

Editorial

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As a member of the ICE *Energy* editorial board I have been invited to write the editorial for this issue. The scope of papers within the ICE *Energy* journal ranges from strategy and policy through to detailed technical papers. All undergo rigorous peer review and have helpful reference lists for readers wishing to explore topics further. In this issue we start with the policy context and development progress for a geological nuclear waste disposal facility in the UK. Two subsequent papers report on the modelling of proposed future energy developments in the UK and India and the last paper reports on monitoring of outturn performance to confirm the effectiveness of South Korean government policy aims and help formulate future policy.

The authors of the first paper (Tweed *et al.*, 2015) work for UK government-owned Radioactive Waste Management Ltd, which is responsible for developing a higher-activity radioactive waste geological disposal facility. The paper outlines the history of radioactive waste management policy in the UK and the development of a conceptual geological disposal facility at a depth of between 200 and 1000 m. The paper confirms that no UK local communities are currently volunteering to host a geological disposal facility for radioactive waste, but also reports that significant logistical and safety issues associated with future transport from current interim waste-storage locations are being addressed. The UK site selection procedure has recently been revised, but still favours siting based on local community willingness to host, which will be encouraged by improved information transparency and funding for community benefits. The paper compares progress on disposal facility development internationally and notes that the UK is significantly less advanced than some other countries.

The second paper, by Fairs *et al.* (2015), describes numerical modelling of a potential deep geothermal system in County Durham, UK. The modelling approach adopted uses mass transport code MT3DMS to create a three-dimensional heat transport model. The modelling indicates that there is potential for a combined heat and power development of several tens of megawatts in the area. The heat source envisaged is hypersaline fluid in a high-permeability fault within the local granite. The local geology is complex with potentially non-linear behaviour. The potential heat energy production from a two-well system was modelled. The paper also explores the sensitivity of key input variables and makes recommendations for further work to address those highlighted to be significant.

The third paper considers a proposed hybrid energy system comprising solar biodiesel and solar photovoltaic (PV) electricity generation combined with battery storage (Bapat *et al.*, 2015). The system is planned to operate off-grid and supply the boy's hostel at the Visweswarayya National Institute of Technology in Nagpur, India. The commercially available Homer software model was used to optimise the size of the various elements of the proposed hybrid system. The biodiesel will be produced from *Jatropha* seeds grown locally. The optimum solution recommended by this analysis is 1 kW of PV, 17 kW of biodiesel combined with a 22 kWh battery.

The last paper considers reducing fuel use and associated carbon dioxide within the South Korean housing sector (Lee and Kim, 2015). In common with other industrialised nations, the South Korean government has a strategy to move toward zero-energy housing in the future. As part of this it has encouraged construction of "green housing" initially designed to have 15% less energy use than comparable new housing in 2008. The authors have assessed the outturn performance of 795 apartments completed in 2012. These apartments did not benefit from renewable energy, so savings were due to improved insulation and more efficient appliances. The authors' analysis indicates that actual savings are marginally higher than the target 15%. The results of this analysis will help the South Korean government as they progressively tighten new building standards.

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