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Policy Learning and the Development of Renewable Energy Policy in the United Kingdom

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**POLICY LEARNING AND THE DEVELOPMENT OF
RENEWABLE ENERGY POLICY IN THE UNITED KINGDOM**

by

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A thesis submitted to the University of Plymouth
in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

School of Geography, Earth and Environmental Sciences
Faculty of Science and Technology

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Abstract

Policy learning and the development of renewable energy policy in the United Kingdom

Sally Murrall-Smith

Despite the UK's abundance of renewable energy sources and the imperative for renewable energy to make a significant contribution to addressing the problems of climate change and fossil-fuel dependency, renewable energy capacity in the UK has developed slowly compared with some other EU states. The UK has introduced a succession of policies to promote renewable energy, but so far these have failed to meet national and EU targets. This signals the need for detailed examination of the reasons for these 'failures' and, in particular, the extent, nature and constraints on 'policy learning' within UK renewable energy policy.

Policy learning has emerged in recent years as an innovative way of exploring the roles of knowledge acquisition and use in policy change. This study examines the contribution of policy learning to the development of UK renewable energy policy. It is argued that interpreting UK renewable energy policy development through the lens of policy learning yields fresh perspectives on why policies develop in certain directions and not others. In so doing, it critically examines problems caused by failings in policy learning and identifies options for the further promotion of renewable energies in the UK.

The study distinguishes four different forms of policy learning: technical, conceptual, social and political. Little research has been conducted on the characteristics of these different learning types, the conditions under which they occur, the psychological, institutional and cultural factors that stimulate or constrain learning, and how they interact to shape policy change. The study utilises a qualitative methodology to analyse and explain changes in UK renewable energy policy over the past 20 years. The main methods employed are content analysis of policy documents (including legislative acts and instruments, consultations and select committee reports); and semi-structured interviews with key stakeholders from government, industry, NGOs, academia and the media.

It is argued in the thesis that UK energy policy has tended to become 'locked' into low-level forms of technical learning because current government learning mechanisms do not challenge the parameters of existing policy and, thus, fail to stimulate broader processes of conceptual and social learning that might encourage more radical policy change. These forms of policy learning are particularly constrained by hierarchical institutional structures that hinder communication and learning between

policy areas. Furthermore, the current style of policy making for renewable energy in the UK privileges the interests of incumbent energy companies, giving them the ability to filter or block new ideas that do not align with their commercial interests. Political learning was shown to operate alongside other types of policy learning and to take multiple forms but focused predominantly on political risk management rather than political innovation: thus, it tended to narrow rather than extend the parameters of debate. These findings were used to develop a model of policy learning in UK renewable energy policy. This was used to conceptualise relationships between different learning types, highlight specific barriers to policy learning, and illustrate dynamics of policy learning and change that might be extended to other policy areas and countries. Finally, it is argued that many of the barriers identified might be overcome by fostering more evidence-based policy making and learning mechanisms that engage with a broader range of stakeholders to stimulate more pluralistic government processes.

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List of Abbreviations

ACF – Advocacy Coalition Framework
BERR – Department of Business, Enterprise and Regulatory Reform
BWEA – British Wind Energy Association
CCC – Committee on Climate Change
CCL – Climate Change Levy
CERT – Carbon Emission Reduction Target
CHP – Combined Heat and Power
DCLG – Department for Communities and Local Government
DECC – Department of Energy and Climate Change
Defra – Department of Environment, Farming and Rural Affairs
DNC – Declared Net Capacity
DoEn – Department of Energy
DPEI – Department for Productivity, Energy and Industry
DTI – Department of Trade and Industry
EA – Environment Agency
EDF – Energy de France
ENGO – Environmental Non-Government Organisations
EU – European Union
EWP – Energy White Paper
FFL – Fossil Fuel Levy
FIT – Feed-in Tariff
GB FIT – Great Britain Feed-in Tariff
GW – Giga Watt
HoC – House of Commons
HoC EAC – House of Commons Environmental Audit Committee
HoC PAC – House of Commons Public Accounts Committee
HoL – House of Lords
HoL EUC – House of Lords European Union Committee
IEA – International Energy Agency
KW/h – Kilowatts per hour
MP – Member of Parliament
MW – Megawatt
NAO – National Audit Office
NEPI – New Environmental Policy Instruments

NETA – New Electricity Trading Arrangements
NFFO – Non-Fossil Fuel Obligation
NGO – Non-Government Organisation
Ofgem – Office for Gas and Electricity Markets
ORED – Office for Renewable Energy Deployment
PiP – Partnership in Power
PIU – Performance and Innovation Unit
PPS – Planning Policy Statement
PUBLIN – Public Sector Innovation Study
PV – Photovoltaic
SEM – (European) Single Electricity Market
SPRU – Sussex Policy Research Unit
RAB – Renewables Advisory Board
RCEP – Royal Commission on Environmental Pollution
REA – Renewable Energy Association
REC – Regional Electricity Company
RES – Renewable Energy Strategy
RO – Renewables Obligation
ROC – Renewables Obligation Certificates
RSP – Regulatory State Paradigm
UK – United Kingdom
UK BCSE – UK Business Council for Sustainable Energy

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Committee.

