

Hodson, M., and Marvin, S., (2004), *Understanding Transitions to a Hydrogen Economy(-ies) with and through 'Regions'*, UKSHEC Social Science Working Paper No. 3, SURF Centre, University of Salford. A revised version has been submitted to *Research Policy* (abstract only).

Abstract

The key question we seek to address in this paper is: how can we understand attempts to develop hydrogen economies in three different 'regions' of the UK? We do this by unpacking the sorts of issues we need to consider in moving beyond the techno-economic 'possibilities' of a potential future hydrogen economy(-ies) and to consider the ways in which hydrogen and fuel cell technologies shape the 'regional context' within which attempts are made to embed them but also are shaped, enabled and constrained by such 'contexts'. The power, but partiality and shortcomings, with which accounts of technical and economic possibilities articulate hydrogen futures have been outlined elsewhere (Hodson and Marvin, 2004). Macro level 'visions' of hydrogen futures (see Eames and McDowall, 2004) similarly offer partial and often 'placeless' accounts.

The aim here is to raise a number of ideas and understandings which allow us to think through a series of issues in addressing empirically attempts to develop, 'functionalise' or 'make work' a regional hydrogen economy(-ies). In doing this we address ideas from multi-level technological transitions (TT) literature (e.g. Geels, 2002a, 2002b). This multi-level approach although useful in understanding aspects of technological transitions and regional hydrogen economy(-ies) would benefit from an appreciation of interrelated issues of 'multi-level governance', space, place and also a sensitivity to processes and interactions. All of which relates to how we might understand the, conceptualisation(s), role and significance of the region in hydrogen economy developments.

This is particularly significant in times of increased 'globalisation' and neo-liberalism, where the changing role of the state and issues of 'multi-level governance' raise a whole series of issues not only about how we might think about the region but also the interrelationships between regions, the local, national and supranational. This inability to specify *a priori* what a region 'is' leads to the questions: when and where are the region? Which provide a basis – through a series of themes related to regional hydrogen economy development, including representations, relationships, interactions and resources - to inform empirical investigation

of understanding the unfolding relationships between hydrogen economy(-ies) developments and different regions.