



Promoting Sustainable Growth and Self-Production of Energy through the Water Sector, as Key Elements for the Recovery after the COVID-19 Crisis



Sustainable Development Goals Addressed



Organization, institution or company
Region of Madrid water company – Canal de Isabel II
Location of project site, country
Region of Madrid, Spain.
Brief narrative description of objective/project/activity/initiative
<p><u>Canal de Isabel II</u> is the public water company of the Region of Madrid in charge of the integrated water cycle (treatment, distribution and wastewater treatment including reclaiming water) in 174 municipalities attending a population of 6.4 millions of people. The recent first wave of the COVID-19 pandemic in Europe showed that the strongest urban water management companies have been the most successful fighting against the pandemic. The pandemic exposed the Region of Madrid, one of the most affected in Spain, to unknown challenges, that required the maintenance of a safe and virus-free drinking water distribution system to allow the population to safely access hygiene needs and medical treatments. Canal de Isabel II implemented urgent measures: the immediate creation of a crisis committee, the implementation of safe management procedures for the staff of all the plants, the establishment of reserve teams in anticipation of contagion, and the degree of automation and remote management of facilities. These are some of good practices put in practice by a solid integrated water cycle company like Canal de Isabel II. The most modern remote control systems need an additional quantity of energy that can also be influenced by the pandemic. However, the large self-generation of electricity capacity of Canal de Isabel II helped to avoid this risk. Last but not least, the effective communication campaigns and exemptions for vulnerable customers have also proven to be very effective.</p>
Economic, environmental and climate benefits, challenges and lessons learned
<p>Growing demand for water, coupled with a reduction in renewable water resources are some of the main consequences of climate change and global warming, which is also causing a paradigm shift in water management, and makes water scarcity a local and global problem. Achieving maximum efficiency while continuing to provide quality services that are sustainable over time is one of the main challenges faced by Canal de Isabel II. As a consequence of climate change, situations of resource scarcity and water stress in Spain are expected to become increasingly frequent.</p> <p>The Region of Madrid has been suffering from these consequences for some time, as can be seen in the reduction of almost 20% in the average contributions of water to Canal de Isabel II reservoirs.</p> <p>There are many ways to increase the volume of water available but one of the most effective without increasing reservoir capacity is reusing water. This is one of the objectives of Canal de Isabel II Strategic Plan 2018-2030: To extend and promote the consumption of reclaimed water. The objective of this plan is to increase the volume of reclaimed water produced, extending and promoting the use of it in the Region of Madrid. This way preserves the natural resource from the source. Currently, the commitment to sustainable development requires extending and</p>

encouraging the use of reclaimed water for various activities, beyond the irrigation of municipal or sports green areas, considering new uses and potential future customers, as well as improving the water quality in receptor watercourses in the Region of Madrid.

Approximately more than 70% of Greenhouse Gas emissions contributing to Global Warming come from the energy sector, whether for the production of electricity and heat, transport, or other fuel combustion. It is therefore essential to build a sustainable energy system to fight against climate change and mitigate its effects.

Canal de Isabel II uses 450 GWh a year, of which 50% is electricity, 26% is fossil fuel and 24% is biogas from wastewater treatment plants (WWTP). This consumption is equivalent to the domestic consumption of a city with half a million people.

Up to 2018, Canal de Isabel II produced an average of 240 GWh per year with its 107.5 MW of installed electricity generation capacity, which represents between 50% and 69% of the energy consumed each year. All of it from renewable or high efficiency sources: hydraulic, co-generation heat drying, WWTP biogas, micro-turbines or solar panels.

In addition to this, the integral use of by-products will also continue to be one of the main tasks along this line. Despite being one of the European companies with the highest generation capacity in our sector, Canal de Isabel II ambition is to become world leaders in the sector, being able to **generate 100% of the energy consumed** by 2030, and in progressively more sustainable ways.

Finally, some of the actions that have been carried out due to COVID-19 pandemic were quickly developed, highlighting the rapid action of the company to guarantee at all times the water supply to all people from the Region of Madrid, protecting the safety and health of all workers. In this sense, one of the most notable projects consists of the early warning system for the detection of the virus in the wastewater of the Region of Madrid, **VIGÍA system**, thanks to the implementation of more than 290 sampling points distributed throughout the sanitation network, the largest deployment of this type in Spain.



Reservoir managed by Canal de Isabel II: Photo by Canal de Isabel II