This study was self-financed.

A programme of advanced study was undertaken, which included postgraduate courses in energy policy and qualitative and quantitative methods.

Relevant scientific seminars and conferences were regularly attended at which work was often presented; external institutions were visited for consultation purposes and several papers prepared for publication.

Publications

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Presentations and Conferences Attended

- | | |
|-------------------|--|
| 30-31 August 2006 | RGS Annual Conference ‘Global justice and environmental sustainability’, London, UK. |
| 6-8 June 2007 | Conference: ATHGO UN Conference ‘Solutions to Climate Change and Politics’, New York, USA. |
| 21 June 2007 | Conference: Renewable Energy Association Annual Conference, London, UK. |
| 14 November 2007 | Conference: REGEN South West ‘Renewable Futures’ Conference, Weston-Super-Mare, UK. |
| 1 March 2008 | Presentation: RGS Postgraduate Mid-term Conference ‘Identifying and Testing Policy Learning in UK Renewable Energy Policy’, Liverpool, UK. |
| 2 May 2008 | Presentation: Plymouth Postgraduate Symposium ‘Identifying and Testing Policy Learning in UK Renewable Energy Policy’, Plymouth, UK. |
| 22-27 June 2008 | Conference: UK ERC Energy Summer School, Edinburgh, UK. |
| 7 March 2009 | Conference: RGS Postgraduate Mid-term Conference ‘Connecting postgraduates in geography’, Plymouth, UK. |
| 25 March 2009 | Presentation: Association of American Geographers Annual Conference, Las Vegas, USA. |
| 15 May 2009 | Presentation: Plymouth Social Science and Business Symposium, Plymouth, UK. |
| 20 May 2009 | Conference: All-Energy Conference ‘Bringing clean energy to business’, Aberdeen, UK. |
| 11 June 2009 | Conference: Renewable Energy Association Annual Conference, London, UK. |
| 22 June 2009 | Conference: Falmouth Energy Week – Energy Transition Pathways, Falmouth, UK. |

- 30 August 2009 Presentation: Royal Geographical Society Annual Conference, Manchester, UK.
- 9 September 2009 Seminar: The Renewables Obligation and the UK renewables market, London, UK.
- 29 September 2009 Conference/ consultation: DECC and REGEN – Feed-In Tariff, Bristol, UK.
- 8 October 2009 Conference: EBEC - REA Bio-Energy Conference, Coventry, UK.
- 10 November 2009 Conference: REGEN South West Conference, Bath, UK.
- 26 November 2009 Seminar: ESRC - Energy Transitions, Leicester, UK.
- 9 December 2009 Conference: Westminster Energy, Environment and Transport Forum ‘Delivering the renewable energy strategy’, London, UK.
- 7 March 2010 RGS Postgraduate Mid-term Conference ‘Engaging geographies’, Aberystwyth, UK.
- 6 May 2010 Presentation: Human Geography Postgraduate Symposium ‘Policy learning - a case study of UK Renewable Electricity Policy’, Plymouth, UK.
- 24/25 May 2010 Conference: Falmouth Energy Week ‘The low carbon transition plan: making it happen’, Falmouth, UK.
- 1-3 September 2010 Conference: RGS ‘Confronting the challenges of the post crisis global economy and environment’, London, UK.
- 1 February 2011 Conference: Westminster Energy, Environment and Transport Forum ‘UK renewable energy strategy – next steps’, London, UK.
- 17 June 2011 Conference: RGS Energy in a Multi-Polar World seminar, London, UK.
- 30 August 2011 Conference: RGS Annual Conference ‘The Geographical Imagination’, London, UK.
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Chapter 1 – Introduction

1.1 General Introduction

Renewable energy is an important component of European Union (EU) and United Kingdom (UK) strategies for addressing the challenges of global climate change. The UK government's programme to promote renewable energy began in 1990, since which time the government has experimented with two policy instruments. However, neither has met its capacity targets. In comparison, some other EU member states, such as Germany and Denmark, have developed high volumes of renewable electricity capacity and vibrant renewable energy industries (Ringle, 2006). This suggests that the UK's renewable energy programme is severely lagging. Various reasons have been cited for this apparent failure, including choice of policy instruments, market structures (Mitchell and Connor, 2004; Woodman and Mitchell, 2011), and policy from other domains such as planning (Dinica, 2002). However, this thesis focuses particularly on shortcomings in policy learning. The consistency with which the UK government has failed to galvanise a strong renewable energy sector would certainly seem to suggest that UK decision makers have failed to learn from past experiences, from other countries, or from other policy areas; further, if the UK is to respond adequately to climate change and the challenges of sustainable development, it needs to improve its level of policy learning.

