



ABENGOA

Water

Desalination

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- Experience, references, internationalization and competitiveness.

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Who
1 are we?

Who are we?



Abengoa (MCE: ABG.B) is an international company that applies innovative technology solutions for **sustainable development** in the infrastructure, energy and water sectors.

Constructing energy infrastructures

- Generating conventional and renewable energy.
- Transporting and distributing energy.

Providing solutions for the integrated water cycle

- Developing desalination and water treatment processes.
- Constructing hydraulic infrastructures.

Being a reference in the transmission and distribution sector

- Developing transmission lines, electric distribution and railway electrification projects.
- Constructing installations and infrastructures for all types of plants and buildings.

Obtaining results in the services area

- Providing operation and maintenance services for plants optimization.
- Managing private assets efficiently.

Furthering new horizons for development and innovation

- Our 280 accumulated awarded patents since 2008 position us as technological leaders in sectors such as solar thermal technology.
- Renewable energy storage and our bet for energy efficiency and water consumption (water-energy nexus).

A Viable **Company with Solid Fundamentals**



Solid business of engineering, procurement, construction and operation and maintenance in high growth markets



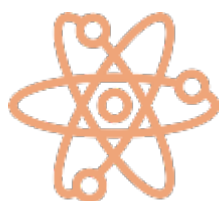
Global footprint makes Abengoa's business more resilient and the size of its backlog and pipeline provides revenue visibility



Credibility regained with stakeholders



Leaner organizational structure and high operational efficiency



The development of commercially viable cutting-edge technology has become Abengoa's key competitive advantage



A more focused business model and a healthier, sound capital structure, together with a multidisciplinary set of capabilities places Abengoa in a solid position for future value creation



Formed by a team of committed and skilled people that have specialized and competitive know-how

Main Magnitudes



Global presence with a recognized position of leadership in main world rankings (GWI, ENR).



+ 27,000 km of transmission and distribution lines and more than 330 substations worldwide over the last 15 years.



9.3 GW of installed power in conventional generation plants, of which 1.4 GW are under construction.

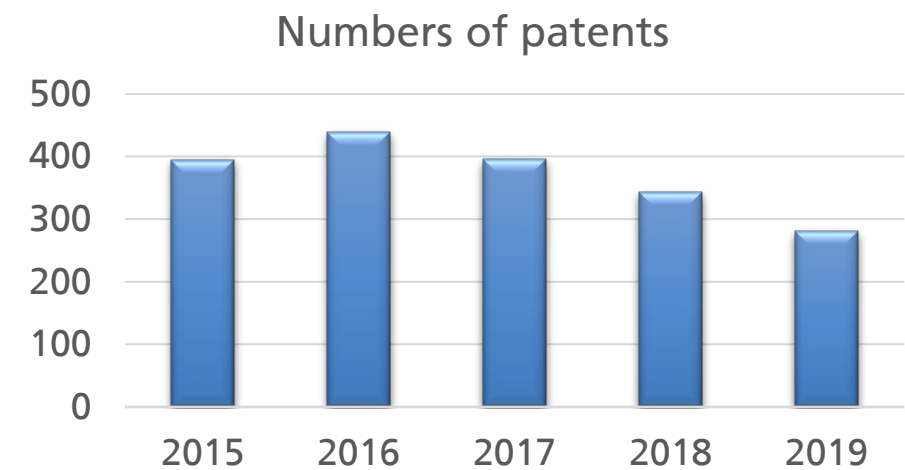


1.8 million of m³/day of desalinated installed capacity and 2.6 million m³/day under construction.



2.3 GW* solar power constructed, + 1,000 MW under construction, and 480 MW of wind power.

* 30% of the worldwide installed solar thermal energy capacity already under operation.

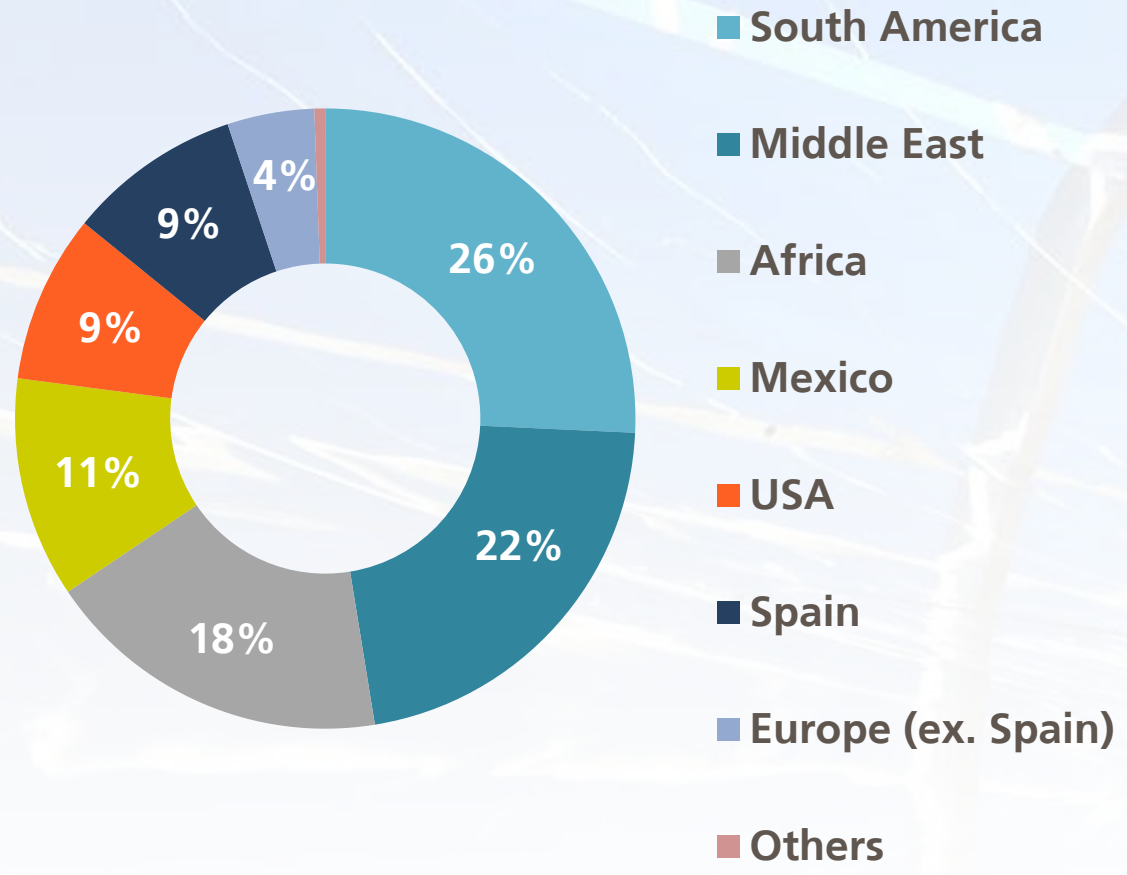


280 patents at the end of 2019.

