

The UK nuclear energy policy

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Outline

- Government policy
- Reactor technology
- Potential operators
- Measures to support nuclear power

Government Policy (1)



- White paper 2003: Although nuclear power produces no carbon dioxide, its current economics make new nuclear build an unattractive option and there are important issues of nuclear waste to be resolved. Against this background, we conclude it is right to concentrate our efforts on energy efficiency and renewables. We do not, therefore, propose to support new nuclear build now. But we will keep the option open.
- May 2006 (BBC): The prime minister told the CBI annual dinner that the issue [nuclear power] was "back on the agenda with a vengeance".

Government policy (2)



- Wicks (Energy Minister, Oct 2006): ‘It is not for government to say that we shall have X nuclear reactors and so on. Government will not be building nuclear reactors, will not say they want X number of nuclear reactors.’ [‘Is that the Government’s position? No direct subsidies and no indirect subsidies. Am I clear on that?’]: ‘No cheques will be written, there will be no sweetheart deals.’
- White paper 07: ‘the Government’s preliminary view is that it is in the public interest to give the private sector the option of investing in new nuclear power stations.. if the Government confirms this preliminary view, it would be for the private sector to fund, develop, and build new nuclear power stations in the UK, including meeting the full costs of decommissioning and their full share of waste management costs.’

Government policy (3)



- Miliband, Energy Minister (Feb 2010): ‘We are going to need a more interventionist energy policy to deliver the low-carbon investment we need.’ We need: ‘capacity payments to guarantee returns to developers of low-carbon sources of power [nuclear & renewables]’
- Coalition agreement (May 2010): ‘We will implement a process allowing the Liberal Democrats to maintain their opposition to nuclear power while permitting the Government to bring forward the National Planning Statement for ratification by Parliament so that new nuclear construction becomes possible.’

Government policy (4)



- Huhne Lib Dem Energy Minister Oct 2010: ‘I should like to take the opportunity to reconfirm the Government’s policy that there will be no public subsidy for new nuclear power. To be clear, this means that there will be no levy, direct payment or market support for electricity supplied or capacity provided by a private sector new nuclear operator, unless similar support is also made available more widely to other types of generation. New nuclear power will, for example, benefit from any general measures that are in place or may be introduced as part of wider reform of the electricity market to encourage investment in low-carbon generation. I would also like to make it clear that we are not ruling out action by the Government to take on financial risks or liabilities for which it is appropriately compensated or for which there are corresponding benefits.’

Government policy (5)



- Huhne, July 2011: To achieve our goals, we need to take decisive action now to increase low-carbon electricity generation – including nuclear, renewable energy, and carbon capture and storage. We will have to pay to secure reliable, clean electricity for the future. The current electricity market is simply not up to the job. It cannot deliver investment at the scale and the pace we need. Mr Speaker, that is why I am putting before the House today a series of measures to reform the electricity market. Diversifying our generation mix, and boosting investment in secure, sustainable and home-grown low-carbon technologies.
- Davey (Energy Minister April 2012): ‘The purpose of the Contracts for Differences is to provide that greater price certainty in the period of transition towards a low carbon energy future, when investment requirements are so high. There will be no public subsidy of nuclear generation.
- Davey, May 2012: ‘Leaving the electricity market as it is would not be in the national interest. If we don’t secure investment in our energy infrastructure, we could see the lights going out, consumers hit by spiralling energy prices and dangerous climate change.’

Reactor technology (1)

- Government policy to give builders a choice in technology with all significant design issues resolved
- Generic Design Approval process launched in 2007, expected completion July 2011
- Four designs considered: Areva EPR, Westinghouse AP1000, AECL ACR1000, GE ESBWR. ACR1000 and ESBWR soon withdrawn
- By 2010, clear Design Acceptance Certificate not possible by July 2011. Interim Design Acceptance Certificate (IDAC) to be issued and remaining issues to be dealt with later

Reactor technology (2)

- Fukushima caused further delay till Dec 2011. IDAC issued for EPR and AP1000
- Westinghouse is not attempting to resolve outstanding issues till it has a customer so all work on AP1000 stopped
- EPR work expected to take a further year

Reactor technology (3)

- ONR August: ‘We are pleased to report that we are continuing to make progress on the assessment and that a further two GDA Issues have been closed. We are also pleased that EDF and AREVA have responded to our call to strengthen their resources and improve the quality and timeliness of their submissions to us... we might be able to close all of the remaining GDA Issues by the end of the year.’
- Big problem Instrumentation and Control: 6 issues remain to be resolved. Traffic light system to show status. Four issues on red – ‘Delays cannot be recovered and will impact on the target closure date for GDA Issues.’ Two issues on amber – ‘An early warning signalling that significant, prompt action is required to avoid delays to the target closure date of the GDA Issues.’