1.2 Policy Learning

Policy learning has gained in prominence in recent years as a concept for interpreting and analysing the factors that enable and hinder policy change (Fiorino, 2001; Nilsson, 2005; Grin and Loeber, 2007). Broadly speaking, it invokes a view of policy making that stresses the importance of knowledge acquisition and use, and thus contrasts with theories that emphasise power relations and actor interests without examining how changes in levels of knowledge influence these relations and interests (Fiorino, 2001). As a general definition, Jordan (2005:308) proposed that “policy learning involves a cognitive and reflective process in which policy makers adapt their beliefs and positions in view of past experiences (lesson drawing), experiences of others (diffusion), new information, or technological developments and apply it to their subsequent choices of policy goals or techniques”. In public policy analysis, “learning is a process of updating beliefs about key components of policy (such as problem definition, results achieved at home or abroad, goals, but also actors' strategies and paradigms). Updating, in turn, is the result of analysis and/or social interaction” (Radaelli, 2009:1147). Policy learning would appear to be important for understanding policy process for at least two reasons: (1) for most economic and social problems, we cannot assume that the best policies have already been found (knowledge problem); and (2) the dynamic development of the world through

technological progress and social change also implies the regular emergence of new problems and qualitative changes in the character of old problems (Kerber and Eckardt, 2007). The EU has long recognised the importance of policy learning through its research and policies. In terms of research, the PUBLIN (Public Sector Innovation) study (EU Fifth Framework Programme) described policy learning as an important precursor for public sector innovation (Kemp and Weehuizen, 2005). The EU has also introduced a new form of governance, the ‘Open Method of Coordination’, which seeks to stimulate policy learning in policy fields for which the main competences still rest with the member states, fostering mutual learning about successful policies and promoting policy transfer (Kerber and Eckardt, 2007).

Many theories are bracketed under the banner of ‘policy learning’ within the academic literature, yet they often describe different concepts involving different actors and effects. This has led to the precise meaning of the term being somewhat diffuse and unclear. The terminology has also been subject to different interpretations over time. The concept was pioneered by Heclo (1974), who originally termed it ‘social learning’, reflecting a general interest in the role of ideas in policy making (Jordan and Greenaway, 1997). Heclo (1974:306) viewed learning in a very general sense as a “relatively enduring alteration of behaviours that result from experience” and initially suggested that the actors involved in the ‘learning’ process included government and society, as suggested by his use of ‘social learning’. However, he concluded that the key actors are policy makers who learn on society’s behalf. Hall (1993), meanwhile, defined social learning as a deliberate attempt to adjust the goals or techniques of policy in response to past experience and information. Hall interpreted social learning as a process that takes place largely inside the state, which accords well with the arguments of those state-centric theorists who believe that the state acts without serious opposition from external actors. However, state-structural theorists consider social learning to involve much broader participation (Jordan and Greenaway, 1997). Hence, the term has evolved to embody deeper sociological and ideological questions regarding the role of the state and non-state actors in policy making. To allow for the fact that social learning concerns society as a whole and not just those directly involved in government, the state-structuralist definition of social learning and a state-centric definition of policy learning is employed in this thesis as a means for investigating the relationship between wider social learning and policy learning.

Several models have been presented to conceptualise the policy-learning process. Heclo (1974) produced a general view of policy learning that has been criticised as being un-testable but that others have since built on (Sabatier and Jenkins-Smith, 1993; Hall, 1993). Hall’s (1993) model has been described as the seminal model of policy learning (de Lovinfosse and Varone, 2004) and has been widely applied in studies examining the factors driving and hindering policy change (Jordan and

Greenaway, 1997; de Lovinfosse and Varone, 2004; Oliver and Pemberton, 2004). It operates at three levels at which learning is signified by policy change:

- Changes in the calibration or setting of policy instruments (first order)
- Changes in the techniques or policy tools employed to provide policy solutions (second order)
- Changes in the overarching or conception goals that guide policy makers (third order).

Adapted from Hall (1993).