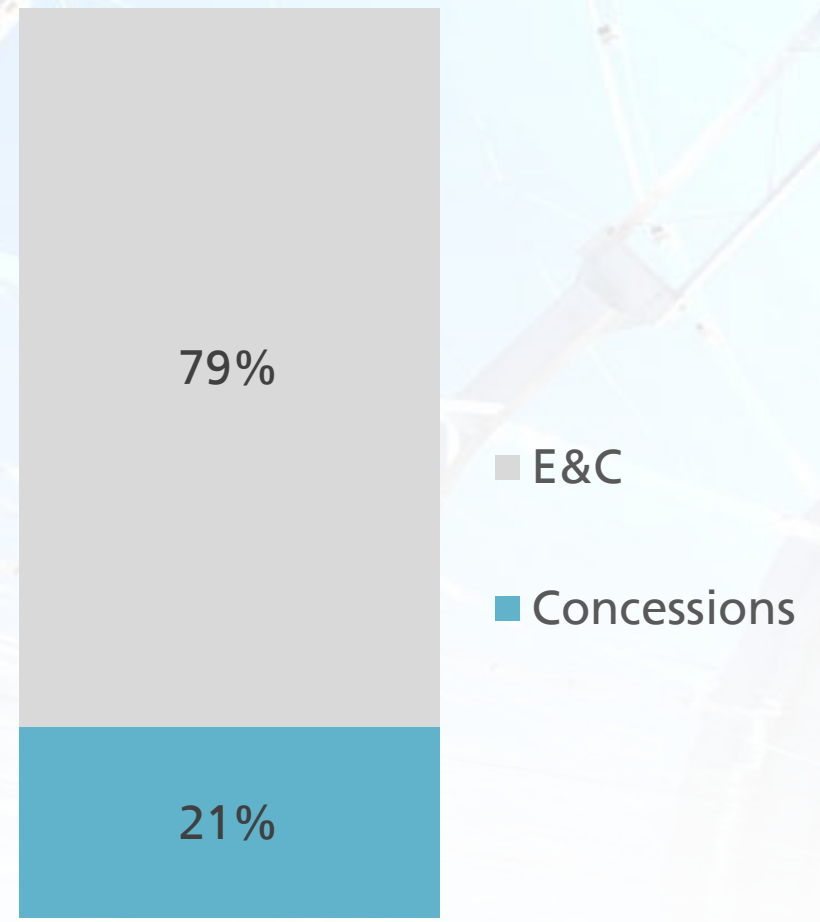
Main indicators

Results as of close of 2019

Revenues by geographies











Revenues by segment



Abengoa Figures	2019
Sales	1,493 M€
EBITDA	300 M€
Employees	14,025

Main projects under execution

-  Waad Al Shamal (Saudi Arabia)
-  Noor Energy 1 (UAE)
-  Agadir (Morocco)
-  O&M solar plants (Spain)
-  Taweelah (UAE)
-  Chuquicamata Humos Negros (Chile)
-  Rabigh (Saudi Arabia)
-  Fulcrum (USA)

New Projects 2019

Abengoa has been awarded in 2019 new projects for a total value of €1,107 million, including world's largest reverse osmosis desalination plant in Taweelah. Among them:

	Taweelah	UAE	<ul style="list-style-type: none"> Construction of the world's largest reverse osmosis desalination plant with total capacity of 909,000 m³/day.
	Dubal	UAE	<ul style="list-style-type: none"> Construction of a seawater reverse osmosis desalination plant with total capacity of 41,000 m³/day..
	RWEL Klaipeda-Vilnius	Lithuania	<ul style="list-style-type: none"> Electrification of more than 730 km of railway lines.
	Switching Substation Río Malleco	Chile	<ul style="list-style-type: none"> Construction of a 220 kV substation in Chile.
	Seville Airport	Spain	<ul style="list-style-type: none"> Civil works and installations in the expansion of the San Pablo Airport in Seville.
	Southern Peru Copper Corporation	Peru	<ul style="list-style-type: none"> Construction of a retention dam to hold 40,000 m³ at 3,500 meters above sea-level, and several singular buildings within the copper mining facilities.



Lines of activity

Abengoa organizes its activity in several business areas: Energy, Water, Transmission and Infrastructure and Services, all of which are based on R&D and Innovation.



Energy

- Conventional and renewable energy generation.
- Proprietary solar technology and leader in worldwide installed capacity.
- 9.3 GW of installed capacity in conventional generation.
- Experts in hybridization of generation technologies to provide clean and dispatchable energy solutions.

Water

- Specialist in infrastructure for the integral water cycle.
- Excellence in technical capabilities.
- Leader in the international desalination market and a worldwide reference in the construction of hydraulic infrastructures and treatment plants.
- 1.8 million m³ /day desalinated water capacity and 2.2 million m³ /day of drinking water.

Transmission & Infrastructure

- Leader in the international transmission and distribution and infrastructure market for the energy, industry, transport, environment, communications and rail sectors.
- More than 27,000 km of transmission lines and 330 substations.
- 4,500 electrified km and more than 80 traction substations.

Services

- Service providers for infrastructure in the transmission, water, and renewable and conventional power generation sectors.
- Optimization of O&M, improving management and increasing production.
- 25 years of contracts average life.

A row of large, green, cylindrical water storage tanks in an industrial facility. The tanks are arranged in a long line, receding into the distance. Each tank has a circular hatch on its side and a smaller circular opening at the bottom. The background shows a cloudy sky and a palm tree on the right. A white circular graphic element is overlaid on the left side of the image.

