

Case | Solar-powered desalination, Mykolaiv, Ukraine

# Innovative solution brings safe water to Mykolaiv

Mykolaiv is one of many Ukrainian cities heavily affected by the war. But thanks to an innovative solar-powered desalination system powered by high-pressure Grundfos pumps, the city's inhabitants now enjoy free access to safe drinking water, bringing a sense of freedom and peace back to the city.



**GRUNDFOS** 

Possibility in every drop



The desalination system is partly solar-powered, meaning that it's powered by the sun 10-12 hours during a typical summer's day, and 4-6 hours per day during the winter.

### A city without water

Less than two months after the Russian invasion of Ukraine, Russian forces destroyed the water supply pipeline between the Dnipro River and the city of Mykolaiv in southern Ukraine, cutting off water access to the city and its approx. 470,000 inhabitants.

So, when representatives from Mykolaiv visited the Intersolar exhibition in Munich the following month, the main point on their agenda was to find a solution that could supply the city with safe water. Here, they met Boreal Light, a company specialising in solar desalination systems that turn saline water or polluted water into drinking water.

### Off-grid innovation off the charts

Boreal Light's desalination systems use a process known as reverse osmosis, where the source water is carefully treated

before it is pushed through high-pressure membranes, where the desalination process begins. Each system is equipped with a Grundfos CRN booster pump, which essentially acts as the heart of the system.

The system is partly solar-powered, meaning that it's powered by the sun 10-12 hours during a typical summer's day, and 4-6 hours per day during the winter. The fact that it can operate off the grid makes it particularly attractive to a city under constant bombardment:

*“Since Mykolaiv’s electrical infrastructure is constantly at risk of being destroyed, breakdowns in the water supply can easily occur. Our solution is a so-called hybrid solution, meaning that it is mainly solar-powered, but if we need a higher production of water, we can use the grid. Not only that, we have five independent systems, so if one is destroyed, the others can*



The five solar desalination systems installed around Mykolaiv desalinate an average of around 1 million litres of water every day strictly through solar power.

*continue operating*”, explains Anna Shepelenko, Chief Outreach Officer at Boreal Light.

**“We instantly felt a connection with Grundfos”**

**Ali Al-Hakim**, Co-Founder and General Manager  
Boreal Light





Given the urgent situation in Mykolaiv, it required a high level of collaboration to successfully manufacture the systems and install them. Multiple parties came together to make it happen, and production of the systems took as little as two months, while installation took just two weeks.

*“Everyone contributed to making this project happen. With Grundfos in particular, we instantly felt a connection. We already knew that their solutions are high quality and robust, but it was great to experience their genuine interest in pursuing humanitarian projects like this. Without their partnership, there’s no way we could have completed this project, so we owe them a huge thank you”,* says Ali Al-Hakim, Co-Founder and General Manager at Boreal Light.

Abdellatif El Hafyani, Lead Key Account Manager at Grundfos backs this up, explaining how teamwork well and truly made the dream work in Mykolaiv:

*“We felt the responsibility to act and support whichever way possible due to the conflict. We supplied the pumps from our office in Germany and helped with the installation and commissioning of them. This project was a real success and it kickstarted a great partnership between Grundfos and Boreal Light, where we strive to solve water salinity issues in a sustainable and affordable manner.”*



### **The rebirth of a strong, resilient city**

With these five solar desalination systems in place, an average of around 1 million litres of water is desalinated every day strictly through solar power. When connected to the grid, that number rises to approximately 2.5 million litres, which equates to around 5 litres per person per day.

According to Anna Shepelenko, this has already had a significant impact on the city and its people, both in terms of their physical health but also their mental well-being:

*“Now that they have access to safe water, they can survive. But there’s also a real sense of strength, security and resilience now because the people feel like they’ve reclaimed their city. For us, that means everything. They won’t see our logo every day, but this is about much more than that. The fact that we’ve been able to contribute to giving these people access to safe water simply fills me with pride”,* she says with a smile.

**Grundfos Holding A/S**  
Poul Due Jensens Vej 7  
DK-8850 Bjerringbro  
Tel: +45 87 50 14 00  
[www.grundfos.com](http://www.grundfos.com)

**GRUNDFOS** 