According to most scholars, first- and second-order policy changes do not automatically result in third-order policy change. This is only brought about by evolving social debate and reflection – social and policy learning – about the overall direction of policy (Jordan and Greenway, 1997). Jordan and Greenaway thus interpreted third-order policy change as being indicative of a paradigm shift. Carter (2004) supported this, stating that first- and second-level changes can be seen as ‘normal’ policy making, while third-level change is marked by a radical shift in the overall policy goals, reflecting a fundamental paradigm shift (such as the transition from Keynesianism to monetarism in economic policy).

Although helpful in distinguishing between different forms of policy change, Hall’s model contains several limitations (de Lovinfosse and Varone, 2004; Varone et al., 2004; Oliver and Pemberton 2004). Hall contended that policy transitions occur when a once-stable policy paradigm ceases to provide adequate solutions to a policy problem. Policy makers usually seek first to address the problem by adjusting existing instruments (first-order change). If this does not work, new instruments may be deployed (second-order change). However, mounting evidence of policy failure may trigger an increasingly open political contest between competing ideas, the possible displacement of the old paradigm, and the institutionalisation of victorious ideas as a new paradigm. Oliver and Pemberton (2004) argued that this failed to capture the capacity of existing paradigms to defend themselves, and maintained that paradigm change is a more iterative and uncertain process than Hall described. For example, the defence of established paradigms may include partial integration of new ideas without wholesale rejection of old ones, and the punctuated evolution of old paradigms to maintain their appeal. Although exogenous shocks might force decision makers and society to confront the inadequacies of prevailing paradigms, policy and social change remains a complex and messy process (Jordan and Greenaway, 1997). Secondly, Hall’s model does not deal in detail with the role of other variables, such as power relations and past policy, that also influence policy change. Thus, it is important to acknowledge these policy drivers and their interaction with policy learning.

Various typologies of policy learning have been developed over the years. Glasbergen (1996) distinguished between four types in research on environmental policy in the Netherlands: ‘technical learning’ (looking for new policy instruments); ‘conceptual learning’ (redefining policy goals); ‘cognitive learning’ (based on scientific knowledge); and ‘social learning’ (based on interaction and communication). These learning types may be developmental (as suggested by Hall’s model), with one evolving into another (Fiorino, 2001). Similarly, Kemp and Weehuizen (2005), through their research within the PUBLIN initiative, built upon the work of Hall (1993), Sabatier and Jenkins-Smith (1993) and Glasbergen (1996) in identifying three different types of policy learning: ‘technical’ or ‘instrumental learning’, ‘conceptual learning’ and ‘social learning’. Technical learning, according to this definition, is concerned with adjusting or modifying policy instruments to pursue existing policy objectives more effectively. Conceptual learning is shown by enduring changes in policy goals as well as strategies to achieve goals. Social learning occurs when there are widely shared changes in values and ideas about a topic, including the rules of interaction between policy actors (Kemp and Weehuizen, 2005).

Importantly, Kemp and Weehuizen’s (2005) three definitions of learning correspond broadly to the different tiers of Hall’s (1993) model of policy change. Nilsson (2005), in a study of policy learning in Swedish energy policy, used this framework but added ‘political learning’ to capture more of the politics involved in decision making. In contrast, Hall’s model is concerned more with the extent of change than the factors influencing it. Several authors have explored the concept of political learning, which can be differentiated from other aspects of policy learning as being the process whereby policy advocates become more sophisticated in advancing problems and ideas. One conclusion emerging from these studies is that features of political learning can constrain and even work against other forms of policy learning, in that political learning is more geared to solving political than policy problems (May, 1992). Thus, the various typologies of policy learning in the literature can be distributed under four main headings: technical learning, conceptual learning, social learning and political learning. These typologies are used in this research to provide further insights into the processes of policy learning and their roles in policy development. Text Box 1.1 summarises the key features of these learning types in more detail.

Text Box 1.1 Typologies of Policy Learning

Technical learning: the search for new policy instruments in the context of fixed policy objectives. Change occurs without fundamental discussion of objectives or basic strategies. Policy makers respond to demands for change with ‘more of the same’ kinds of solutions adopted in earlier responses to environmental problems: regulation, oversight and enforcement.

Conceptual learning: redefining policy goals and adjusting problem definitions and strategies. Policy objectives are debated, perspectives on issues change, and strategies are reformulated. New concepts (pollution prevention, ecological modernisation, sustainability) enter the lexicon.

Social learning: interactions and communications between actors. It builds on the cognitive capacities of technical learning and the rethinking of objectives and strategies that occurs in conceptual learning, but it emphasises relations between actors and the quality of the dialogue.

(Fiorino, 2001:324).

Political learning: learning about political problems rather than learning how to solve policy problems. For example, it could involve a political strategy to reduce political risk to government, or it could increase policy acceptability by overcoming stakeholder resistance or gaining more political support.