Abengoa in **2** Water

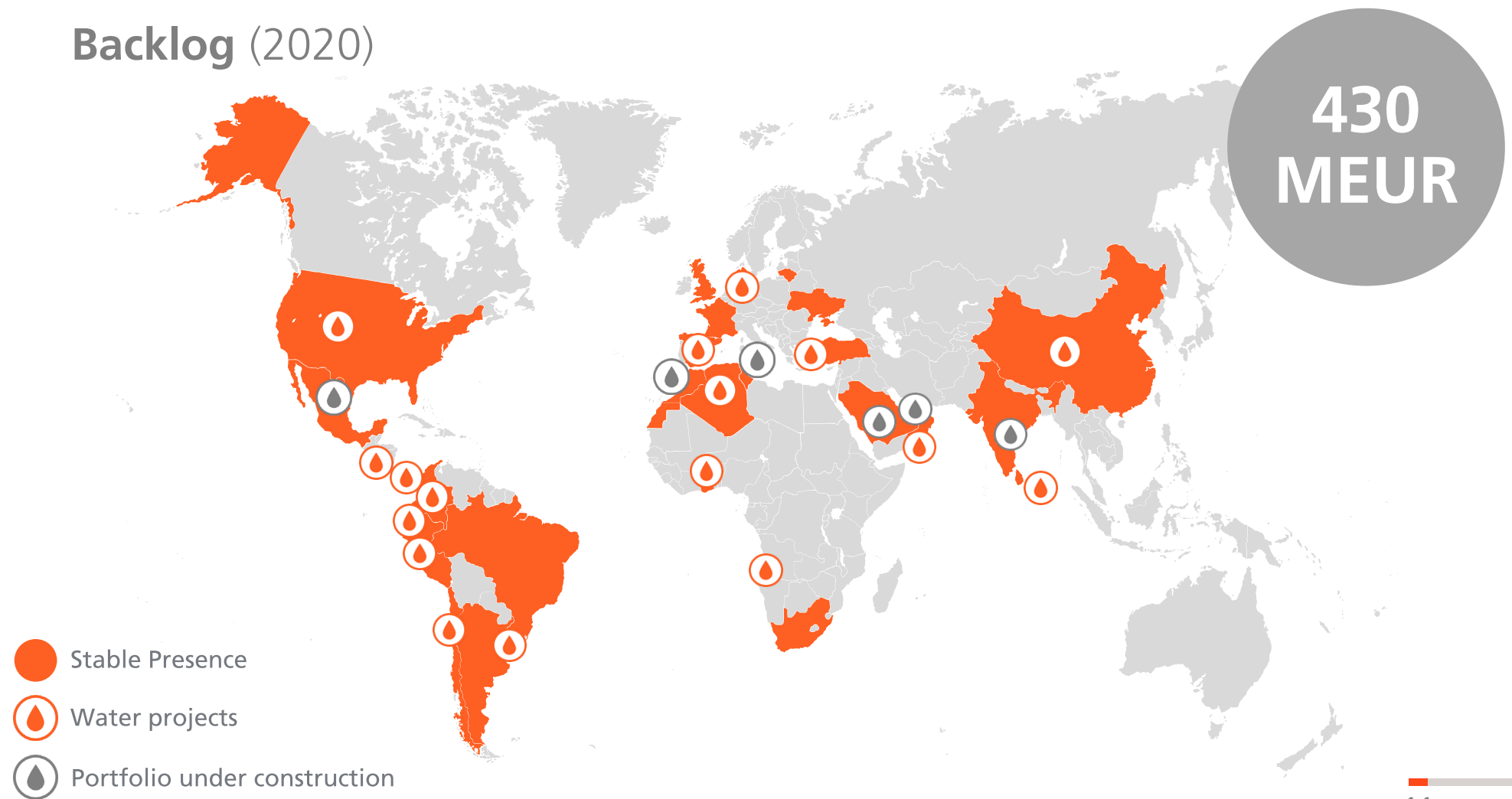
Abengoa in **Water**



Abengoa, through its **Water** business division, works as a **global technological operator** in this sector and integrates **development, engineering, technology** and **project execution** activities for public institutions, private and industrial clients.

It also provides sustainable solutions to the integral water cycle, both to the shortage of water resources, through large **desalination** and **water treatment plants**, and **hydraulic infrastructures**, as well as to the protection of the environment, with the construction of **wastewater treatment plants urban** and **industrial**.

Backlog (2020)



Abengoa, with more than 75 years of experience, is a leading company in the international desalination market and a worldwide reference in the construction of hydraulics infrastructures and treatment plants.

1 Water Treatment

- Desalination
 - Water treatment
 - Wastewater treatment and reuse
- More than 4.4 M m³/d desalinated water
 - More than 2.2 M m³/d drinking water
 - More than 1.5 M m³/d treated wastewater

2 Hydraulic Infrastructures

- Pipelines and pumping stations
 - Irrigation systems
 - Regulation reservoirs
 - Hydroelectric power stations
 - Hydrological and hydraulic infrastructure management
- More than 500,000 hectares irrigated or modernized
 - More than 400 MW installed

3 Industrial Water

- Power
 - Oil and Gas
 - Chemical
 - Mining
 - Steel
 - Pharmaceutical
 - Food and beverage
 - Electronics
 - Pulp & paper
- More than 650,000 m³/d treated industrial water





Abengoa in
3 desalination

Abengoa in desalination

Abengoa is a leading company in the international desalination market, and its figures support this

- **Fourth place for its desalination capacity contracted in 2020 and 2021**, and fifth place since 2010, according to IDA Water Security Handbook 2021-2022 and the Global Water Intelligence magazine.
- **First position in Treatment & Desalination category in ENR's Top International Contractors ranking for 2021.**
- We provide water to a population of more than 20 million people worldwide
- **More than 30 plants** built in the United States, India, China, Africa, Middle East, Latin America and Spain
- Plants under construction in Morocco, Tunisia, Saudi Arabia and United Arab Emirates
- **Operation & Maintenance contracts** and **Concessions**, for periods between 15 and 27 years, in Spain, Morocco, Algeria and Ghana.



Desalination capacity contracted in 2020 and 2021
IDA Water Security Handbook 2021-2022



Treatment & Desalination
ENR Top International Contractors 2021 ranking

4,400,000 m³/d

Global desalination capacity



2,600,000 m³/d

Under construction



610,000 m³/d

In operation



Abengoa in desalination

Conventional and advanced reverse osmosis processes of seawater and brackish water to produce drinking and process water.

