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Lessons from the United States: for legal change and delay in energy law in the United Kingdom

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*I.E.L.R. 69 Introduction

The development of law in the energy sector in the United States provides interesting lessons for the United Kingdom. This is particularly the case in relation to the electricity sector and nuclear energy. In the United Kingdom, legislation for the electricity sector is currently undergoing a transformation, and new law is expected in 2012 or 2013 after the publication of the recent *White Paper on Planning our electric future.* [1] The reason for this according to the latter White Paper is that within the next decade a quarter (around 20GW) of existing generation capacity will be lost and therefore needs to be replaced to avoid any potential "costly blackouts".[2] This requires a suggested a £110 billion investment by 2020 which is more than double the current rate of investment.[3]

The United States introduced its major energy legislation in 2005 entitled the Energy Policy Act of 2005. However, in relation to nuclear energy, the incentives introduced will only begin to materialise in 2012, seven years after its introduction. If the same scenario were to apply to the United Kingdom, the much-anticipated investment needed in the electricity sector by the government will take considerably longer to materialise than is expected by all stakeholders in the energy sector. In the case of nuclear energy, the earliest project may not be ready to be connected to the grid until circa 2025 (as will be outlined later).

This paper examines change in legislation in the UK energy sector in relation to nuclear energy. Proposed changes to the law in the UK energy sector are viewed as benefitting nuclear energy in particular in relation the planning process. This is also the case in the United States. Legal change in the energy sector in the United States occurred in 2005. The US experience identifies certain lessons for the United Kingdom as it is on the verge of new energy legislation that will in particular affect future nuclear energy development.

Development in UK energy law and policy

Policy at a national level in the United Kingdom in the energy sector has been in a transitional phase (see Table 1 below). Consistency has not been at the forefront of policy development. The many White Papers have often been conflicting and government policy towards nuclear only emerged in

2008 with the *White Paper on Nuclear Power.* [4] Since privatisation emerged as government policy, the electricity sector has been subject to constant tweaks and revisions.

Table 1: Policy and legal development in the electricity sector5
White Papers and Legislation 2002-2012
2002 The Energy Review
2003 Energy White Paper: Our Energy Future--Creating a Low Carbon Economy
2006 The Energy Challenge: Energy Review Report 2006
2007 Energy White Paper on Energy 2007. Meeting the Energy Challenge
2007 Planning for a Sustainable Future White paper
2008 Meeting the Energy Challenge: A White Paper on Nuclear Power
2008 Energy Act chapter 32
2008 Climate Change Act chapter 27
2008 Planning Act chapter 29
2011 Planning our electric future: a White paper for secure, affordable and low-carbon electricity

Whether the policy of privatisation has been a success is debateable. However, what is clear is that strategies for investing in the future of the electricity market seem to have been neglected. This is one of the reasons why now Chris Huhne MP, Secretary of State for Energy and Climate Change stated in his forward in the 2011 White Paper *Planning our electric future* that:

 "Keeping the lights on will mean raising a record amount of investment. However, the current market arrangements will not deliver investment at the scale and the pace that we need".[5]

Indeed, in the same note there is a reference to, or even slight acknowledgement of the failure of privatisation as a policy in terms of the future development of the electricity sector:

"Since the market was privatised in the 1980s the system has worked: delivering secure and affordable electricity for the UK. But it cannot meet the challenges of the future".[6]

Legal change--The UK planning process

Nuclear energy in the United Kingdom has a history of long planning processes for nuclear new build. Indeed, the Sizewell B inquiry spanned six years, from 1981-1987 (it was the last nuclear power plant built in the United Kingdom). The Planning Act 2008 (hereafter referred to as "the Act"),

however, has sought to rectify the problem of long planning processes.[7] Quite what was the driver for the creation of the Act is unclear. It is evident however that it applies to all Nationally Significant Infrastructure Projects (NSIP) which are defined under 16 different categories, and includes electricity generation as one of these (Pt 3 s.14).[8] However, there are limiting factors, and in order to be considered an NSIP, the new electricity generating unit must have--when constructed or extended--a capacity of 50MW if onshore and 100MW if offshore. The Act does not distinguish between different types of generators. The net result for a nuclear energy project is that it is inevitably defined as a NSIP as a new nuclear project will be over the 50MW threshold. Hence, the Act's objectives will all apply to new nuclear energy projects. To elude that nuclear energy was a key driver for the creation of the Act is not to consider three other major issues which were key drivers in themselves.