(Adapted from Nilsson, 2005).

Whilst there is broad agreement that learning is an essential element of informed decision making and that multiple types of learning exist, it is also widely recognised that learning is just one of several factors influencing policy processes. One of the classic frameworks used to analyse the factors influencing decision making is that of ‘ideas, interests and institutions’ (Zito, 2000). The importance of learning is clearly acknowledged in this framework; however, it also stresses the significance of power relations and other forms of social relations between policy actors, and how institutional procedures and traditions can constrain or enable policy change. As well as affecting policy change, power relations and institutional procedures will influence how learning takes place and the capacity of decision makers to engage in and enact different forms of learning.

The ‘policy learning’ literature has sought to recognise the effects of external and internal factors on policy change and learning. External factors that can stimulate policy change include international policy, disasters, fluctuating world markets and changes in problems (Nilsson, 2005; Sabatier, 1999; Weale, 2000). Internal factors, meanwhile, include domestic politics, economic crises, institutional change, formal and informal rules, power, interests, policy precedents, and new information. Nilsson

(2005) described how power structures and resource dependencies evolve over time as a result of, for example, market-based and political conditions, and how these affect how and why actors interact and learn. He concluded that stable, closed and powerful networks can constrain learning whereas interdependent networks in which actors must form alliances to gain political momentum can lead to more intense discourses (Nilsson, 2005). Sabatier and Jenkins-Smith believed policy learning is more likely when there is an informed level of conflict between two advocacy coalitions without affecting the core beliefs of either coalition (Jordan, 2005).

1.3 Renewable Energy – UK Case Study

One policy area that presents an interesting opportunity to study the nature and impact of policy learning and non-learning is renewable energy. The development of renewable energy is a dynamic area in terms of technical progress, but its development is closely linked to government programmes due to its relative costs in comparison with fossil fuels. Thus, the future of renewable energy hinges critically on government support (IEA, 2010). The UK has sought to establish itself as an international leader in addressing the climate-change challenge, for which renewable energy is an accepted solution, instituting ambitious targets for carbon reduction (Smith, 2009). However, despite political rhetoric and more than 30 years' policy experience, the UK currently obtains only 3.3% of its primary energy from renewable sources (DECC, 2011a). In terms of selection environment, the UK has suitable conditions in which to develop several large- and small-scale renewable technologies. Furthermore, the UK energy system is in a transition period, as the old system inherited at privatisation is due for significant reinvestment (Smith, 2009). This provides an opportunity for policy makers to be imaginative in creating a more sustainable energy system and a chance to embed policy learning.

Furthermore, various external factors are increasing the attractiveness of renewable energy. Population growth and enhanced living standards are contributing to a significant increase in energy demand in both developed and developing countries. At the same time, 'peak oil' (the rapid decline of global oil production) and regional instabilities are forcing up oil prices and causing oil-supply problems (Scrace et al., 2009). The geographical distribution of existing fossil-fuel reserves has created concerns about the UK becoming overly dependent on imported fuels, with consequent supply security problems. The dangers inherent in being a net fuel importer were demonstrated in January 2006, when Russia turned off the Ukraine's gas supply as part of a pricing dispute, leading to supply disruption in parts of Western Europe (O'Connell and Drillsma-Milgrom, 2006). This prompted the UK government to conduct a new energy policy review and consultation to assess and respond to the UK's growing reliance on imported fossil fuels (DTI, 2006a). The combination of growing demand for energy, coupled with a potential decline in supply and environmental degradation, has created a

need for the re-examination of energy supply, necessitating and arguably creating a climate conducive for policy learning in this policy area.

The UK's renewable energy programme began in the wake of the 1974 oil crisis. Since then, four policy phases in UK renewable energy policy can be identified¹. Phase 1 saw the launch of the Energy Research and Development Programme and the Energy Technology Research Unit to oversee a range of projects designed to assess the viability of the main renewable-energy options (Elliott, 1999). Government investment was the main driver of the sector until the privatisation of the electricity market in 1989. This prompted Phase 2 (1990), which saw the introduction of the first market-based instrument to support renewable and nuclear energy, the Non-Fossil Fuel Obligation (NFFO). The end of NFFO support in 1998 marked the start of Phase 3: coinciding with the total liberalisation of the energy market, the renewable energy market slowed to a virtual halt as policy makers, suppliers and potential customers waited to see how the sector would evolve (Lipp, 2000). Phase 4 saw the development and introduction of the Renewables Obligation (RO) in 2002: the RO is still in operation, albeit in a modified form².