Middle East and Asia

Taweelah. United Arab Emirates	909,000 m ³ /d
Jubail 3A. Saudi Arabia	600,000 m ³ /d
Rabigh. Saudi Arabia	600,000 m ³ /d
Shuaibah. Saudi Arabia	250,000 m ³ /d
Salalah. Oman	114,000 m ³ /d
Qingdao. China	100,000 m ³ /d
Chennai. India	100,000 m ³ /d
Dubal. United Arab Emirates	47,750 m ³ /d
Barka I. Oman	45,000 m ³ /d

Africa

Agadir-Chtouka. Morocco	275,000 m ³ /d
Honaine. Algeria	200,000 m ³ /d
Ténès. Algeria	200,000 m ³ /d
Skikda. Algeria	100,000 m ³ /d
Accra. Ghana	60,000 m ³ /d
Sousse. Tunisia	50,000 m ³ /d

Mexico

Durango	1,700 m ³ /d
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Spain

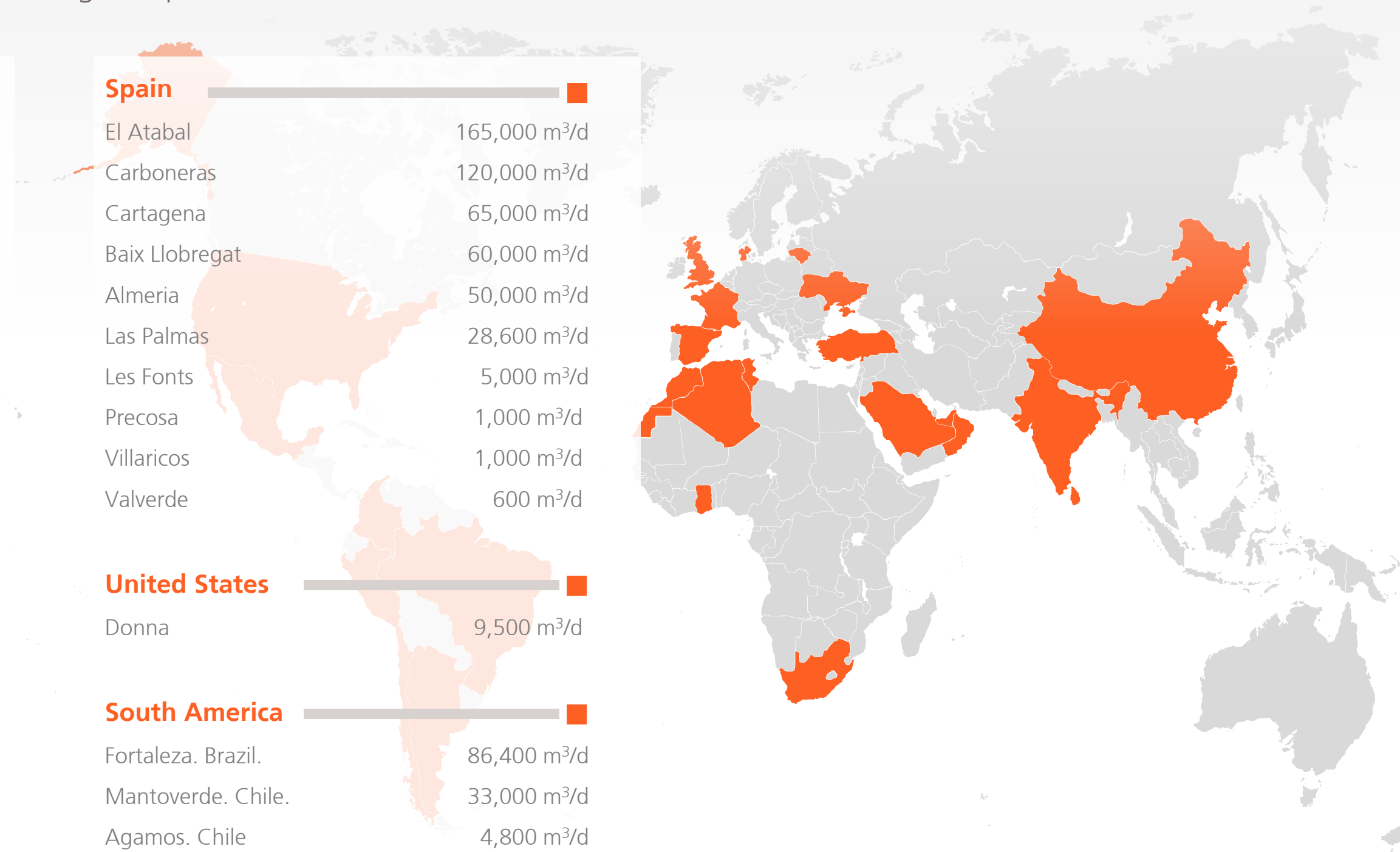
El Atabal	165,000 m ³ /d
Carboneras	120,000 m ³ /d
Cartagena	65,000 m ³ /d
Baix Llobregat	60,000 m ³ /d
Almeria	50,000 m ³ /d
Las Palmas	28,600 m ³ /d
Les Fonts	5,000 m ³ /d
Precosa	1,000 m ³ /d
Villaricos	1,000 m ³ /d
Valverde	600 m ³ /d

United States

Donna	9,500 m ³ /d
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South America

Fortaleza. Brazil.	86,400 m ³ /d
Mantoverde. Chile.	33,000 m ³ /d
Agamos. Chile	4,800 m ³ /d



Abengoa in **desalination**

Thanks to its experience, Abengoa has received international recognition in desalination by specialized institutions in the water sector

2021	<ul style="list-style-type: none"> National winner of the 2021 MEED (*) Projects Awards. Water Project of the Year: Salah, Oman
2020	<ul style="list-style-type: none"> Desalination Plant of the Year: Shuaibah, Saudi Arabia (GWI**) Highly Commended: Desalination Company of the Year (GWI) GCC winner of the 2020 MEED Projects Awards. Water Project of the Year: Shuaibah, Saudi Arabia
2019	<ul style="list-style-type: none"> Best Public-Private Partnership: Agadir, Morocco (IDA***)
2018	<ul style="list-style-type: none"> Highly Commended Desalination Company of the Year (GWI)
2015	<ul style="list-style-type: none"> Water Company of the Year (GWI) Best Public Private Partnership Project (International Finance Magazine)
2013	<ul style="list-style-type: none"> Desalination Company of the Year (GWI)
2012	<ul style="list-style-type: none"> Highly Commended Water Company of the Year (GWI)
2009	<ul style="list-style-type: none"> Desalination Company of the Year (GWI)
2008	<ul style="list-style-type: none"> Highly Commended Desalination Contract of the Year: Tlemcen Honaine, Algeria (GWI) Highly Commended Environmental Contribution of the Year: Chennai, India (GWI)
2007	<ul style="list-style-type: none"> Developer of the Year (GWI) Desalination Deal of the Year: Beni Saf, Algeria (GWI)
2006	<ul style="list-style-type: none"> Best Desalination Plant of the Year: Carboneras, Spain (GWI) Highly Commended Desalination Company of the Year (GWI)

