International Journal of
Sustainable Energy Planning and Management

Editorial - International Journal of Sustainable Energy Planning and Management Vol 17

Poul Alberg Østergaard*

Department of Planning, Aalborg University, Rendsburggade 14, 9000 Aalborg, Denmark

ABSTRACT

This editorial introduces the 17th volume of the International Journal of Sustainable Energy Planning and Management. The volume present work on photo voltaic systems for decentralised applications and country studies of both Ghana, Kenya & South Africa and of Rwanda. Finally, methodology development papers on decision-making and biomass resource estimation round off the volume.

Keywords:

Photo voltaic systems;
Country studies;
Decision–making;
Biomass estimation;

URL:
dx.doi.org/10.5278/ijsepm.2018.17.1

1. Photo voltaic systems and system impacts

Kozarcanin & Andresen [1] combine analyses of photo voltaic (PV) installations with analyses of electric power grids in small-scale systems. Based on two cases in Vaxjö, Sweden, they find that it is not required to add active smart grid control even when installing sufficient PV capacity to meet annual electricity demands eightfold. They do not reveal problems with overvoltage which would be the case with the same capacity on individual houses. For the combined installation on residential buildings, imbalances are shared on the medium voltage grid where impacts are smaller than on the low-voltage grid

Tomc & Vasallo [2] also investigate photo voltaic systems in appartment buildings, here with a focus on community renewable energy networks; a topic they have also addressed in previous work [3,4]. Combinding loads and productions from multiple residents and having a communal battery decreases the likelyhood that demands have to be met by external sources as the total of individual imbalances exceeds the total of individual imbalances when coordinated in an integrated manner.

2. Country studies

Kwakwa et al. [5] analyse links between energy consumption and urbanization rates, economic growth and more using statistical evidence from the period 1975 to 2013 for Ghana, Kenya and South Africa. They find a number of factors affecting demands positively and negatively and also factors that have different impact on the three case countries with income and urbanization consistently being factors driving up energy demands. With positive links to energy consumption, detaching economic growth from energy usage through improved efficiency becomes important. The analyses also indicate e.g. the sensitivity of the Kenyan energy system to energy prices

* Corresponding author: e-mail: poul@plan.aau.dk

Rwanda is a country of ample hydropower resources, however while the resource is climate change favourable, climate change is not favourable for hydropower in Rwanda. Combined with both population and economic growth, Rwanda is thus facing the potential prospect of heading towards a more fossil-dependent energy system. Uhorakeye & Möller[6] therefore investigate alternative pathways using locally available renewable energy sources in a Rwandan setting.

3. Methods for energy planning

In [7] Saleki investigate a decision-making method for designing energy supply systems in Teheran. Using a four-step method, involving technical deliberation, system design choice preference and cost-based ranking, Saleki find that focus should be put on photo voltaics and wind power in Teheran for the energy supply of individual houses.

Acknowledging the important role of biomass in future renewable energy-based energy systems, better methods are required for the assessment of available biomass resources. Based on this presupposition, Torre-Tojal et al.[8] estimate biomass availability for energy production based on Light Detection and Ranging (LiDAR) flights.

Acknowledgements

The International Journal of Sustainable Energy Planning and Management appreciates the contributions from the reviewers that have assisted the authors in improving their work.

References

[1] Kozarcanin S, Andresen GB. Grid integration of solar PV for multi-apartment buildings. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm.2018.17.2.

[2] Tomc E, Vassallo AM. Community electricity and storage central management for multi-dwelling developments: an analysis of operating options. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm.2018.17.3.

[3] Tomc E, Vassallo AM. Community Renewable Energy Networks in urban contexts: the need for a holistic approach. Int J Sustain Energy Plan Manag 2015;8:31–42. http://dx.doi.org/10.5278/ ijsepm.2015.8.4.

[4] Tomc E, Vassallo AM. The effect of individual and communal electricity generation, consumption and storage on urban Community Renewable Energy Networks (CREN): an Australian case. Int J Sustain Energy Plan Manag 2016;11. http://dx.doi.org/dx.doi.org/10.5278/ijsepm.2016.11.3.

[5] Kwakwa PA, Adu G, Osei-Fosu AK. A time series analysis of fossil fuel consumption in Sub-Saharan Africa: evidence from Ghana, Kenya and South Africa. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm.2018.17.4.

[6] Uhorakeye T, Möller B. Assessment of a climate-resilient and low-carbon power supply scenario for Rwand. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm. 2018.17.5.

[7] Saleki S. Introducing Multi-Stage Qualification for Micro-Level Decision-Making (MSQMLDM) Method in the Energy Sector – A case study of Photovoltaic and Wind Power in Tehran. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm.2018.17.6.

[8] Torre-Tojal L, Esposo JMS, Bastarrika A, Lopez-Guede JM. Biomass estimation using LiDAR data. Int J Sustain Energy Plan Manag 2018;17. http://dx.doi.org/10.5278/ijsepm. 2018.17.7.