Potential operators (1)

- Government policy to have competing companies operating nuclear power plants. Three consortia formed:
- EDF (80%) + Centrica (20%)
- Horizon Energy – RWE (50%) and E.ON (50%)
- NuGen – Iberdrola (37.5%), GDF Suez (37.5%), S&SE (25%)
- EDF acquired sites by buying British Energy. NDA auctioned sites to other developers

Potential operators (2)

- EDF. Centrica not expected to continue. Reports of attempts to get investment from China. Expecting to build 2 reactors at each of Hinkley Point and Sizewell
- Horizon. Acquired Wylfa and Oldbury but in March 2012 announced trying to sell the company. No buyers. No technology chosen. Little progress
- NuGen. Acquired site at Sellafield. Sept 2011, Scottish & Southern announced withdrawal. No technology chosen. Little progress

Electricity Market Reforms

- Draft Energy Bill (May 2012) designed to encourage a balanced portfolio of renewables, new nuclear and Carbon Capture and Storage (CCS). Bill seen as a ‘shell’, ie few practical details. Four forms of support included:
 1. A new system of low-carbon generation revenue support – a feed-in tariff (FiT) with Contracts for Difference (CfDs).
 2. A Carbon Price Floor
 3. Emissions Performance Standard (EPS) that will prevent construction of new coal plants which emit more than 450g/kWh
 4. A Capacity Market to reduce the likelihood of future blackouts by ensuring there is sufficient reliable capacity to meet demand

Carbon Price Floor and CfDs

- ‘Announced by the Chancellor in the 2011 Budget and was introduced in the Finance Bill. This provides a clear economic signal to move away from high carbon technologies by increasing the price paid for emitting carbon dioxide. It places an initial value on the price of carbon of around £16/tCO₂ (2009 prices) in 2013, which will rise to £30/tCO₂ (2009 prices) by 2020.’
- £30/tCO₂ was carbon price that would make nuclear economic according to 2008 Nuclear White Paper
- CfDs and FiTs set price for sales and ensure all output is bought. Duration of contracts not decided but at least 15 years

What does EDF need?

- EDF has limited capital due to high debts, need for investment in France and need to protect its credit rating
- Two risks: Market risk – price paid falls below costs - and project risk – cost are higher than expected
- CfD with ‘strike price’ indexed to inflation deals with market risk – gives revenue certainty - but not project risk
- Most reporting focused on initial strike price, no discussion of indexation and cost pass-through
- Uranium price pass-through justifiable but not construction cost overruns

Negotiations (1)

- If companies do not like the terms, they walk away, can government swallow its pride?
- EDF now discussing life-extending AGRs from 40 to 50 years life.
- Would the European Commission judge CfDs to be ‘unfair state aid’?
- Will the UK Treasury allow contracts guaranteed by public money?

Negotiations (2)

- Four (five if Centrica withdraws) of UK ‘big 6 electricity companies’ do not want to build nuclear so nuclear subsidies unpopular with them
- Government says agreement on CfDs by end of the year.
- Only one developer so no possibility of auction
- July 2012, reports (denied) EDF asking for £165/MWh (€200).
August 2012, EDF says will not ask more than £140/MWh (€170)
- Government hints that Russia or China will invest

Conclusions – factors in favour of nuclear



- Government put itself in a weak position in 2006. It said it would not give subsidies and companies said they would not need them
- 6 years before construction could start. Companies invested a small amount – €200m – but governments invested large amount of credibility and effort

Conclusions – factors against nuclear



- Demand not growing and if AGRs life-extendable, no need to replace existing plants till after 2026
- Doubts about EPR technology economics and licensability
- Potential opposition from Treasury, European Commission, other electricity companies
- Competing demands for EDF investment capital