(*) Middle East Market Intelligence Platform MEED

(**) Global Water Intelligence Magazine

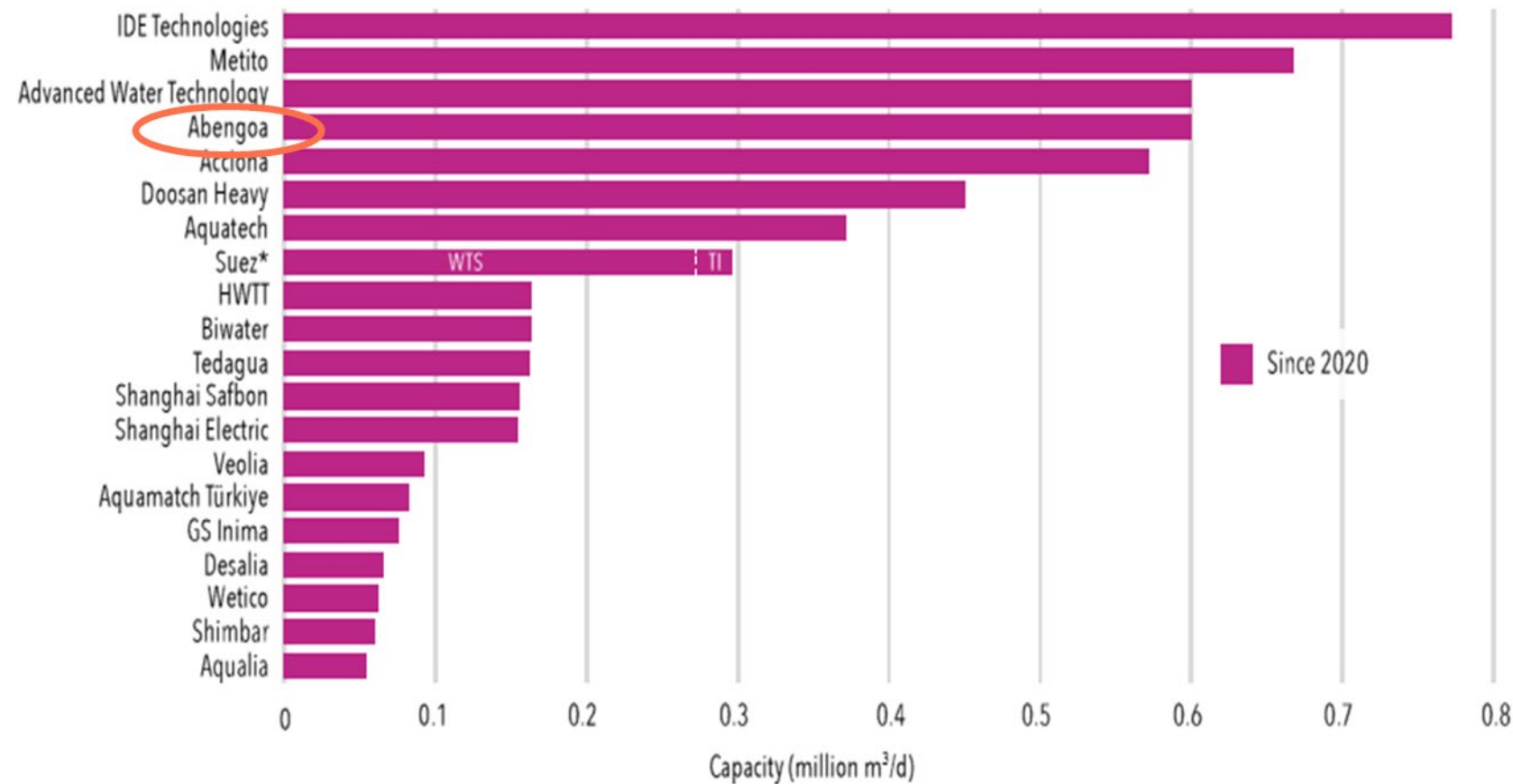
(***) International Desalination Association, IDA



