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ABSTRACT

This 36th volume of the International Journal of Sustainable Energy Planning and Management starts at the global scale with a survey of the economy of the oil industry. Limitations of single-sector analyses of Chile is the focal point of a commentary on a previously published study in the journal Energies. The authors of the commentary find that limitation in literature survey, methodology, and data result in a signification underestimation of, e.g., the potential for photo voltaics. The potential for hydro power is affected by changes in water flows as analysed by Melo, which brings some level concern as hydro power is a key element in Brazil's renewable energy exploitation effort. Lasty, Dall-Orsoletta et al. look into system dynamic models and whether they include social aspects in the modelling. This is only found in a minority of system dynamic models.

Keywords

Oil sector revenues;
Single vs multi sector optimisation;
Hydropower projections;
Social aspects in modelling;

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1. Contents

Oil and gas usually fall beyond the scope of the International Journal of Sustainable Energy Planning and Management, however it is a near given that the transition towards renewable energy-based energy systems must take the current fossil reality in consideration. Thus we have previously presented work on natural gas in Cyprus [1], and fossil fuel consumption in Sub-Saharan Africa [2,3]. In this issue, we expand the focus further as Verbruggen [4] looks into the global oil exploitation with a focus on profits and links to geopolitics.

A 2021 paper on the Chilean electricity system [5] is the starting point for Osorio-Aravena and co-authors' commentary [6] in this issue of the International Journal for Sustainable Energy Planning and Management. Osorio-Aravena and co-authors point to a lack of consideration for previous work in the commented paper, and that due to methodological limitations and age of data, e.g., the contribution of photovoltaics is *"2.7 to 16 times less than other existing studies for the region"*. A boundary issue in the work is for instance the focus on the power sector, where a significant body of contemporary work address integrated or smart energy systems. Such an approach was suggested already a decade ago [7], so papers not applying this approach do not manage to fully capture the potential energy system transition options. In 2020, Osorio-Aravena et al. [8] published a study in this journal also focusing on Chile – however applying this more holistic approach.

While smart energy systems typically address the integration of energy sectors, energy system transition must also be seen in the context of other areas of society. In hydro power-rich countries, there is a link to water usage and precipitation changes coming from, e.g., climate change. Taking the Brazilian state of Minas Gerais as a case, Melo and co-authors find a reduction in inflow and thus concerns of future prospects [9]. This journal has previously published a number of studies where hydropower is one of the elements in the energy

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transition, however more focused studies have addressed hydropower from an acceptance perspective [10], a planning perspective [11,12], a market integration perspective [13], and from a perspective of electricity access [14].

Dall-Orsoletta et al. [15] present a survey of modelling approaches in system dynamic models with a focus on model representation within spatial resolution, simulation horizon, and main themes covered including supply, demand, economy, environment, transport, water, food, consumers and socio-political dynamics. Among the main findings are that social aspects are not prevalent in system dynamic modelling. A new article by Chang adds to this discussion by focusing on a tendency of coupling energy systems models to better encompass different aspects of energy systems [16].

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