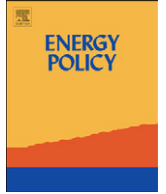


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Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Introduction to Section 5—Energy-efficient buildings

Energy-efficient buildings are perhaps the core of the Sustainable Energy Management and the Built Environment project. And as up to half of UK energy demand takes place in buildings and institutions, improving their energy performance is essential to any future energy policy. These papers examine the problem of buildings and their energy efficiency from a number of angles. We begin with a paper by Roberts, at the Centre for Sustainable Energy, which considers the fuel poor, i.e. people who spend more than 10 per cent of their incomes on energy in the home. They mainly live in older homes, which they cannot afford to refurbish to improve their energy efficiency. A mix of measures, ranging from installing insulation to encouraging people to live in more appropriate homes, is needed to prevent this problem from worsening.

A main thrust of this section is the need to improve existing homes and other buildings. Houses are especially important as the UK housing stock turns over at a rate of only about one per cent per year. Our second Roberts, from ARUP, examines a range of approaches to doing this, including adding insulation, renewing heating and lighting, and making more use of renewable energy on a small scale.

We also examine the possibility of a major programme of renewal for the UK housing stock, involving the mass demolition and reconstruction of entire areas. Because of the importance of this debate, the project commissioned a special extended 'think piece' of the issues by Power. Her conclusion is that mass demolition is not a valid approach, partly because of the immense social disruption it would involve, and partly because demolition and construction consume immense amounts of energy and materials. Up to a third of the waste disposed of in UK landfills has been produced from building demolition and related activities.

The buildings we will be occupying in 2050 will not exist in isolation from the environment around them. In a warmer world, they may need to be cooled more often than they are heated, and to cope with droughts and floods. Ravetz looks here at the future of the overall built environment as well as the buildings that will form part of it. And in any possible future, regulation and planning will continue to shape the way we change our built environment. Lowe and Oreszczyn consider possible developments in the regulatory process.