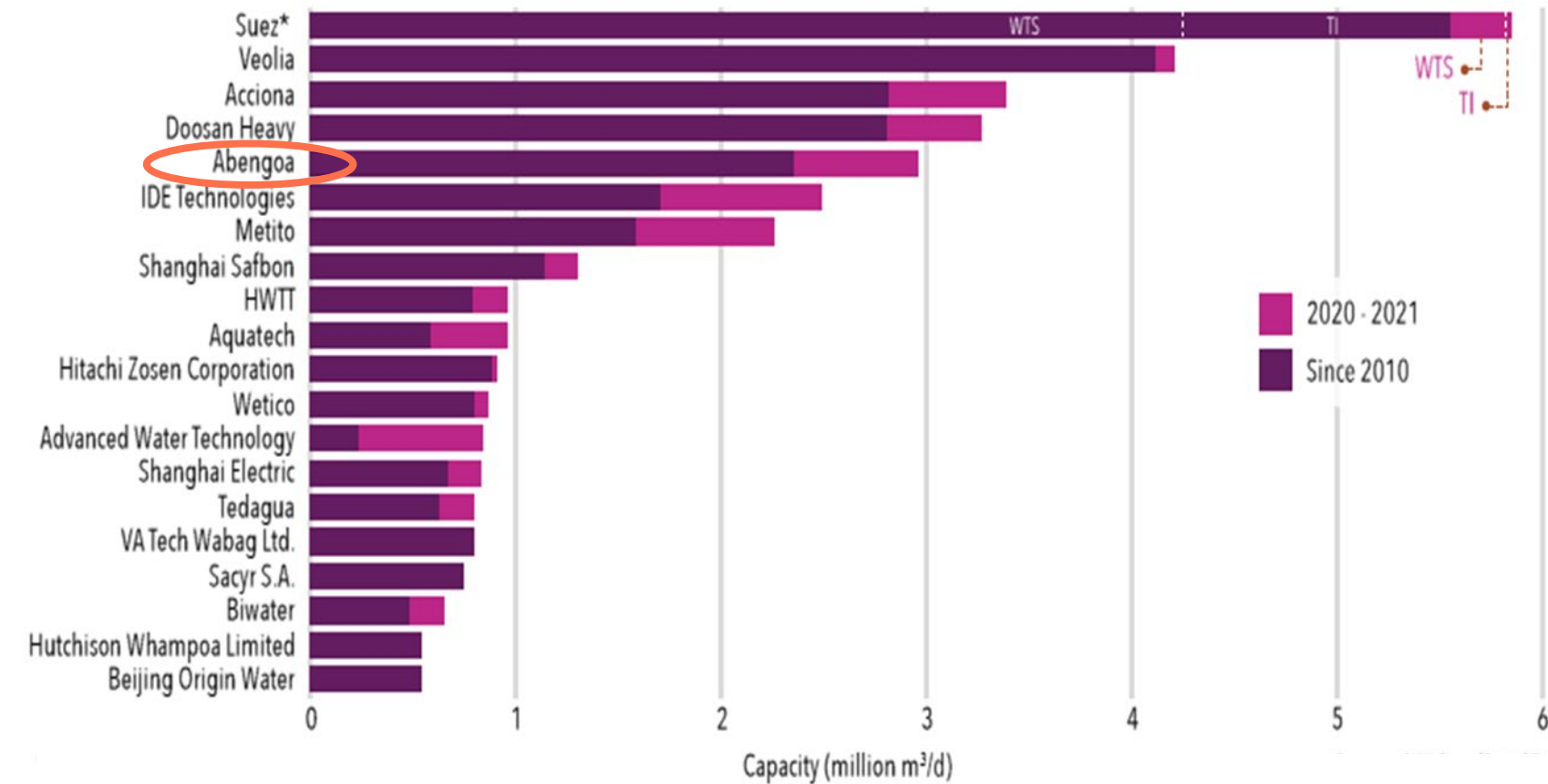
Abengoa in **desalination**

Abengoa occupies the fourth place for its desalination capacity contracted in 2020 and 2021, and fifth place since 2010, according to IDA Water Security Handbook 2021-2022 and the Global Water Intelligence magazine.

Top 20 plant suppliers by awarded capacity in 2020 and 2021
Abengoa in 4th position



Top 20 plant suppliers by awarded capacity, since 2010
Abengoa in 5th position



* TI: Treatment Infrastructure; WTS: Water Technologies & Solutions

Source: GWI DesalData / IDA

It also occupies the first position in Treatment & Desalination category in ENR's 2021 Top International Contractors ranking.



Treatment & Desalination
 ENR Top International Contractors 2021 ranking

Abengoa in **desalination**

In its commitment to **technology** and **innovation** as a competitive advantage, Abengoa develops **conventional** and **advanced reverse osmosis processes** for seawater and brackish water to produce drinking and process water, using the solution that best suits the client.

Abengoa has **eight patents** in desalination.

- Thermal or membrane (RO, NF, RED) desalination.
- Energy efficient configurations, designed specifically for the life cycle of each plant.
- Water intakes and pretreatments according to process and location requirements.
- Treatment or refining of the water produced for each specific use.
- Environmentally compatible management of effluents from the desalination process and recovery of by-products

Desalination

Water treatment

Brine management



Masdar project

PETRA project

Zelda project



Main
4 references



Taweelah reverse osmosis desalination plant

Location: **UAE**

Contract mode: **EPC**

Client: **Acwa Power**

Off-taker: **Abu Dhabi Water and Electricity Company**

Under construction

Capacity: 909,000 m³/d

- It is the **world's largest reverse osmosis desalination plant**.
- It will be the **first large-scale emirate** desalination plant to **combine drinking water production** with **clean energy generation**, thanks to the installation of a photovoltaic solar field with more than 40 MWp of power.
- Located in the Taweelah power and water generation complex, 45 km north of Abu Dhabi, it will guarantee the supply to this city throughout the year.
- It is part of the plan developed by the UAE government to promote private participation in the development of the country's infrastructure.



