Capacitive Deionization Water Desalination (CDI)

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Abstract

- Population growth and water scarcity around the world demand more efficient methods for water desalination.
- Capacitive deionization (CDI) is a relatively new electric field-based desalination technique.
- It is capable of recovering a fraction of the input energy.
- Here, we present a new multi-step buffered methodology for CDI desalination to improve the overall performance of this method.

Introduction

- Water crisis is the #1 global risk based on impact to society [1].
- Around 700 billion people suffer from water scarcity [2].
- Only 3 percent of water on Earth is fresh [3].
- Only 1 percent of our freshwater is easily accessible [3].

Conclusion

- Depending on the precedence (desalination percentage, energy consumption, or volume of the desalinated water) either of these setups can be chosen for desalination.
- To improve the energy input per volume of the treated water, or total amount of time required for water purification two, or more cells can be used after the solution buffer.

References: