

12.54 p.m.

Lord Hunt of Chesterton: My Lords, I congratulate the noble Baroness, Lady Young of Hornsey, on her maiden speech. Professor Young was head of culture at the GLA from 2002 to earlier this year. She was responsible for the development of the Mayor's draft culture strategy and the delivery of an events programme for London.

The noble Baroness's tremendous career shows how talented she is in so many fields. She began as an actor and a social worker—acting is quite an important part of being in this House. She became an academic at

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Middlesex University and wrote a book on film, entitled, *Fear of the Dark: Race, Gender and Sexuality in the Cinema*. I hope that the House of Lords Library will branch out more to include some of her books in the future.

The noble Baroness rapidly rose to become a professor at Middlesex University. Her previous public appointments and responsibilities have included membership of the boards of the Royal National Theatre and she is Chair of the Arts Council's cultural diversity panel and the British Council's arts advisory committee. She was awarded an OBE in 2001. We greatly look forward to her contributions to all the work of this House.

Before making my own comments, I extend a welcome to the noble Lord, Lord Broers, who will make his maiden speech after me. He will find that many others here share the great experience of having been educated at Trinity College, Cambridge.

The Queen's Speech highlights the need to improve international security; enhance economic growth; limit nuclear proliferation; and deal with climate change. Those issues of course last for many electoral cycles, and it is good news that there is cross-party agreement on the essential priorities.

I shall highlight the way in which the Government's energy policy and executive actions are contributing to achieving these goals, but I have some suggestions as to how energy policies might be developed and explained in order to achieve those wider and interconnected goals.

In opening the debate on the gracious Speech yesterday, the noble Lord, Lord Bach, emphasised the connections between international action on energy policy and dealing with climate change, while the noble Lord, Lord Howell, rightly pointed out the connection between energy policy and security.

Experts from Princeton University and BP have shown that it is necessary to use all measures and technical solutions to ensure that the world has the energy supplies that it needs for its economic growth and reduces the growth of emissions of carbon dioxide. The Royal Commission on Environmental Pollution has recommended that the rise of carbon dioxide in the atmosphere should be limited to a level that is about twice the level before the Industrial Revolution. The present level is already about one third of the way towards that level, and there is no sign of it slowing down. The German Government have suggested an even lower level as an objective.

The Government and the major energy companies are quite rightly developing renewable sources of energy and more efficient means of using existing energy systems. The recent report of the House of Lords Science and Technology Committee and a report of the European Union Select Committee noted progress, but they recommended that the Government introduce more flexible arrangements in the electrical grid to enable localised power networks to be developed, as Woking has so brilliantly demonstrated, with London planning to emulate it. Does the Minister have any progress to report?

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The Government are to be given two cheers, as EM Forster once said, for at last instituting an energy institute, but the Government are, I understand, still spending less than Belgium on energy research. The new centre at Imperial College in London University will be primarily a policy institute. Where is "the B&Q element" of energy plans to demonstrate to people all the developments and the choices that they could make now about their energy consumption and energy systems?

The noble Lord, Lord McIntosh, will reply to this debate. He is responsible also for the Department for Culture, Media and Sport. Why does he not use the excellent museums of science and technology around the country, some of which are in a parlous financial position, to act as great centres for demonstrating all the possible energy developments? The Netherlands has such an institute at Petten, where the developments of energy technologies are studied and on view. Surely the UK should be able to afford something similar.

Nuclear energy also should be a significant component of the UK's energy mix. At present, it is in the form of fission reactors. It is likely that this source of energy will decline unless decisions are taken to renew and extend the current power stations. However, the Government must first ensure the UK's technical and industrial capabilities are not allowed to disappear, which is a real danger. Currently, the energy, environmental and security issues of nuclear energy are considered quite separately. Building fission reactors is opposed by environmentalists and the general public, largely because of fear about waste products, which may remain radioactive for thousands of years.