The market development and capacity growth of renewable energy in the UK has been slow compared with other countries such as Germany, Denmark and Spain (Ringle, 2006). Critics of current measures suggest that they show signs of repeating the weaknesses of the NFFO, which supports the contention that failures in policy learning have occurred in UK renewable energy policy (Mitchell and Connor, 2004). Foxon and Pearson (2007) argued that the government could be seen to have been enacting 'learning by doing' in its annual review of capacity targets and the Department of Trade and Industry (DTI) review of the RO in 2005/06. However, they contend that policy learning has remained piecemeal, which is likely to provoke uncertainty in investors. Similarly, Woodman and Mitchell (2011:3920) proposed that although the "government's approach to the RO has shown a degree of learning about the weaknesses of the mechanism's design" and risk, changes have been incremental and their success limited. Overall, the current government and policy situation shows potential for policy change driven by learning; however, the examples above indicate that learning is occurring in a restricted sense and that other factors might be affecting the type and depth of renewable energy policy learning taking place.

¹ Capacity development has never been isolable as a single objective but has always been hemmed in by other priorities such as economics competitiveness and liberalisation. It is also noteworthy that, until 2005, policy was exclusively directed towards electricity generation and neglected other energy requirements such as fuel and heating.

² The government has recently released proposals for energy market reform, the outcomes of this are unknown but it could signify Phase 5.

Further evidence of shortfalls in policy learning comes from the fact that, despite several decades of policy-making experience and the existence of UK and EU policy initiatives to stimulate renewable energy, capacity targets have not so far been met (Seager and Milner, 2007). The RO set capacity targets for the percentage of total UK electricity to be generated from renewable sources, rising from 3% in 2002 to 15.4% in 2015/16 (Ofgem, 2005; DTI, 2005a). The renewable electricity generated each year under the RO has to date failed to meet all capacity targets, including the prominent target of 10% by 2010: only 6.5% was produced (Renewable Energy Foundation, 2011). Yet politicians continue to set new targets in line with Europe despite their lack of grounding in current capacity or realisable potential (Seager and Milner, 2007). The UK has accepted the EU 2020 target of 15% total energy by 2020 (HM Government, 2009), which suggests that renewable energy targets and instruments are not synchronised and that shortfalls in learning on how to achieve targets still exist.

One of the core contentions in this thesis is that ‘policy learning’ is vital for effective policy. The dynamic nature of the world means that old problems change in character and new ones present themselves. In simple terms, if policy systems do not learn and evolve in response, they are unlikely to deal with problems effectively. By understanding how government systems learn, and by examining the components and features of policy systems that enable different forms of learning, it should be possible to encourage learning processes and enhance the capacity of policy systems to cope with new social, environmental and economic conditions. Evidently, the existence, character and importance of policy learning cannot be tested in entirely abstract terms and renewable energy has been selected as an apposite case study for the reasons described above. Furthermore, because renewable energy has strong links to sustainable development and environmental policy integration, it may offer learning insights that can be transferred to other policy domains.

Section 1.2 described the different types of policy learning, some of which have a greater impact on policy outputs, policy outcomes and change than others. Little research has been done on these different types of learning, the conditions under which they occur, the factors that stimulate or constrain them (psychological, institutional or cultural) and their interactions with each other. In addition to the typologies, further distinctions can be made in terms of the level of learning. Learning can be disaggregated by whether it takes place at the level of the individual, when he or she has obtained new ideas (Nedergaard, 2009), or in group form involving multiple actors, organisations or networks (Wals and Leij, 2007). It has been suggested that the best-developed theories of learning operate at the level of the individual learner, while how to translate individual learning into group learning is poorly understood, particularly with respect to policy learning and how this translates into policy change (Parson and Clark, 1995). Several authors have observed that individual learning is necessary but not sufficient for group learning, as routines and conflicts can prevent individual

learning being expressed in group activity (Parson and Clark, 1995; Nedergaard, 2009). This begs the question of how learning by individuals affects aggregate learning in organisations. This is particularly unclear in government institutions because codes of secrecy and national security measures impede access and transparency. Multiple formal and informal learning mechanisms, such as consultations and expert committees, are available to the government, but little is understood about the types of learning they produce and why. Fiorino (2001) argued that to be successful, a policy system must develop all types of policy learning. Further questions surround the influence of institutional structures on policy learning, which link to broader debates on structure and agency in governing processes.

It is apparent that there are significant gaps in our knowledge of government learning processes. Specifically, the missing knowledge covers: who are the key actors, what they learn, what types of learning occur, how learning mechanisms operate, what effects on policy change are produced, what relationships exist between the different learning types, and how learning processes are related to and influenced and constrained by other behavioural and cultural determinants of policy change. This thesis examines these gaps in our knowledge using the UK renewable electricity policy as a case study.

