

BIEE 9th Academic Conference September 2012 Report on Plenary Sessions

The British Institute for Energy Economics held its biennial academic conference – its ninth – in Oxford on September 19-20, 2012. A total of 150 delegates attended three plenary and ten parallel sessions, together with the Research Roadshow in which PhD students gave poster-based presentations on their work.

Steve Riley (CEO and President, UK-Europe, International Power GdF-Suez) gave the keynote address. He pointed out that his company had to allocate investment funds between projects in a number of countries, taking account of the risks they face. He saw the British market as moving from a lower risk merchant market to a higher-risk contracted structure, given the uncertainties over Electricity Market Reform. He described the attractive long term contracts available in some emerging economies and asked what Europe could do to make investment there attractive.

In the first plenary session, **The Long Term Future to 2050**, Jeremy Bentham, (Vice President, Global Business Environment, Shell), described how Shell had used scenarios for 40 years to think about the future. The 2008 scenarios 'Blueprints' and 'Scramble' differed in how much international policy harmonisation and technology deployment there was. Looking from 2012, the world is currently on course to underperform 'Blueprints', itself inadequate to meet a CO₂ target of 450 ppm and a 2°C temperature rise.

Steven Fries, (Chief Economist DECC), discussed the UK Carbon Plan, which builds on the 25% reduction in CO₂ emissions since 1990 and sets out key measures that are needed to meet the Carbon Budgets that have been set for the UK economy. Priorities for the decade ahead are to complete cost-effective energy efficiency measures and prepare the next generation of technologies. The 2020's should see the mass deployment of low carbon power generation and the 2030's would be for finalising this task, and for decarbonising heating and transport. There were huge uncertainties about the future cost and acceptability of energy technologies. Even so, MARKAL modelling suggested that a low carbon future could cost slightly less than carrying on with business as usual, with major gains in energy efficiency offsetting the higher costs of low carbon energy.

Peter Dodd (Director of Stakeholder Relations, Energy Technologies Institute) warned that Europe faced a competitiveness challenge if it decarbonised with high-cost technology and other regions did not. The UK needed to generate its own energy innovations: other countries may have different needs from us. Innovation, regulation and investment would interact, since regulators face a tension between getting value for money and reducing risk. The energy industries need to attract funds from outside sources: governments are constrained, investment banks and venture capitalists seek

high returns, and so the solution may be to make energy investments attractive to low-risk investors such as pension funds.

The second plenary session looked at “**International Pressures on Europe’s Energy Supplies**”. Prof. Jonathan Stern (, Chairman, Natural Gas Programme, Oxford Institute for Energy Studies) thought that there was too much ideology in the debate over the security of Europe’s gas supplies and the role of new pipelines from the east. Events in the Middle East and North Africa could have significant impacts – all of Libya’s production was lost to Italy for much of 2011 which created little concern or comment -, and while the many Liquefied Natural Gas terminals being built or proposed would allow more flexibility, they could also involve higher prices. He thought that pipelines in the Southern Corridor to Europe, with its 30-year history of failed projects, and shale gas (just 3% of gas production outside North America came from unconventional sources) were largely distractions from the main issues.

Angus Miller (Caspian Energy Advisor, Foreign and Commonwealth Office) saw that the energy debate had changed dramatically since 2006, when securing access to supplies was one of the biggest issues amid fears of peak oil and peak gas. For Europe, carbon dependency is a major concern, and the solution is likely to involve adapting technology to meet our needs. Unfortunately, there is a growing lack of confidence over which pathway Europe will take, investors are reluctant to commit funds, and the role of the state is unclear – is it the legislator, the facilitator or the investor? Resources are not scarce – the continent is surrounded by competing energy suppliers – but European governments need to adopt the right policies to access them.

Christof Rühl (Chief Economist, BP plc) analysed the way that markets responded to the big supply disruptions of 2011. The Arab Spring reduced oil and gas supplies just as the Fukushima disaster led Japan to switch from nuclear to gas-fired power, but other producers increased their output, and countries receiving a different mix of crudes had enough spare capacity at refineries to cope. The recession in Europe and coal imported from the US (freed for export by shale gas being used in power generation) reduced its demand for gas, allowing Japanese imports to rise. Gas prices, however, varied widely between regions, despite the rising proportion of LNG (now 32% of international gas trades). Oil prices have been high, with supply interruptions and demand growing outside the OECD, but production is now above the level of consumption; fears about Iran are keeping prices up. Looking to the future, unconventional oil and gas production techniques could spread from the competitive North American market to areas with even greater resources (Venezuelan oil sands and Chinese shale gas). Vulnerability to higher energy prices depends on the balance between energy imports and exports to energy exporters, since the latter are likely to buy more if their revenues increase. Europe is roughly in balance on this measure, while the Middle East and Africa (considered as regions) are next exporters to Asia. North America has been a net importer and will soon be in balance: will the United States retain a strategic interest in Middle Eastern oil if its dependence on imports falls?

The final plenary session was about “**Paying for Investment**”. Mathew Rose (Group Head of Strategic Partnering, National Grid) discussed the challenges facing a low-risk regulated business that needed to invest £35 billion over the years to 2021, more than

its market capitalisation of £25 billion. National Grid actually had a portfolio of network businesses, for some generated cash, others needed it, and there were also unregulated activities with the prospect of higher yields (and risks). National Grid invested through its balance sheet; the company had been able to raise bond funds from retail investors but was also interested in strategic partnerships with bodies such as sovereign wealth, pension or infrastructure funds subject to finding a fit between their aspirations.

Michael Liebreich (Chief Executive, Bloomberg New Energy Finance) spoke of the €2 trillion of investment in energy that Europe would need in the years to 2030. World-wide, there had been €1 trillion of investment in clean energy over the last few years – Europe had led the way but investment had then declined, with the US and Asia following, and the latter still growing. The NEX index of clean energy stocks had quadrupled in the five years to 2008, but has since fallen back to the starting level. It was important to recognise that industries did consolidate, and levels of government support should not be so generous that all solar firms (for example) could survive. Technology costs were falling from learning-by-doing, but the fundamental re-engineering of world energy would cost trillions of dollars and take decades – it would be supported by governments but funded by capital markets. In that context, the UK had too many policies, which it changed too often.

Kirsty Hamilton (Low Carbon Finance Group) had been working with the financiers who actually got projects moving. The balance of risk and reward was critical, and government policy was central to this, given that capital did not have to be invested in the UK. Policy needed to be “long, loud and legal”, or, quoting Deutsche Bank, it should have “transparency, longevity and certainty”. Clear objectives helped – the Renewables Obligation had originally focused on the least-cost deployment of renewable energy, but banding had been introduced to ensure that not all the investment was in onshore wind. Newspaper stories about arguments within government over the level of support to be given to different technologies than led investors to query its commitment to renewable energy. It was important to realise that finance practitioners assess the cost of capital in different ways from theoretical economic models, and an important question for energy economists was “how do economics and finance interact”?

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