



## **Seminar: 'Eco-Innovation: Policy Perspectives'**

Presented by: CASS, Cardiff University

Location: Committee Room 1, Glamorgan Building, Cardiff University, King Edward VII Avenue, Cardiff, Wales, UK

Date: March 17, 2011  
9.00 – 14.00 hr

## **Abstracts**

**Professor Kevin Morgan: School of City and Regional Planning, Cardiff University**

**Eco-innovation through the power of purchase**

Public procurement - the power of purchase - can be an awesome policy instrument if it is deployed effectively. With an annual spend of £236 billion across the UK public sector, the power of purchase is potentially far more significant than state grants as an instrument for greening the economy and effecting societal change. This presentation has two aims:

- (i) to explore the scope for/barriers to green procurement and
- (ii) to illustrate the generic problems by examining case studies of public food provisioning and renewable energy.

**Jesper Lindgaard Christensen: Aalborg University**

**Concerted actions: installing collective entrepreneurship: Danish experiences.**

**And**

**Birgitte Gregersen<sup>1</sup> and Björn Johnson: Aalborg University**

**Stimulating emerging sustainable energy technologies through policy learning – a comparative study of the Danish wind energy and solar cells<sup>2</sup>**

In this paper we argue that a policy learning approach is a constructive way to stimulate emerging sustainable energy technologies. We use the well-known Danish wind energy success as a reference case and discuss to what extent lessons learnt from this case can be applied to upcoming renewable energy technologies like solar cell energy. Although the empirical basis is the specific Danish context, lessons learned are relevant in a broader policy context as well.

The high degree of diversity between different energy technology areas implies that an effectual innovation and energy policy has to take into account these differences. The policy has to reflect the variation in maturity of both markets and technology. In areas like solar cells, where the Danish market is still emerging, qualified demand – for instance in the form of strategic public procurement - is central for the technology to develop further. In other words, new emerging energy technologies and energy systems, as for instance solar energy, requires public support stimulating both the supply and demand side in order to be competitive with established fossil fuel technologies. Continued innovation requires variety with room for experimentation and evaluation of alternative solutions to technological, organizational, institutional problems. Creating and utilizing such 'interactive learning spaces' (Arocena and Sutz, 2000) is driven by a combination of innovative framework conditions at the system level and entrepreneurial 'fiery souls' at the individual level.

Maintaining a long-term, pro-active policy with specific and ambitious targets for implementing renewable energy systems is essential. Development of new energy technologies takes place in a context of high technological and market uncertainty. Such uncertainty can be reduced by a long-term combination of a visionary innovation and energy policy. Stop-and-go finance of for instance R&D projects, demonstrations projects and subsidies are often contra-productive. In the Danish public policy debate, the Danish wind energy 'adventure' has often been highlighted as a success case to follow for other industries. However, the fact, that the Danish wind energy success reflects a long-time co-evolution of technological, economic, political, and institutional elements, makes it a complex matter to draw clear-cut lessons and apply these to other areas. A policy learning approach may be a helpful tool as a starting point.

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<sup>2</sup> An earlier version of this paper was presented at the 13<sup>th</sup> Conference of the International Joseph A. Schumpeter Society: Innovation, Organisation, Sustainability and Crises, Aalborg, June 21-24, 2010.

**Carla De Laurentis: Centre for Advanced Studies, Cardiff University**

**Renewable Energy Innovation and Governance in Wales: A Regional Innovation System Approach**

This paper draws from some research commissioned to investigate the regional innovation system of Wales in relation to green innovation focusing on the renewable energy sub-sectors of wind, solar and biomass. It shows how many innovative firms operate within regional networks, cooperating and interacting not only with other firms such as suppliers, customers and competitors, but also with research and technology resource organisations, innovation support agencies, venture capital funds, and local and regional government bodies. The paper argues that within the region there is the presence of various renewable energy production platforms, usually based on core technologies (wind, solar, biomass, marine etc.) at different levels of development. They involve a mix of established energy utilities and new sustainable energy businesses that are positioned at different levels within the renewable energy supply chain. The research shows that the regional government is playing an important role in supporting the renewable energy industry; nevertheless more needs to be done to facilitate planning control, provide skills and create new demands for renewable energy that will further foster business growth, and further strengthen the existing manufacturing base and innovation in Wales. The paper identifies some weaknesses in the Welsh innovation system and it argues that there is some scope for the Assembly Government to further investigate gaps within the green innovation supply chain and act on strengthening the regional capabilities within the industry but also to support and investigate further opportunities for inward investments.

