



Integrated Land-Water-Energy assessment using the Foreseer Tool

Julian Allwood, Dennis Konadu, Zenaida Mourao, Rick Lupton, Keith Richards, Richard Fenner, Sandy Skelton, and Richard McMahon

University of Cambridge, Department of Engineering, Cambridge, United Kingdom (ddk24@cam.ac.uk)

This study presents an integrated energy and resource modelling and visualisation approach, ForeseerTM, which characterises the interdependencies and evaluates the land and water requirement for energy system pathways. The Foreseer Tool maps linked energy, water and land resource futures by outputting a set of Sankey diagrams for energy, water and land, showing the flow from basic resource (e.g. coal, surface water, and forested land) through transformations (e.g. fuel refining and desalination) to final services (e.g. sustenance, hygiene and transportation). By ‘mapping’ resources in this way, policy-makers can more easily understand the competing uses through the identification of the services it delivers (e.g. food production, landscaping, energy), the potential opportunities for improving the management of the resource and the connections with other resources which are often overlooked in a traditional sector-based management strategy. This paper will present a case study of the UK Carbon Plan, and highlights the need for integrated resource planning and policy development.