

Enabling New Nuclear Build Conference 2007. Panel Debate:

*Bringing Predictability into the Planning Process: Defining the Priorities*

Tuesday 30th October 2007, 11:15 am - 12.15 am, Hotel Russell, London, UK

Chair	Mike Parker	Chief Executive, BNFL
Panel members	Ian Jackson	Nuclear Consultant
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### **Speech on New Nuclear Build in the UK**

Firstly, please may I thank Roz Curzon-Lewis at London Business Conferences for inviting me to speak at *Enabling New Nuclear Build 2007* this morning.

Last year, we helped the DTI Energy Review team to develop some initial advice to Ministers on the siting of new nuclear power stations. The *Jackson Report* as it later became known, was influential on the government's early nuclear thinking and was subsequently published alongside the Energy White Paper in May 2007. I am proud of the contribution we made to the nuclear debate. But today, I would like to focus instead, on looking forward, toward the next priority issues that we must solve in order to deliver new nuclear power station build for Britain.

In 1982 Mrs Margaret Thatcher's conservative government fundamentally changed the way energy is supplied in the UK. Instead of government taking responsibility for supplying electricity and gas, Energy Minister Nigel Lawson began liberalising - and eventually privatising - energy supply in Britain. Today we have a competitive energy market with a choice of energy supplier for most people. In many ways this has been a great success, helping to reduce energy prices and bringing new European and American players - injecting fresh thinking - into the British market. This foreign investment is a good thing for the UK.

Our electricity supply is dominated by gas turbine and coal fired generation. But despite their economic dominance, these fossil fuels have a serious down-side - when burnt, they produce carbon dioxide thought to be the main cause of global warming. The Sustainable Development Commission believes that the government must act radically to completely decarbonise the electricity system by 2050.

And this raises a fundamental question about Mrs Thatcher's energy markets. Markets always deliver the best economic outcome - the ebay effect - where the best price wins. But they can't always deliver what is in the best national interests of a country. Only governments can do that. If left on their own, Britain's energy markets won't shift toward low carbon supplies. Fortunately markets do respond to government signals and incentives. Incentives are simply a means of urging people to do more of a good thing and less of a bad thing.

Governments can rebalance the energy markets by setting carbon incentives for both nuclear energy and renewable energy production. If the incentives are fixed over a long enough time period - bringing stability and certainty to the energy markets - then this should give investors enough confidence to invest in nuclear power.

But some key strategic and practical questions remain.

Firstly, respecting the regulatory and the planning timelines. Regulation is simply the political expression of difficulties with public acceptance. The industry must actively work with the regulators and planners, but recognise that urgent business timeframes are not the same as administrator's regulatory timescales - the Greenpeace Judicial Review shows what can happen when we forget basic democratic fundamentals.

The easing of regulatory and planning barriers is probably useful, but this has never really been the crucial issue - Sizewell B is living proof that the regulatory system works, albeit slowly sometimes. And inevitably more legal action is very likely to follow in 2008 - not just from anti-nuclear Greens, but perhaps from some other mainstream organisations too.

Although it is tempting to think of regulatory assessments and planning inquiries as the major barriers to new nuclear build, this is not really true - we know that reactor designs are basically safe and soon we will probably have a government energy policy supporting nuclear. In reality there are no fundamental red lines for regulators and planners, other than making sure we properly respect the legal due process.

Instead, probably the number one stumbling block for new nuclear build in the UK is the absence of a deep waste repository for spent fuel and decommissioning waste. I predict that this will be the next legal flashpoint between the greens, regulators and government. We need a repository and we need to begin implementing it soon.

Secondly, a business reality check is needed. If we are serious about new nuclear build then we must focus on the most economically promising sites. The crucial difference between nuclear power plant siting today compared with the past is that the private sector, not the government, will be constructing and paying for them.

Nuclear siting today is fundamentally an economically-driven competitive process decided by investors, liberalised energy markets and energy distribution networks rather than governments. We need to recognise that the future of nuclear is about supply networks, and like any network situation, it is always better to be nearer the centre than at the far edges.

Freed from political interference, the economics of nuclear siting immediately become more familiar and rest on a few key factors; Close proximity to energy markets where there is a sizeable and preferably rising demand for electricity over the 60 year operating lifetime of a modern reactor; Good connectivity to the national electricity grid, enabling energy to be distributed efficiently and cost-effectively to customers with the minimum of transmission losses or market penalties; Plentiful supplies of cooling water - usually at a coastal location - but now with the added dimension of future tax advantages for waste heat recovery and district heating, particularly for urban siting locations. And finally, a good site would probably need to have access to a trained and experienced technological labour force - though not necessarily nuclear skilled - with some measure of support in the local community.

Thirdly, there is the question of financial engineering. Energy is a commodity, and like all commodities prices tend to be volatile, and hard to forecast. Yet modern nuclear power reactors are complex machines with a lifecycle spanning a human lifetime - 10 years to license and build a reactor, 60 years to operate it profitably and 30 years to decommission it. But it is impossible to predict how inflation and interest rates will really behave over the next 100 years. For example, there have been dramatic changes in post-war inflation, compared with pre-war. During the 100 years before the Second World War, consumer prices stayed at roughly the same level. Over the past 62 years, since the end of the Second World War, and the birth of atomic power, prices have increased more than 40 fold. Compared with the past - and viewed in terms of 100 year reactor lifecycles - we now live in an age of rising prices and significant economic uncertainty that was unknown to our great grand parents.

Fourthly, there is the issue of re-wiring Britain. The existing 1960s vintage national grid has been designed around centralised electricity generation from a few large power stations. But in tomorrow's world, smaller will be beautiful. The trend is toward decentralisation and localised embedded generation within the energy network - the *connect-then-manage* approach recommended by the Sustainable Development Commission.

If we are to continue using the national grid with greater penetration of smaller distributed energy generators and embedded generation, then energy storage technologies will probably need to be developed to help balance the network and smooth-out intermittent peaks and troughs. Large capacity energy storage technology is needed as a key enabler to help the grid evolve. There also remains the much bigger question of whether we will need a national grid in the far future. In its present centralised form, the grid is vulnerable to supply disruption from fluctuations in electricity generation and also from terrorist attack - in security language the grid forms part of what is known as the Critical National Infrastructure. Decentralising electricity supply using local electricity generation could be an answer to both network security and embedded supply issues. Perhaps every town could eventually have its own small-scale Pebble Bed Modular Reactor.

In reality there is probably some truth in all of these visions of the future, depending on how politics, technology innovation, market economics and the evolution of energy distribution networks actually play out over the next few years. I hope that you find this morning's panel discussion thought provoking and enjoyable. Thank you.

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