Rabigh 3 reverse osmosis desalination plant

Location: **Saudi Arabia**

Contract mode: **EPC**

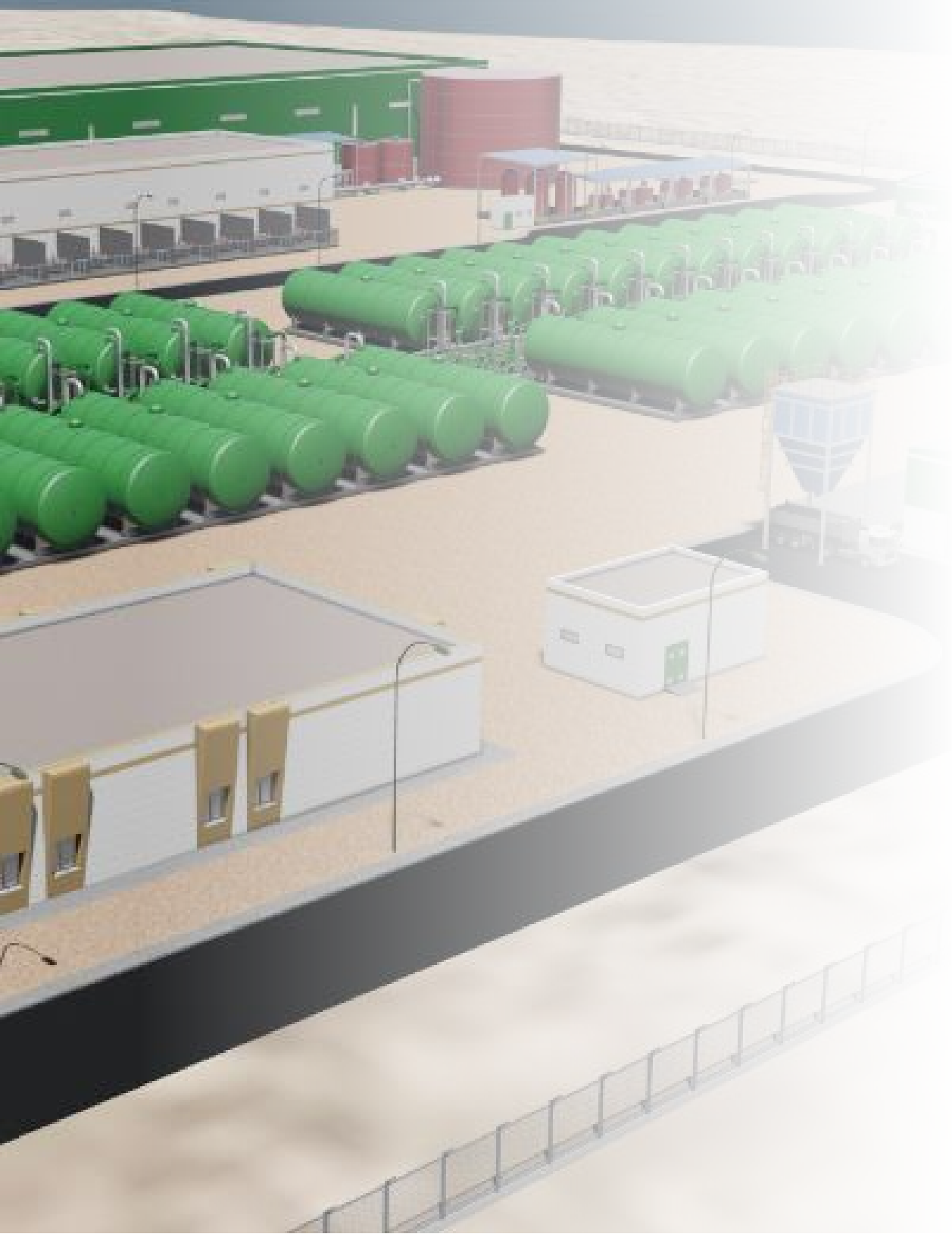
Client: **ACWA Power**

Off-taker: **Saudi Water Partnership Company (SWPC)**

Under construction

Capacity: 600,000 m³/d

- Once completed, it will be **one of the largest desalination plants in the country with reverse osmosis technology.**
- Located in the city of Rabigh, on the Red Sea coast of Saudi Arabia, 150 km north of Jeddah.
- It will guarantee the **supply of drinking water** to the cities of Makkah Al-Mokarramah, Jeddah and Mastorah, which will provide this resource to approximately three million people.
- The project is part of the Saudi government's program for the **promotion of private participation in the country's water sector.**



Jubail 3A reverse osmosis desalination plant

Location: **Saudi Arabia**

Contract mode: **EPC**

Client: **ACWA Power, Gulf Investment Corporation and Al Bawani Water & Power**

Off-taker: **Saudi Water Partnership Company (SWPC)**

Under construction

Capacity: 600,000 m³/d

- Once completed, it will be **one of the largest desalination plants in the country with reverse osmosis technology.**
- It will guarantee the **supply of drinking water** to the Eastern, Riyadh and Qassim provinces throughout the year.
- It includes the construction of **tanks** for the **storage of treated water** with a capacity of **one day of production**, as well as a **photovoltaic solar field** with more than 37 MWp of power. Thus, it will be possible to reduce, in a sustainable way, the energy consumption of the desalination plant.
- The project is part of the Saudi government's program for the **promotion of private participation in the country's water sector.**



Agadir-Chtouka reverse osmosis desalination plant

Location: **Morocco**

Contract mode: **BOOT, 27 years**

Client: **SPV Abengoa**

Off-taker: **ONEE & Ministère de l' Agriculture et de la Pêche Maritime (MAPM)**

Under construction

Capacity: 275,000 m³/d and irrigation network for 13,600 ha

- It is the **largest desalination plant designed** for the **combined use of drinking water and irrigation**.
- Recognized by the International Desalination Association with the **“Best Public-Private Partnership”** award.
- **Unique project for two clients** that will provide 150,000 m³/d of drinking water for ONNEE and 125,000 m³/d of water for irrigation as well as the construction of the corresponding irrigation network for an area of 13,600 ha for the Ministry of Agriculture.
- Abengoa, together with the Moroccan company InfraMaroc as an investment partner, is responsible for **financing the project**.
- It provides for the possible capacity **expansion** to up to 400,000 m³/d.



Shuaibah reverse osmosis desalination plant

Location: **Saudi Arabia**

Contract mode: **EPC**

COD: **2019**

Client: **ACWA Power**

Off-taker: **Saudi Water Partnership Company (SWPC)**

Capacity: 250,000 m³/d

- Desalination Plant of the Year in Global Water Awards 2020. GCC winner of Water Project of the Year recognized by Middle East market intelligence platform MEED.
- Located 90 km south of Jeddah, in the Shuaibah complex, considered **the largest desalination complex in the world**.
- It guarantee water supply to Mecca, Jeddah, Taif and Al-Baha.
- It entered into **commercial operation 21 months after the start of the construction** works.
- During the construction, the project exceeded **4.6 million hours without lost time work accidents** meeting the objectives in terms of safety and health.



Ténès reverse osmosis desalination plant

Location: **Algeria**

Contract mode: **DBOOT (O&M 25 years)**

COD: **2015**

Client: **Algerian Energy Company (AEC)**

Capacity: 200,000 m³/d

- It is the **third desalination** plant that Abengoa develops in Algeria, along with Skikda (100,000 m³/d, in operation since 2010) and Honaine (200,000 m³/d, completed in 2011). Among the three, they already produce **500,000 m³/d** of drinking water in this country to supply a population equivalent to **2,500,000 people**.
- It supplies the population of **Wilaya de Chlef**, located in the northwest of the country, 200 kilometers from Algiers, on the Mediterranean coast, and contributes to counteract the problems of scarcity in this geographical area.
- It has a system to **generate electricity** in a sustainable way by taking advantage of the excess brine from the reverse osmosis process, thus reducing the plant's energy consumption. It also includes **CO₂ production equipment** from natural gas for the remineralization of water before taking it to the network.



Salalah reverse osmosis desalination plant

Location: **Oman**

Contract mode: **EPC**

COD: **2021**

Client: **ACWA Power, Veolia and Dhofar International for Investment and Development**

Off-taker: **Oman Power and Water Procurement Company (OPWP)**

Capacity: 114,000 m³/d

- National winner of Water Project of the Year 2021 recognized by Middle East market intelligence platform MEED.
- Located in the **Dhofar region** in southern Oman, it will strengthen the **drinking water supply** to this region.
- It is part of the program that the Government of Oman launched for the restructuring and development of the **involvement of the private sector** in the water and energy sector in this country.
- It includes the use of innovative **Dissolve Air Flotation (DAF)** technology for pre-treatment and Gravity Limestone Contactors for permeated post-treatment.

Qingdao reverse osmosis desalination plant

Location: **China**

Contract mode: **DBOOT (O&M 25 years)**

COD: **2012**

Client: **Qingdao Municipal Engineering and Public Utility Bureau**

Capacity: 100,000 m³/d

- It is the **first desalination project** to be carried out using a **project finance** structure and 100% **financed** through **local banks**, as well as being a **pioneering** project for **supplying** desalinated water in China.
- It has a pressure center pumping system, a two-step reverse osmosis process and an innovative desalination water remineralization system, which allows it to meet the **strict turbidity requirement** of **local** legislation.
- The development of this project represented a challenge from a technological perspective due to the **special characteristics** of the **intake water** used and to the **local legislation requirements**. In addition, the plant allows operating in extreme temperature conditions and is highly energy-efficient.