**Dr Fangzhu ZHANG: School of City and Regional Planning, Cardiff University**

**Eco-cities in China: Dream or Reality?**

During the past three decades, China's fast economic growth and rapid urbanisation have resulted in unsustainable development in economic, social and environmental respects. Today, with increasing energy demand, climate change, labour cost and global financial crises, China's government has committed to develop a sustainable and low-carbon economy as a top policy priority. A "Green GDP" with balanced economic growth and environmental quality has been targeted as a new economy measure from central government to cities and regions in China. Eco-innovation is considered as a key tool to increase national competitiveness while improving the quality of the global environment. This study will review current policies and progress on eco-innovation developments in China, such as electric car and bio-fuel technologies. Development prospects and challenges are discussed with a view to achieving better understanding of the roles of state and market on eco-innovation development.

Eco-innovation technologies have been widely applied in eco-city planning. Eco-city plans are booming in China now. Some cases of eco-cities practices including success and failure will be examined in this study to explore the challenges and discourse of China's sustainable development. Chinese cities were used as the instrument for fostering economic growth during its rapid urbanization. Post-reform urban transition has created intense inter-city competition, which requires localities to act entrepreneurially to focus on economic growth through place promotion or city re-branding. It remains unclear whether 'eco-city' is an innovative label or an instrument for local government to pursue its urban development strategy? Will eco-cities in China, like Dongtan, remain only a dream as the future city of China? Eco-innovations are essential to meet carbon-neutral aspirations of eco-cities; however, most of these technologies are not currently commercially affordable. This limits the feasibility to turn eco-cities from the dream into the reality in some cases. Will China's recent leapfrog in eco-innovation technologies turn China's sustainable development into a substantial reality?

**Professor Terry Marsden: PLACES Research Institute, Cardiff University**

**'Sustainable place-making?': Assessing the bio-economy and eco-economy in agri food and regional spatial development and policy'**

Sustainable place-making can potentially emerge out of the convergence of different types of economic, community and ecological relations. Currently we are witnessing different types and shades of ecological modernisation which are now more centrally driving the re-structuring and spatial expression of corporate competition and business strategies, as well as the actions of government bodies and civic society. In particular, and in the context of agri-food and rural-urban relationships, empirical research indicates that there are two competing ecologically modernising paradigms: the bio-economy and the eco-economy models. We can see different spatial expressions and responses to these differing paradigms by examining regional changes in Europe and beyond. How they will play themselves out, and how government policies will shape these outcomes and contestations is a major question for further research. The paper reviews the varied literatures which have begun to trace these paradigms and their different processes of innovation and spatial development. In conclusion, it posits various spatial scenarios, some of which might lead to more effective sustainable 'place-making'.

**Professor Phil Cooke: Centre for Advanced Studies, Cardiff University**

**'Eco-innovation: a complexity perspective'**

Recent insights from complexity theory help our understanding of how innovation, including eco-innovation, occurs. It is basically an evolutionary process, hence, predictability and engineering metaphors are less helpful than supposed. What is seen as vital today is existing industry, its history, or path dependence, and subsequent 'path inter-dependence'. Here 'meaningful deviations' can occur among industries, which exploit their 'relatedness' usually in some degree of 'proximity'.

Thus most innovations have an unexpected element. 'Novelty comes from variety' is the key message. This presentation will show how two processes; 'pre-adaptation' and the 'adjacent possible' largely explain eco-innovation. However, once an innovation is commercialised it can be copied. Examples of the competitive eco-innovation struggle between European and Chinese firms will underline the need for greater eco-innovation effort by the former both to access short-term market advantage in the latter and keep ahead in the eco-innovation 'game'.

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