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River current energy conversion systems: Progress, prospects and challenges

M.J. Khan ... J.E. Quaicoe

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Abstract

River current energy conversion systems (RCECS) are electromechanical energy converters that convert kinetic energy of river water into other usable forms of energy. Over the last few decades, a number of reports on technical and economic feasibility of this technology have emerged. However, the potentials of this technology as an effective source of alternative energy have not yet been explored to a great extent. The underlying challenges of system design, operation and economics also lack proper understanding. In this article, starting with a definition of the RCECS, an overview of the technological advancements in the relevant field is provided. From a system engineering perspective, various merits and prospects of this technology along with pertinent challenges are discussed. The cross-disciplinary nature of approaching these challenges with an emphasis on the need for contributions from various technical and non-technical domains are also outlined in brief. This article may serve as a coherent literature survey

or technology review that would provide better understanding of the subjacent issues and possibly rejuvenate research interest in this immensely potential field of energy engineering.



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Keywords

River turbine; Emerging technology; Literature; Technology survey

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