Special Issue

Renewables Integration and Hybrid System Modelling

Message from the Guest Editor

Green energy transition refers to producing energy from renewable and sustainable sources. Countries are currently initiating the increased integration of such sources; however, given their intermittent nature, energy storage becomes crucial to avoid the risk of grid imbalance and the dumping or curtailing of surplus clean renewable energy during generation. Energy storage technologies vary widely, with hydrogen (H2) offering a promising storage medium for future energy systems. Stored H2 can be used in gas turbines or fuel cells to generate electricity during renewable source deficit and can also be used as fuel for heating, cooking, and transport or as industry feedstock, thus decarbonising these end uses. This Special Issue, “Renewables Integration and Hybrid System Modelling”, will demonstrate the novel approaches to the design, optimal sizing, and energy management of hybrid energy systems when applied to different end uses. Research approaches should use modelling and optimization tools to design hybrid energy systems or use cost and life-cycle analysis techniques to assess their viability.

Guest Editor

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