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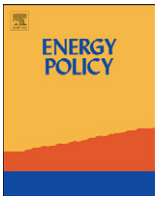

Introduction to Section 1—Electricity generation

Electricity policy in the UK has been dominated since the Second World War by the economies of scale of bigger power stations and centralised networks. Will this model continue to have value in the next 5 decades and what technologies will fuel it if so?

Several trends in policy suggest that it might. One is the commitment by a range of governments, including the UK's, to new nuclear power stations. In this section, Abram and Ion discuss the new and anticipated generations of nuclear energy systems that companies are considering. Alongside this commitment to nuclear fission, the European Union and other major economies are now pressing ahead with ITER, the prototype for a practical nuclear fusion power station. If it works as its advocates suggest, fusion could alter humanity's relations with energy fundamentally. Here Llewellyn Smith and Ward examine the progress which fusion must make to become practical by mid-century.

Another possibility under active consideration is the continued but more efficient and decarbonised use of fossil fuels to power the grid. Oliver shows that fossil-fuelled electricity generation can become substantially more energy efficient. Schemes to capture and store carbon dioxide in geological structures may well work best on a large scale, perhaps connected to a national system of carbon dioxide disposal pipelines. Gibbins and Chalmers describe carbon-capture technologies with potential application to large power stations.

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