3	KSA	Design	4,000	Saline Water Conversion Corporation (SWCC)	--	--
Yanbu Power and Desalination Plant - Phase 3	KSA	Construction	1,370	The Power & Water Utilities Company for Jubail & Yanbu (Marafiq), Saline Water Conversion Corporation (SWCC)	Fichtner Consulting Engineers	Multiple Contracto
Rabigh 3 IWP	KSA	Tender for Construction	1,000	Saline Water Conversion Corporation (SWCC), Saudi Electricity Company (SEC), Water & Electricity Company (WEC)	Ayasa	--
Desalination Plant in Rabigh- Phase 4	KSA	Tender for Construction	1,000	Saline Water Conversion Corporation (SWCC)	--	--
Taweelah Reverse Osmosis (RO) Independent Water Project	UAE	Tender for Construction	1,000	Abu Dhabi Water and Electricity Authority - ADWEA (Abu Dhabi Department of Energy)	ILF Consulting Engineers	--

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## TECHNOLOGIES IN THE MENA DESALINATION MARKET

Countries in the MENA region have recently decided to use the reverse osmosis (RO) membrane process instead of the distillation process, such as multi-stage flash (MSF) and multi-effect distillation (MED) due to the lower energy consumption of plants. The MSF, RO and MED processes are at more mature and developed stages to be integrated with solar energy to cater for the potable water needs of the GCC countries, where two-thirds of their water needs are met with these technologies.

Desalination processes have become less energy-intensive due to improvements in technologies. According to B2B Connect UAE report for International Water Summit in 2018, alternative methods need to be paired with current desalination technologies, or new technologies need to be used in the desalination process. This includes methods of pre-treatment, the impact of decentralisation, and newer technologies such as thin-film nanocomposite membranes (a form of RO), captive deionisation (most suitable for brackish water), forward osmosis, and the use of renewable energy, such as solar, wind and geothermal.

For example, Abu Dhabi's Masdar is leading efforts to link desalination to renewable energy, investigating the latest advances in technologies such as reverse and forward osmosis, which use a high-tech membrane to filter seawater, and integrating this with solar power generation, according to Frost & Sullivan. Almost 95% of Dubai's desalination comes from plants using MSF technology, powered using waste heat, with the rest using RO.

However, the emirate is planning to install more RO capacity to reduce its energy requirements for desalination. Dubai is expected to seek partners in 2019 to build its first solar-powered desalination plant as the emirate tries to diversify away from burning fossil fuels to increase its water supply, according to DEWA. The plant, using RO technology, will have capacity to produce 120 Mn gallons a day of drinkable water by 2024. Acciona is already working on a 210,000m<sup>3</sup> seawater RO desalination plant in Al Khobar that is one of the largest in the kingdom to use RO technology.

The project will become one of the largest desalination plants in the country when it is built. By 2030, RO will expand DEWA's production capacity to 305 Mn gallons of desalinated water per day, increasing desalinated water production capacity to 750 Mn gallons of desalinated water per day by 2030. DEWA announced that it is expected to adopt a clear strategy to ensure that by 2030, 100% of desalinated water will be produced by a mix of clean energy using both renewable energy and waste heat.



# Conclusion

The countries in the MENA region are likely to rely further on desalination in order to seek solutions to water scarcity due to rising population, pollution, industrial development, and climate change. RO technology will continue to dominate as the reliable and efficient technology for desalination. Moreover, seawater desalination powered by renewable power is expected to offer an attractive opportunity for MENA countries to ensure affordable, sustainable and secure freshwater supply. Overall, 2019 is expected to be an exciting year for MENA's desalination market.

# This report was created for MENA Desalination Projects by Ventures ONSITE construction projects intelligence.



The MENA Desalination Projects will bring together 300+ regional and international stakeholders from the government, consultants, contractors and suppliers to discuss about the upcoming desalination mega projects in the region and highlight national sustainability visions driving the water agenda.



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