These three major issues are Heathrow Terminal 5, the *Nuclear White Paper* 2008, and the early form of the Act itself in the Planning Bill. Heathrow Terminal 5 was a £4.2 billion project that was finished in 2008, however, it had endured a lengthy (46 months or up to 7 years)[9] and very public planning process.[10] The *Nuclear White Paper* 2008 marked a major change in the then Government's energy policy. The white paper detailed the different aspects of the nuclear energy sector but its main conclusion was that:

“The Government believes new nuclear power stations should have a role to play in this country's future energy mix alongside other low-carbon sources; that it would be in the public interest to allow energy companies the option of investing in new nuclear power stations; and that the Government should take active steps to facilitate this”[11]

This strong focus on nuclear energy was further supplemented by the Planning Act 2008 which had at its core the Planning Bill 2007-08 (which in turn emanated from the Planning White Paper 2007 *Planning for a Sustainable Future*) and two papers which encouraged the change by Kate Barker (*Review of Land Use Planning,* 2006) and Rod Eddington (*Transport Study,* 2006).[12] All these three documents advocated for change to decrease the length of the planning process for reasons described as economic, and inhibiting the development of other policy goals (e.g. climate change).

The key provision of the 2008 Planning Act was the introduction of a new system for approving major infrastructure projects of national importance. The objective was to streamline these decisions and avoid long public inquiries (with an estimated saving of £300 million a year).[13] This new regime means decisions are taken by a new independent Infrastructure Planning Commission (IPC), whose members are unelected, and who base decisions on new national policy statements (NPS). The hearing and decision-making process are rigidly bound to a timetable. The Act even specifically states that the system will be used for energy developments such as large scale renewable projects, and for nuclear power.[14]

The literature on the issue of large infrastructure projects (or as named in the Act, NSIPs) and planning is sparse. However, this should be expected as the new system based around NPSs and the IPC is as of yet untested. Further, the new Coalition Government of 2010 had their own ambitions to reverse some of the legal changes of the Act; however, this has not yet happened (see the Conservative party's *Open Source Planning: Policy Green Paper No.14*).[15] The available literature in the area points towards three recurrent themes:

 (1) while the planning system needed to be reformed to reduce the length of the process this should not occur if the due process of law is not upheld[16] ;

(2) law in the area will have to be reviewed once other connecting policy goals are established[17] ;

(3) legislating for the unknown, proactive legislation.[18]

It is a limiting factor, however, that law in the area has yet to be finalised and is therefore subject to change. Nevertheless, the major expect ed change concerns the introduction of a Major Infrastructure Planning Unit (MIPU) which is to replace the IPC--as outlined in the aforementioned Conservative planning policy document). This new MIPU essentially replaces the IPC. However, rather than an independent body it will be established within the Planning Inspectorate, an agency of Communities and Local Government. Further, NPSs will be subject to an additional vote on by the House of Commons. It remains to be seen how significant these changes will be, though the major change is that rather than to have un-elected representatives as decision-makers in the IPC, it will be the civil service who make the decisions under the guidance of the elected representative who in turn is appointed as Secretary of State of that particular department. Currently, the IPC has not yet had to make any decision, but, it will carry out its duties until it is replaced by the MIPU. Notably, an application for a new nuclear power station at Hinkley Point C is at the pre-examination phase.[19]

An assessment of delay as a result of new energy law in the United States and United Kingdom

In the United Kingdom context, it is important to examine policy and legislation development in the United States. The United States has introduced legislation that arguably favoured nuclear energy in 2005. Yet seven years later, in 2012, they still await the first nuclear project to be given full permission to begin construction. It is expected that the decision will be given this year in 2012, however, a time period of six years is expected before the reactor is built and in operation, hence 2018 when the reactor comes online. That means after the introduction of the Energy Policy Act of 2005 it will have been 13 years before the first nuclear reactor comes into operation. This timeline is demonstrated in figure 1 below.

Evident in the timeline in figure 1 are the unknowns of policy action and test case delay. Test case delay refers to the delay associated with the first project to use the new technology and to test the new legal regime for approval, construction and eventual operation. Southern Nuclear anticipates a four year construction period for both reactors at Plant Vogtle--this article states because this is first of a kind technology and because of a new legal regime this will result in a two year delay. Hence, in total it will be 13 years before the new reactors come into operation post the Energy Policy Act of 2005.