1.4 Aims and Objectives

Building on the previous discussion, the aim of this thesis is to examine the contribution of learning to the development of UK renewable energy policy. In so doing, it critically examines problems caused by failings in policy learning and seeks to identify options for the further promotion of renewable energies in the UK.

The main objectives are:

1. To identify the main shifts in UK renewable energy policy over the past 20 years and the main factors that have driven these policy shifts.
2. To determine the role of policy learning in the development of UK renewable energy policy by analysing three main elements of policy learning: (a) who is learning; (b) what they are learning; and (c) the effects of learning on policy change, distinguishing between different types of learning (technical, conceptual, social and political).

3. To examine different learning mechanisms and how they influence different types of policy learning, including investigation of the conditions that have facilitated, shaped or constrained each type of learning.
4. To advance suggestions for the facilitation of policy learning in renewable energy policy.

1.5 Methodology

Methodologically, this research combines semi-structured interviews and the analysis of policy documents to understand the role of policy learning in UK renewable energy policy development. Thirty-five semi-structured interviews were conducted, mainly with actors from the UK energy policy network, between July 2008 and September 2009. Interviews were conducted with representatives from government (including the Department of Business, Enterprise and Regulatory Reform (BERR), the Department for Energy and Climate Change (DECC), and the Office for Gas and Electricity Markets (Ofgem) and parliament), industry (including incumbent energy suppliers, green electricity suppliers, distribution companies, technology developers and trade associations), non-government organisations (NGOs), the media, researchers, academics and analysts. In addition, around 30 documents from government and non-government bodies were examined, including acts, statutes, white papers, consultations, select committee reports, consultation responses, academic and NGO reports. Content analysis was then used to facilitate the analysis of empirical data, using coding and categorisation to identify patterns, relationships and insights into the processes of policy learning operating in UK renewable energy policy (see Chapter 3 for a detailed description of methods).

1.6 Thesis Outline

This thesis is separated into four parts.

Part 1 contains the Introduction and the Literature Review. Chapter 2 reviews the key policy variables involved in policy development, namely: actors, interest, power, past policy and institutions. It also reviews the main theories of policy change and learning.

Part 2 (Chapter 3 – Methods) explains and justifies the use of semi-structured interviews and document analysis to investigate policy learning. It also examines issues of validity, reliability and researcher positionality.

Part 3 (Chapters 4-8) addresses the study's four objectives. Chapter 4 identifies the main patterns of change in UK renewable energy policy over the past 20 years and the main factors that have driven them. Chapters 5 and 6 analyse the role of policy learning in the development of renewable energy policy by identifying who is learning (the key actors); what they have learnt; and the effects of learning on policy change (Bennett and Howlett, 1992), distinguishing between different types of learning (technical, conceptual, social and political). Chapter 5 focuses on the learning experiences of state actors, namely politicians and civil servants. Chapter 6 focuses on the learning experiences of key non-state actors: interest groups, NGOs and academics. Chapter 7 examines the different learning mechanisms and processes through which learning becomes embedded. Chapter 8 presents the general understanding of policy learning derived from this study and its broader implications for policy, and specifically for renewable energy policy. It then conceptualises the findings in two models.

Part 4 (Chapter 9) concludes the thesis by summarising the main research findings, reflecting on the contribution to knowledge and limitations of the study, and highlighting avenues for future research.

Chapter 2 – Policy Change and Policy Learning

2.1 Introduction

‘Policy learning’ is only one of many variables that affect policy change but it is arguably one of the most crucial, because without active learning about policy goals, instruments and their settings and how to build support for measures, effective responses to policy problems are very unlikely. It is necessary to understand the policy process and other factors that affect policy change in order to isolate policy learning and establish its role in the wider dynamic of policy change. The supporting literature forwards three key determinants of policy change: ideas, interests and institutions (Zito, 2000). However, Zito (2000) argued that these determinants are too static to explain policy behaviour and change by themselves, and postulated a case for other intervening variables that link these factors to actor behaviour, such as learning. Section 2.2 will identify and examine the key factors other than learning that influence the policy process and policy change. Various scholars have attempted to link policy variables and conceptualise policy development and change by focusing on discrete parts of the policy process, such as decision making, whereas others have accorded more influence to determinants, for example institutions. Section 2.3 will present a range of theories that seek to explain policy making and policy change. Section 2.4 will then examine the importance of policy learning as an aspect of policy change, comparing and analysing a range of policy-learning concepts, models and frameworks and other related concepts such as policy diffusion and policy transfer. Individual and organisational learning will also be discussed. The concepts of ‘policy learning’ and ‘social learning’ are closely associated and their relationship is often blurred. Section 2.5 will describe social learning, the process whereby society adapts its views or behaviours, in relation to policy learning and policy change. Section 2.6 will synthesise the main points of the chapter and their methodological implications.

