

The Hydrogen Economy and Regional Innovation

Mike Hodson and Simon Marvin at the SURF Centre, University of Salford, UK are currently undertaking work on regional and urban hydrogen economy developments as part of the UK Sustainable Hydrogen Energy Consortium (UKSHEC). In doing this it draws on a series of regional case studies to acknowledge and address a 'gap' in our understanding between 'generic drivers' of the hydrogen economy and more localised and regional hydrogen economy developments. The key focus of this work is in interrogating the relationships between hydrogen economy innovation and regional and local contexts. In particular this is addressed through assessing the balance of responsibilities and activities between national and regional priorities, between national energy policy and its 'delivery', analysing the relationships between central government and regional institutions. In addressing this four key themes became apparent.

1. The diverse sets of relationships between hydrogen technologies and the local and regional contexts within which they are being appropriated and developed. These relationships are often underpinned by issues of economic competitiveness, as well as systemic transport change, environmental and social equity agendas.
2. This linked to various network forms of interrelationships underpinning regional hydrogen economy development. These differed in size, interests constituting them, scales of political activity and degrees of alignment. Indeed the entry of 'external' viewpoints (national government, EU, multinational organisations) into the development of regional hydrogen economies was a significant 'driver' in all cases. The importance of this was that it informed an *ongoing negotiation* between the, often various, expectations of regional hydrogen economy development across different socio-political scales. Different institutions, often with diverse regional views or roles, took the lead in regional hydrogen economy development. The important issue, here, was related to the available level of 'regional' resources (financial, forms of knowledge and types of relationships) 'necessary' to developing a hydrogen economy. This being the case there was an importance in (understanding) the emerging role of 'intermediary' organisations between hydrogen and fuel cell technologies and the various contexts of appropriation, including across different scales and between various actors.
3. With the importance of recognising the limited development of the hydrogen economy in relation to 'regional' visions.
4. This analysis offers possibilities to sensitise some of the more grandiose visions of the hydrogen economy to the constraints and opportunities of particular regional contexts and the availability of 'relevant' relationships and resources. Whilst a start has been made in addressing this, a continued and focused attention on regional contexts and 'drivers' of hydrogen economies is required.

Journal Articles

Hodson, M. and Marvin, S., 'Reconnecting the Technology Characterisation of the Hydrogen Economy to Contexts of Consumption'. *Energy Policy*. (forthcoming).

Hodson, M., and Marvin, S., 'Technological Transitions with and through 'Regions'', *Research Policy*, (submitted June 2005).

Hodson, M., and Marvin, S., 'Regions and Technological Innovation: Negotiating the 'Global', the 'Regional' and the 'Local' in London', *International Journal of Urban and Regional Research*, (submitted September 2005).

Hodson, M., and Marvin, S., 'Old Industrial Regions and Technological Innovation: The Case of Teesside', *Environment and Planning A*, (submitted September 2005).

Working Papers

Hodson, M., and Marvin, S., (2005), *Emerging UK Hydrogen Economies: Policy/Urban and Regional Infrastructure 'Drivers'*, Working Paper 7, SURF Centre, University of Salford, June.

Hodson, M., and Marvin, S., (2005), *London's Hydrogen Economy: Negotiating the 'Global', the 'Regional' and the 'Local'*, Working Paper 6, SURF Centre, University of Salford, May.

Hodson, M., and Marvin, S., (2005), *The 'Journey' to Wales' Hydrogen Economy*, Working Paper 5, SURF Centre, University of Salford, May.

Hodson, M., and Marvin, S., (2005), *Re-Imagining Tees Valley in the Post-Industrial*, Working Paper 4, SURF Centre, University of Salford, May.

Hodson, M., and Marvin, S., (2004), *Understanding Transitions to a Hydrogen Economy(-ies) with and through 'Regions'*, Working Paper 3, SURF Centre, University of Salford, October.

Other Articles

Hodson, M., (2005), 'Hydrogen Technology: the promise of a hydrogen economy', *Postgraduate UK 2005*, British Council.

Conference Papers

Hodson, M., and Marvin, S., (2005), 'Connecting the Technologies of the Hydrogen Economy to Contexts of Consumption?', ESRC Seminar 2, *Analysing Social Dimensions of Emerging Hydrogen Economies*, Manchester, February.

Hodson, M., (2005), 'Situating Technology in "Context"', University College Chester, Business School Seminar Series, 25th May.

Additional Research Funding

Funding has been secured for two additional projects, with direct relevance to our UKSHEC work:

1. ESRC Seminar Series: 'Analysing Social Dimensions of Emerging Hydrogen Economies'. £15,202 (from August 2004). Seminar one held at the Policy Studies Institute, London, in September 2004; seminars two and three held at the SURF Centre, Manchester, in February 2005; seminar four held at the University of Salford, in October 2005. The seminars involve and include participants from across academic disciplines, industry, government and other public bodies. A seminar series website has been constructed and can be viewed at: www.surf.salford.ac.uk/HydrogenEconomies/home.htm
2. European Commission 6th Framework Programme: Specific Targeted Research Project. Call: FP6-2004-Energy-3, SUSTDEV-1.2.8. 'CREATE ACCEPTANCE'.

(from February 2006. Value circa £73,000). A comparative European study of public understanding and new energy technologies.