 If the United Kingdom were to experience a delay of a similar nature and factoring into account that the 2011 White Paper *Planning our electric future* is not yet even law yet, then the next nuclear reactor (Hinkley Point C) is arguably 13 years away from operation. The UK expectation of its next nuclear reactor coming into operation would be in 2025 as shown in figure 2. This prompts the question: Are there lessons to be learned from the US experience to enable the United Kingdom to reduce this time period?

***I.E.L.R. 73* Lessons from the US regulatory regime**

Development and incentives of energy law in the United States

The centrepiece of nuclear legislation in the United States is the Atomic Energy Act of 1954 (42 USC 2011 et seq.)[20] which is a comprehensive Federal statute that regulates possession and use of radioactive material and facilities that produce or use such material. There are also several other statutes that cover more specific aspects of the regulation of radioactive material and facilities, for example, in radiological protection, radiological waste management, non-proliferation, exports and nuclear security.

Key laws in the nuclear energy sector are:

• **Energy Reorganisation Act of 1974** [21]

The Atomic Energy Commission ("AEC") was abolished and the Nuclear Regulatory Commission created, with other functions going to what later became the Department of Energy.

• **Department of Energy Organisation Act of 1977** [22]

This combined several government energy agencies together to form the Department of Energy ("DOE"). The DOE then became responsible for the development and production of nuclear weapons, the promotion of nuclear energy and other energy related work.

• **The Energy Policy Act of 2005** [23]

This encourages the development specifically of nuclear power, with several forms of incentives introduced: loan guarantees, carbon free production tax credits, protection tax credits, and a new form of risk insurance for the first six reactors. The aim of the legislation is to move the United States towards a national goal of energy independence with the aid of nuclear power. It also continued the Price-Anderson Act.

• **Price-Anderson Act of 1957** [24]

It is s.170 of the Atomic Energy Act 1954, and has been revised several times, more recently by the Energy Policy Act of 2005. The purpose of the act is to provide a Federal compensation fund of $10 billion should there be a nuclear accident. The Act does limit liability and does not guarantee payment should possible funds be exhausted already.

The recent law, the Energy Policy of Act 2005 (hereafter also referred to as the "2005 Act") has been significant for nuclear energy in terms of the incentives it has offered but has not yet delivered any nuclear new build. Indeed, only one state, Georgia has benefitted from the loan guarantees system. Overall, despite the surge of 18 applications to build new nuclear projects after the 2005 Act it was only in 2011 that the first company (Southern Nuclear from Georgia) was awarded loan guarantees under the Act. Further, the amount available under the loan guarantee system has been demonstrated to be significantly low. This is because the 2005 Act allowed for $18.5 billion for loan guarantees, with the Georgia project claiming near 50 per cent ($8.33 billion) of these. Hence, only

two projects will be able to use the loan guarantee system. Efforts have been made to increase the amount but these have failed; the Obama administration has debated and sought unsuccessfully an increase of up to $36 billion in 2010[25] and $54.5 billion in 2011.[26] Other incentives offered under the 2005 Act are outlined below in Table 2.

Table 2: Selection of incentives from the Energy Policy Act of 200530

Issue	**Incentive Offered**
Construction Risk (S.638)	Offers risk assurance to cover 100 percent of delays (up to $500 million) for the first two nuclear plants and 50 percent of delays (up to $250 million) for plants three to six.
Insurance (Title VI, Subtitle A)	Extends the Price-Anderson Act that applies to the civil nuclear energy sector for a further 20 years.
Loan Guarantee	Creation of new loan guarantee office for any clean energy technologies. Authorises loan guarantee (up to 80 percent of project cost for nuclear) but also for IGCC
System (Title XVII)	(Integrated gasification combined cycle) plants and renewable energy projects, hydrogen fuel cell technology, carbon capture and sequestration projects, and the construction of refineries for gasoline, ethanol and biodiesel
Production Tax Credits (S.1306)	Production tax credit 1.8 cents per kilowatt-hour for 6,000 megawatts of capacity from nuclear power plants for the first eight years of operation. Wind and closed loop biomass have received a production tax credit since 1992 and received a further extension of this (S.1301 for federal land projects)
Permit Process (S.365)	Permitting process for oil and gas was streamlined and this cuts out years and months of delays in a western states pilot program -- it will bring new gas and oil to the market sooner. S.366 even states it is possible for a permit to drill to be issued within 30 days -- though this is for a pilot project across western states only.

