



**ENERGY AND CLIMATE EXCHANGE**  
**Taxation, innovation and the environment**  
**With Michael Ash, OECD**  
Bruegel, 11 June 2010

As part of the 'Energy and Climate Exchange Series', Michael Ash from OECD presented his work on taxation, innovation and the environment in Bruegel.

He started by reminding the audience about the importance of innovation in environmental policy and summarised the results of the first case studies the OECD has been working on in this area. He surprised the audience when he said that taxes and tradable permits would be used as substitutes in his presentation because of their similarities.

According to the main results of the case studies done by the OECD, in Sweden, the NO<sub>x</sub> tax led to an increase in patents, though this has been limited. Ash explained this by saying that innovation was small scale and achieved mainly by improving processes and strategy, which are not patentable. Emission intensities declined, as well as Marginal Abatement Cost curves. In Switzerland, the innovation effect of a tax on Volatile Organic Compounds was not observed in traditional measures of innovation, probably due to the small size of the market and operators concerned. In the United Kingdom, evidence from the UK Climate Change Levy shows that higher rates of taxation induce greater innovation. In addition to its level, the role of the design of the tax has also been underlined. Stringency is not only important for developing new innovations, but also to increase the rate of adoption. The case of Japan shows that predictability is also an important factor in inducing innovation. Indeed, even when the tax rate increased, the fact that it was unpredictable led to a decrease in related patenting activity.

Some people in the audience were sceptical that taxes and tradable permits were treated as equivalents in the presentation. In particular, the negative role of volatility of the carbon price on the European Emissions Trading Scheme (ETS) in creating incentives to innovate has been mentioned. Ash replied that firms should be able to hedge on the EU ETS, and that there was also political uncertainty in a tax system. The efficiency of a tax has been questioned in the case where firms are able to pass costs to the customer, like electricity firms covered by the EU ETS have done. Answering a question from the audience, Ash said it was very difficult to analyse long-term effects of taxes, for example those concerning new breakthrough clean innovations. The fact that innovations can be imported calls for a subsidy policy to encourage domestic innovative activity. Finally, an interesting research focus could be looking into the interaction between actors in the chain from innovation to diffusion and adoption, he said.