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ABSTRACT

This editorial introduces the 21st volume of the International Journal of Sustainable Energy Planning and Management. This volume present research on overall national energy planning development with a case from Nigeria. This is followed up by a sustainability assessment of nine sample countries. Moving on to the more local scale, potentials and barriers for photo voltaic systems with cases from Germany, Nigeria and Tanzania are presented. Finally, analyses focusing on the spatial dimension of energy system are presented. This last part addresses both the delimitation between rural and city energy systems and how they should combine and the optimal design of district heating systems.

Keywords:

Energy planning;
Sustainability assessment;
Photo voltaic systems;
Energy regions;

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1. Energy planning and sustainability

In this volume, Khaleel and Chakrabarti [1] look into the Nigerian energy system and the planning of the development of the energy system. In this study, the authors compare different modelling approaches for projection of energy/electricity demands in the country.

Razmjoo[2] investigate Sustainable Energy Development Index (SEDI) and its application to a set of nine countries – Albania, Bulgaria, Croatia, China, India, Iran, Jordan, Peru and Tunesia. In the work, the countries are evaluated according to technical, economic, social, environmental and institutional sustainability.

2. Photo voltaic systems for energy development

Ugulu[3] look into photo voltaic systems, but from a starting point in unreliable grid supply in Nigeria resulting in the majority of urban households having individual fuel-based generator systems. Photo voltaics are falling in price, yet penetration rates are still modest in Nigeria – largely due to high up-front investment costs.

Keiner et al. [4] also investigate photo voltaics and residential smart energy systems with autonomous production, conversion and storage systems – including the extent to which electric vehicles may replace stationary batteries. Self-consumption rates are positively affected by electricity storage – but the cost of energy is increased in parallel.

Groth [5] address rural electrification in Tanzania – focusing on photo voltaic systems and mini grid systems. Such off-grid mini systems are assessed as being important bridge technologies before interconnection to national power systems. See also the work on rural electrification by Dominguez et al.[6]

3. The geography of energy systems

Möller et al. [7] look into the geographical limitation of sustainable energy regions, focusing on the interplay between rural municipalities' and cities' energy planning and energy systems development. A recurring theme in many regional energy plans is that rural areas have options that cities do not have. In their analyses, Möller

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and co-authors look into Osnabrück, Germany – and surrounding rural municipalities.

Kuriyan and Shah [8] develop a combined spatial and technological tool for designing and analysing district heating systems as a part of the THERMOS project. Optimisation of district heating system design in multi-node systems turn out to be time consuming, thus optimisation of the design process is one of the targets in the authors' work.

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