

# GE Empowers Barcelona Community with Water Quality Solutions

## Challenge

**Water Supply Quantity and Quality a Major Concern in Catalonia** – Located in Abrera (Barcelona), Spain, Aigües Ter-Llobregat's Drinking Water Treatment Plant (DWTP) was plagued by the same conditions that affect the water supply in much of the Catalonia region of Spain, including poor water quality, water scarcity, and regulatory concerns. New regulations governing the quality of drinking water in Spain led the company to seek out membrane technologies to achieve the required levels and improve the quality of the water treated at the DWTP. Aigües Ter-Llobregat (ATLL) carried out several studies of different systems to determine the best technology to treat the raw water after it passes through sand filtration and activated carbon systems. Of the systems studied, desalination by way of electro dialysis reversal (EDR) proved to be the most viable option.

## Solution

**GE's EDR Technology Meets Customer's Water Treatment Goals** – After a two-year pilot test, ATLL chose GE Water & Process Technologies' EDR technology to reduce dissolved solids and organic matter in its water supply in order to meet treatment goals and increase water quality. During the testing period, ATLL discovered that EDR provided high water recovery and low wastewater flow without the need for additional pretreatment technology.

Through an electrochemical separation process, GE's EDR technology removes contaminants found in many source waters, like Barcelona's Llobregat River. While improving the overall availability of quality drinking water, the technology also allows the facility to operate at an exceptionally high water recovery rate. The EDR system strategically addresses a dynamic water source and eliminates the harmful fouling that can decrease a plant's



Figure 1: EDR water treatment plant at ATLL

operating performance or even shorten its overall lifespan. GE's technology also helps to improve the plant's overall efficiency and productivity.

## Results

**ATLL Producing Trustworthy Water with Aid of GE Technology** – GE's EDR water treatment system is the centerpiece of the newly inaugurated ATLL plant, currently providing quality, reliable drinking water for nearly 20% of Barcelona's metropolitan region. The operation is the largest EDR plant in the world; and GE's technology is responsible for increasing the plant's water quality. The plant is capable of producing 220,000 m<sup>3</sup>/day (58 million gpd) of product water, which blends back into the effluent of the existing treatment plant.

GE's EDR solution also provides ease of operation and maintenance. Despite the Llobregat River's changing feedwater quality, GE's EDR systems are able to adapt to the changing temperature and salinity of the river water without disrupting the quality of water production. The plant operates at a water recovery rate of 90%, which addresses the water scarcity conditions in Catalonia, and the concentrate from the plant is sent via a pipeline to the head of the Llobregat River as it enters the Mediterranean Sea. Due to the seasonal nature of the Llobregat River, GE's EDR technology allows ATLL to achieve its product water objectives, while operating on water with a wide variety of temperatures.

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