There is an alternative form of nuclear energy—namely, nuclear fusion, which was described by the *Daily Mirror* in the 1950s, when it was first proposed, as "taming the hydrogen bomb". The source of energy in that case would be hydrogen. That led to a famous Giles cartoon in the *Daily Express*; he thought that the sea would be so effective in producing hydrogen that we would run out of sea. There was a marvellous cartoon of a vanishing sea and a huge beach—saying that this was the Government's energy policy in the 1950s. To bring us up to date with the popular view of energy, in 2004, *Figaro* described fusion energy rather more poetically as "l'énergie des étoiles", or the energy of the stars—because it is the source of the sun's energy that keeps us warm.

Great progress has been made since the 1950s in fusion science and technology. I declare an interest, having worked in that area. Very high temperatures at millions of degrees of gas or hydrogen conducts electricity so that it can be confined by intense magnetic fields within a large doughnut-shaped or tokamak tube. That confinement has been demonstrated, and the predicted nuclear reactions in the plasma have occurred, though for only a few seconds. The next stage will be a massive international project—ITER—which the Government are

pressing, and the Government's chief scientist hopes that it might be agreed fairly shortly. That should increase the confinement time and is also likely to

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increase the size. If that is achieved, the intense radiation in the tube could be used to heat water in the walls of the tube, and make steam and electricity.

Strong doubts have been expressed publicly by scientists, even in countries likely to have the instrument—namely, France—and elsewhere, about whether materials can possibly exist that will be able to confine such a system. Because of those doubts, some very large countries are not participating in the ITER. However, there is a very interesting alternative—to combine fusion and fission. That idea has been promoted by Mr Paul Rebut, who was the first head of the European project in the UK, at the Joint European Taurus. I was present at a remarkable meeting with the leading United States, Russian, and United Nations experts at the Eisenhower Institute in Washington in October. It was opened by Susan Eisenhower, the grand-daughter of Dwight Eisenhower, who showed a breadth characteristic of her grandfather.

The concept is to use fissile material in the walls of a fusion reactor. That reduces its size and the materials problems and utilises the intense radiation from the fusion plasma to transform the fissile material, which would lead to waste products with a half-life of only 100 years rather than the thousands of years associated with the current fission system. In turn, reduced dangers of proliferation of nuclear waste and weapons materials would result. In fact, it would provide a method of utilising those materials—all the nuclear waste and old weapons—for everyone's benefit.

United States colleagues have argued that there must be a substantial international effort in that direction of at least 100 million dollars a year to push forward those technologies, which would help to solve energy, security and environmental problems. In fact, if we developed nuclear energy in those ways, it would reduce the UK's overwhelming and risky dependence on overseas gas—the point referred to by the noble Lord, Lord Howell, yesterday. Hopefully, those imaginative concepts will attract the environmental, non-governmental organisations, which are currently so hostile, to recognising that appropriate nuclear energy should be an objective.

I conclude with a couple of specific points in support of the Government's policies for trade and industry. I applaud the remarks of my colleague and my noble friend Lord Battacharyya; we were also colleagues at Warwick University over the years. Based on my experience with a small company, the liberalisation of business and technology in the EU is developing apace. I would not have believed it possible a few years ago that governmental agencies in continental countries would be purchasing technology developed in the UK in many different ways. I believe that the UK pressure in Brussels is working. The Opposition have emphasised the difficulties of small companies; my experience is that many government policies have been very helpful to small, hi-tech companies, especially ones with a high proportion of women, like the one that I have helped to set up in Cambridge.

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Finally, I commend the proposed legislation to deal with violence against those working on animals in scientific procedures. Our House of Lords committee urged that, but I wonder whether our recommendations should not be adopted in the strength that was suggested. In the United States, perpetrators of violence are prohibited from, in the inimitable phrase, "crossing the county line". That seems a more appropriate response to the fear that those people have caused than the rather weak suggestion envisaged in UK legislation of banning their presence within a few hundred yards. I hope that your Lordships' House will take a very strong stance when those issues come before us.

1.5 p.m.