I.E.L.R. 74 The improvement of the Nuclear Regulatory Commission (NRC)

The NRC has improved as an institution over the 1990-2010 period since its previous existence in the 1960s and 1970s as the Atomic Energy Commission (AEC). The NRC was conceptualised as an independent regulatory agency which replaced the AEC in 1974. The late 1970s and 1980s was a very tough period for nuclear energy in the United States due to the oil crisis, and a financial crisis, and was also subject to a period of continuous regulatory change.

The NRC in the late 1980s aimed to address the concerns regarding and the lessons learned from the licensing of the 104 plants that were operating in the United States. This involved the revision of the

entire system and the introduction of a new one--the Combined Operating and Licensing system (COL). This new licensing system was designed to minimise delays in the process of awarding licenses, and also aims to standardise design applications. It is of significance that no licence has yet been granted under the new COL system. The Plant Vogtle project in Georgia will be the first to go through the new legal regime--it will be the test case. After the test case the NRC can improve upon the length of its licensing process and hence approval times for nuclear reactors will decrease.

Policy inaction over nuclear waste management

Policy inaction is evident in nuclear waste management policy of the United States which remains unresolved. There is widespread agreement that one of the major obstacles to a nuclear revival is the management and storage of spent nuclear reactor fuel and other high level radioactive waste. According to the literature, the nuclear industry has concentrated and solved many of its problems; however, it has not resolved this one. Indeed, the conclusions of Weinberg, former Director of the Oak Ridge National Laboratory, still resonate today. He stated that a problem for nuclear energy is social institutions.[27] Nuclear energy in comparison to other energy sources offered clean energy, however, it has a waste disposal issue that requires the best expertise to be involved in nuclear energy and that social institutions responsible for nuclear do not have the longevity of existence (or in perception of existence) to help protect the public.[28]

The US Federal Government assumed the responsibility to deal with the disposal of high level radioactive waste. This was due to take the form of a long-term deep underground geological depository storage facility and to be located at Yucca Mountain in Nevada. However, no state welcomed the idea of being a nuclear waste ground, despite the existence of a small high level nuclear waste facility in New Mexico for the military.[29] Indeed, Moore calls for states to take an increased role in the nuclear waste issue due to Federal indecision on the matter.[30] Public opposition is high in Nevada, though a fraction of the population in Nevada is in favour of it for the economic benefit of having the facility in their state. The Senator Harry Reid (Nevada), as Senate leader was responsible for ensuring that the vote never came before the Senate, as an election loomed and a new Senate was formed. However, other locations are expected to be considered in a Blue Ribbon Commission report expected in 2012 which is set to examine the nuclear fuel and waste issue in a report on America's Nuclear Future. Nevertheless, the US Federal Government have been slow to examine alternatives, or to resolve and fund research into alternatives, though debate on nuclear fuel recycling is growing.

Conclusion

Legislation in the energy sector is in the process of changing in the United Kingdom. This article discussed this in relation to development of nuclear energy. The United Kingdom has its own unique set of factors that will contribute to the delay of a nuclear new build project. The planning process in particular is the main driver of delay and what may compound matters is that the project, Hinkley Point C, will be a test case of the new legal system.

In comparing the United Kingdom to the United States, which is at more of an advanced stage in having introduced major legislation in the area in 2005, US energy legislation identifies four areas where problems of delay may arise. These are:

(1) the length of time it takes for incentive schemes to be become operational;

(2) the regulatory agency;

(3) policy inaction over a nuclear waste management programme; and

(4) the “test case” delays that can be expected.

The United Kingdom can learn from these other drivers of delay in a nuclear new build project and energy project in general. The United Kingdom is on the verge of ***I.E.L.R. 75*** introducing its own list of incentives, has recently reformed the regulatory regime (in terms of agencies), has too many policies rather than policy inaction (outlined in section 2), and has its own “test case” for the new legal regime in Hinkley Point C.

Hence, the United Kingdom which has not yet introduced its equivalent of the US Energy Policy Act of 2005, is undoubtedly entering into a long process to finally realise new generation investment and in particular in nuclear new build. Further, the United States case highlights the prospect of potential delays in what was their test case with Plant Vogtle in Georgia which may involve a total of 13 years from the introduction of the legislation offering the incentives to the first nuclear reactor coming into operation. Hinkley Point C is set to be the test case for the new UK legal regime, an equivalent to Plant Vogtle, in Gerogia. If so, as demonstrated here it is conceivable that Hinkley Point will not be brought into operation before 2025.

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