Sousse reverse osmosis desalination plant

Location: **Tunisia**

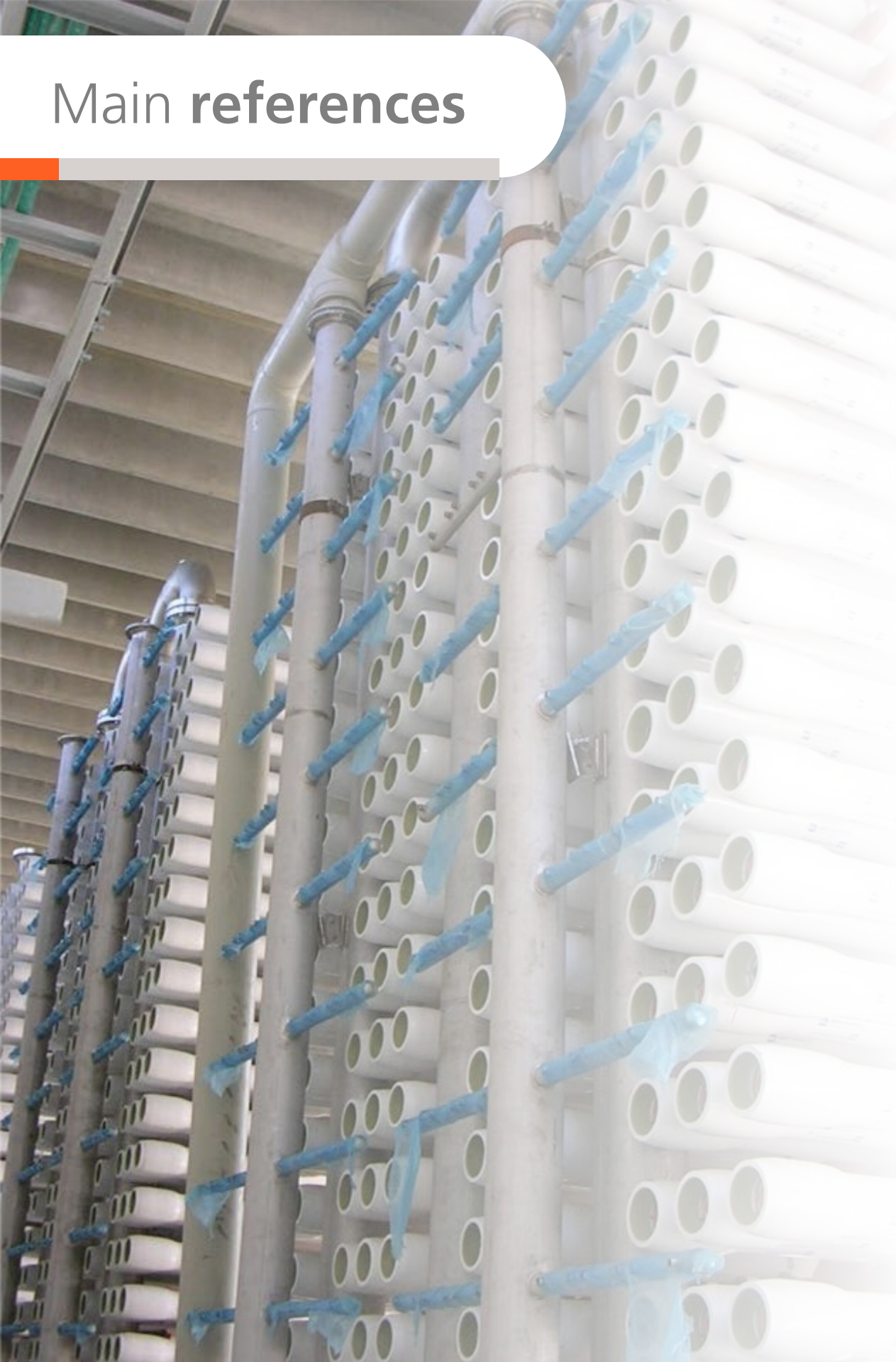
Contract mode: **EPC**

Client: **Société Nationale d'Exploitation et de Distribution des Eaux (SONEDE)**

Under construction

Capacity: 50,000 m³/d

- Located in the northeast of Tunisia.
- It will produce drinking water from seawater that will be collected from the **cooling water channel of the Sidi Abdelhamid power station in Sousse**, of the Tunisian Society of Electricity and Gas (STEG).
- It provides for the **possible** capacity **expansion** to up to 100,000 m³/d.
- It is part of the set of actions implemented by the Tunisian government for the **promotion and development of unconventional water resources**, such as desalination, the objective of which is to solve shortage problems and improve water quality, as well as to supply the growing demand in the main tourist destinations.



Dubal reverse osmosis desalination plant

Location: **Jebel Ali (Dubai), UAE**

Contract mode: **EPC**

Client: **SEPCOIII**

Off-taker: **Emirates Global Aluminium (EGA)**

Under construction

Capacity: 47,750 m³/d

- Located in the industrial complex of the world's largest premium aluminum producer, **Emirates Global Aluminium (EGA)**, located in Jebel Ali, 35 km southwest of the city of Dubai.
- It will produce **drinking** water and water for **industrial use**.
- It has an ultra pure water production system through an electrodeionization treatment (CEDI, Continuous Electro Deionization).



Our
5 strengths

Our strengths



Experience, references, internationalization and competitiveness: the basis of our growth.

Excellence in technical capabilities and international positioning

1 Safety and health comes first

- Our accident rates are well below those of the sector. Low Frequency Rate 2020: 2.48.

2 Technology and know how

- Proven experience in desalination, water and wastewater treatment and hydraulic infrastructures. Abengoa has a capacity of more than **4.4 million m³ /d of desalinated water throughout the world**, of which close to **2.6 million m³ /d are under construction**, and more than 300 projects executed in hydraulic infrastructures.

3 International recognition

- Presence in the five continents, with more than 30 desalination plants in 13 countries, with a recognized leadership position in the main world rankings (ENR, GWI, IDA).

4 Experience. Technical support

- Solid, committed and highly qualified team, with extensive experience in EPC and O & M, and specialized and competitive know-how, oriented to the satisfaction of our clients. Leadership in engineering and technology.

5 Pipeline diversified in geographies and products

- Wide product portfolio (desalination, wastewater treatment, water treatment, irrigation systems, pipelines and pumping, hydroelectric power plants, etc.). Great business opportunities in the short, medium and long term due to the growing shortage of water resources in many areas of the planet.



ABENGOA

Innovative technology solutions
for **sustainability**

Thank you .