

Desalination processes supported by renewable energy sources managed by artificial intelligence

Michał Kaczmarczyk*, Barbara Tomaszewska

Department of Energy Resources, Faculty of Geology, Geophysics and Environmental Protection, AGH University of Krakow, Mickiewicza 30 Av., 30-059 Kraków, Poland, emails: mkz@agh.edu.pl (M. Kaczmarczyk), bts@agh.edu.pl (B. Tomaszewska)

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ABSTRACT

In recent decades, a growing problem of overexploitation of freshwater resources and lowering the level of ground and surface water has been observed. As a result, approximately 60% of the world's population lived in areas where water was scarce for part of the year. Faced with these challenges, saving water savings and increased water efficiency became a priority, both in urban and agricultural areas. One of the solutions to this problem was water desalination processes, which were considered, however, to be significantly energy-intensive processes. The article described the idea of integrating desalination processes with renewable energy sources and artificial intelligence as a support to optimise the desalination process in technological, economic, and ecological terms. Previous experience in integrating the mentioned technologies was presented, as well as the potential of implementing artificial intelligence and its impact on specific areas of desalination processes, renewable energy sources, environmental, and economic issues, mainly in terms of data collection and analysis as well as predictive and operational monitoring. The use of artificial intelligence to monitor, manage and optimise water desalination processes had the potential to reduce costs and increase efficiency. This was an innovative approach that could help meet the growing demand for clean drinking water in a more sustainable way, while also having a positive impact on the environment.

Keywords: Desalination; Renewable energy sources; Artificial intelligence

* Corresponding author.

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