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ABSTRACT

This editorial introduces the main findings from the 30th Volume of the International Journal of Sustainable Energy Planning and Management. This volume probes into analyses of the technical interactions between multi-energy carrier energy hubs and the role and feasibility of cogeneration of heat and power in a Portuguese context. It moves on to analyse the framework for implementing photo voltaic technology and decision processes for implementing PV technology. Lastly, it presents work on the role of renewable energy sources in meeting carbon dioxide emission reduction goals in Iran.

Keywords

Energy hubs;
Cogeneration of heat and power;
Implementation of photo voltaics;
Emission reductions;

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1. Technology transition

In their work on multi hubs in the article *Planning of multi-hub energy system by considering competition issue* [1], Farshidian et al. investigate the interplay between series of connected multi-carrier energy systems. This is in line with Kienberger's work published in this journal [2]. In their work, Farshidian and co-authors focus on the methodological development of an assessment framework based on Karush–Kuhn–Tucker conditions.

Ferreira et al. investigate the prospects of cogeneration of heat and power (CHP) in their work *Application of a cost-benefit model to evaluate the investment viability of the small-scale cogeneration systems in the Portuguese context* [3]. The authors follow up on an IJSEPM focus area of Iberian energy system transition [4–7] as well as on studies on district heating [8–10] and cogeneration of heat and power [11–13]. In this work, Ferreira et al. analyse different types of CHP in buildings, finding that economic viability requires subsidies for energy-efficient electricity production in the Portuguese context.

2. Systems for implementation

Based on a PESTLE (Political, Economic, Social, Technological, Legal, and Environmental factors) framework, Schaefer & Siluk assess the potential implementation of PV technology based on network analyses of the players in their article *An Algorithm-based Approach to Map the Players' Network for Photovoltaic Energy Businesses* [14]. Among other conclusions, Schaefer & Silluk find that there is a need to establish clear business models representing all technical aspects along with all interrelations between players, and establishing governance of the sector facilitating both coordination and standardization.

Miraj & Berawi analyse PV investment decision processes in their work *Multi-Criteria Decision Making for*

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Photovoltaic Alternatives: A Case Study in Hot Climate Country [15]. Using an Indonesian case-study and factoring in a range of criteria from the cost of energy, via CO_2 emissions to operation and maintenance established through a respondent survey, the authors continue to investigate optimal decisions. This follows up on previous work published in the IJSEPM on decision-support systems [13,16,17].

3. Country scenarios

Godarzi and Maleki analyse *Optimal Electrical Energy Supply to Meet Emissions Pledge Under Paris Climate Accord* [18]. Based on a non-linear model of the Iranian energy system, the authors find that Iran can meet its CO_2-emission reduction pledge through a 25 USD/t carbon tax, 10–20 % renewable energy and conversion of combined cycle power generation. This follows up on previous studies on Iran [17,19,20] published in the IJSEPM, focusing on photo voltaics/wind power, desalination and policy issues as well as other studies investigating strategies to meet Paris Agreement commitments [21–23].

4. Special section

Lastly, the this issue contains a contribution from the European Conference on Renewable Energy Systems held in Istanbul, August 2020. In this contribution Karipoğlu and coauthors investigates site selection methods and cases for wind power development in Turkey [24].

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