



Sofia WWTP – energy self-sufficient with green energy

Municipal sector

| The challenge

The main challenge before the team of Sofia WWTP is to treat the wastewater of Sofia and return it back to nature clean.

The second challenge was to make Sofia WWTP fully energy self-sufficient.

Last but not least, the sludge produced from the treatment of the wastewater to be successfully utilized as a fertiliser in agriculture.

| Veolia's solution

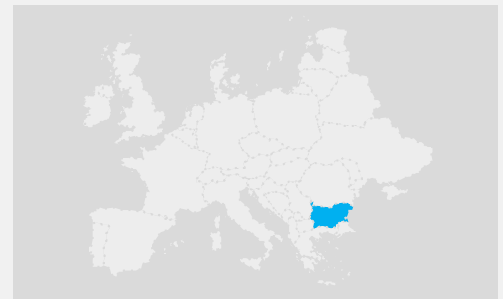
Sofia WWTP treats wastewater from domestic and industrial users as well as rainwater from the combined sewerage network of Sofia. It has a design capacity of 1.3 million pe and treats more than 400 000 m³ of domestic and industrial wastewater daily in line with the most stringent EU requirements (including nitrogen and phosphorus removal).

The plant was commissioned in 1984 and is one of the largest in the Balkans. Historically it has consumed between 16 000 and 24,000 MWh of electricity per annum.

Following the installation of CHP units in 2010 the green energy produced at the WWTP increased from 1500 MWh to over 24 000 MWh in 2020.

The measures implemented to reduce the energy consumption of the WWTP led to an excess of 1 900 MWh in 2020, i.e. the plant produced 9 % green energy in excess to what was needed for its operation.

This progress was achieved through targeted initiatives, particularly in 2017, when the company commissioned new frequency-regulated air blowers for the biological treatment step, which increased the efficiency of the process by 11%.



Sofia, Bulgaria



Wastewater treatment:

Duration: annual
Activity: treatment

>119 M cub.m. p.a.

of treated wastewater discharged in the Iskar river

109 %

Energy independence



In parallel, a project for utilizing exhaust heat from the CHP installation was implemented and it added 570 kW to the installed capacity, which has been of great importance as an additional heat source to increase the temperature of the anaerobic digesters. This project has resulted in 10% increase in the energy produced on site.

Key figures since the commissioning of the cogeneration installation in 2010 until the end of 2020:

- 210 million kWh generated green energy
- 97 million m³ utilized biogas
- 1.1 million tons reduced CO₂ emissions

| The benefits

- Thanks to the continuous work of Sofia WWTP, each year over 119 million m³ of treated wastewater discharged into the Iskar river.
- The production of green energy fully covers the energy needs of the facility.
- Saving over 75 000 tons of carbon emissions per annum.



<https://www.veolia.bg/en/news/sofia-wastewater-treatment-plant-kubratovo-won-prize-category-water-and-waste-water-management>



REGIONS & CITIES

Greener city
Cost efficiency



PLANET

Over 119 M m³ treated
wastewater returned to nature
Reduced carbon emissions
Protecting the environment by
sludge waste



WOMEN & MEN

Provides on-the-job training
ground for young engineers