



Editorial - International Journal of Sustainable Energy Planning and Management Vol 8

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ABSTRACT

This editorial introduces the eight volume of the International Journal of Sustainable Energy Planning and Management. The volume addresses economically optimal biogas facilities based on spatial analyses in the United States, and analyses of the role of municipalities in expanding biogas in Denmark. A large review article looks into community renewable energy networks, and finally support schemes for renewable energy production are analysed with cases from Denmark and South Africa.

Keywords:

Biogas;
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1. Biogas

Two of the articles presented in this volume address biogas, however from different approaches. Mukherjee et al. [1] address the issue of anaerobic digestion of manure for energy production, pointing out that agriculture while having a large role as greenhouse gas emitter also may play a role in greenhouse gas emission mitigation through the production of energy. One factor working against anaerobic digestion however is the required scale of operation, and while certain European countries have deployed centralized anaerobic digesters shared among groups of farmers, there is little experience with this in the United States. The authors find that “*most of the time, CAD [centralized anaerobic digesters] locations are chosen based on non-economic considerations*” while proposing a combination of GIS and mixed integer programming to address the location issue for a case study in Connecticut. Through their analyses, the authors find that CAD are economically attractive to individual anaerobic digesters.

Lybæk and Kjær [2] address anaerobic digestion - or biogas technology in their words - based on analyses of the role of municipalities in advancing the use of biogas in Denmark. Denmark already has 25 CAD with the first being established more than 30 years ago in 1984 and presently 46 farm biogas plants, however national plans propose to increase biogas production from manure from approximately 2.5 PJ per year to 20 PJ per year by the year 2020. Municipalities play a triple role as energy consumers, regulators and facilitators and of these three, the authors stress the importance of the facilitator role in the further deployment of biogas and they also argue for the inclusion of biogas in municipal Strategic Energy Planning.

2. Community renewable energy networks

Tomc & Vassallo [3] reviews the current body of scientific literature on community renewable energy systems, arguing for the transition from traditional radial electricity systems to bi-directional local energy systems

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with local resilience. Notably, they mainly focus on electricity systems and smart grids as opposed to e.g. smart energy systems, as suggested in [4]. They probe into the technical components – solar, wind, hybrid generation, electric vehicles, geothermal – of such systems and finally the social aspects, where they label a top-down approach to the transition task “*a Sisyphean task*” and that “*a bottom-up approach like the one implied in CREN [Community renewable energy networks] is more likely to provide the required change on a more stable basis, for a longer time horizon than an average electoral cycle.*”

3. Incentive schemes for Renewable Energy

In the last article of the volume, Toke [5] probes into two support schemes applied to advance renewable energy deployment – mainly wind power – with cases from Denmark and South Africa. Toke forwards the interesting and important conclusion that “*cost reductions that are associated with renewable energy auctions are not caused by the auction systems themselves, but rather are associated with general declines in the costs of renewable energy technologies*”.

References

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