2.2 Determinants of Policy Change

Until the 1990s there existed an ‘untested orthodoxy’ that public policies and state actions were driven by social pressure and the public interest (Bennett and Howlett, 1992). In reality, however, policy is driven by a myriad of factors, many of which overlap and cannot be disentangled or separated. This section will introduce and discuss those drivers other than policy learning that occur most frequently within the literature. As highlighted in the introduction, the political science literature forwards three key determinants of policy change: ideas, interests and institutions (Zito, 2000). However, other intervening variables can also be identified. Heclo (1974) noted that policy direction cannot be simply explained as the predicate of a single ‘variable’ and it is how the contributions are related that should be examined. He stated that “governments not only puzzle but they power” (Heclo 1974:305). Power

has been demonstrated by authors such as Sabatier (1999) to be an important determinant of policy change, although Hecló (1974) argued that it does not necessarily decide the substance of policy. Both Hall (1993) and Hecló (1974) in their critiques of policy making and change acknowledged the importance of past policy and its legacies. Although different schools of thought present many variables in different guises, broadly speaking these variables can be organised and condensed into five main factors: ideas, actors, power, institutions, and policy precedents. These will now be discussed.

2.2.1 Ideas

Ideas in the policy domain involve conceptions of how policy problems are defined and addressed. Several people with similar ideas or beliefs form ‘advocacy coalitions’ around those ideas (Sabatier, 1999), where an advocacy coalition is defined as a set of actors from various governmental and private organisations who share a set of normative and causal beliefs and who often act in concert (Sabatier and Jenkins-Smith, 1993). At one level, ideas can be interchangeable with the beliefs of policy makers. Several ideas form a belief system and, at a greater level, a paradigm (*vide infra*). Ideas are generated by a range of people within the policy community, such as bureaucrats, researchers in think tanks, academics and civil servants (Sabatier, 1999). Berman (1998) believes that there is a challenge surrounding the role of ideas in policy change, as there is a notion that they are epiphenomenal. She argues that before ideas can be used to explain outcomes, their nature and role in political life must be clearly defined (Berman, 1998). Ideational theorists have found it difficult to separate ideas into independent variables; however, over time, ideas can take on a life of their own that is separate from the context in which they arose (Berman, 1998). Policy learning theories seek to explain the processes by which new ideas and knowledge are embedded in policy.

The ideas that influence government and public policy are not just those of major political thinkers or even leading politicians, but those held at every level in society (Leach, 1995), though many will have been modified or vulgarised before penetrating the public consciousness. Richardson (2000) argued that ideas are anchored in knowledge, so knowledge often precedes ideas. Regardless of which comes first, there is no doubt that knowledge is a powerful agent of change. Both Hall’s (1993) model (see Section 1.2) and the Advocacy Coalition Framework (ACF; see Section 2.3.3) stress the importance of changing ideas and beliefs as a motor of policy change (Jordan and Greenaway, 1997). Ideas are central to politics and policy making, to the extent that public policy is frequently linked to specific ideas (e.g. Thatcher’s policies and liberalism). Each political party has in theory an ideology that explicitly reflects the concepts, principles and assumptions under which it operates. In addition, parties are united by scientific understandings, ecology, uncertainty and risk. In some cases ideologies are closely associated with a particular party (e.g. the Labour party and socialism) although in reality it is debatable whether a clear and definable relationship exists. This underlines the complex

relationship between ideas and policy making. De Lovinfosse and Varone (2004) highlighted the impact of political parties on the design of public policies, whereby the ideologies and partisan strategy of governing political parties directly influence the choice of policy (especially instruments). Varone et al. (2004) believed that the privatisation of UK energy supplies in 1989 would not have happened had the Labour party been in power. However, the continued use of market instruments by the 1997 Labour government suggests that both parties broadly subscribe to a similar policy paradigm (Varone et al., 2004).

The way in which problems are identified and interpreted reflects (preconceived) ideas (Leach, 1995). The search for solutions may reflect *a priori* assumptions, meaning that certain solutions may not even be considered. At any one time a set of ideas or an ideology or ‘paradigm’ prevails, which is similar to the scientific paradigms identified by Kuhn (1970). Smith (1993:78) defines a policy paradigm as a “framework of ideas and standards that specifies not only the goals of a policy and the kind of instruments that can be used to attain them, but also the very nature of the problems they are addressing. Ideas, therefore, can in some sense determine public policy”. Yet public policy may in turn influence the ideas that people hold (Leach, 1995). “The policy of privatisation pursued by the Thatcher government clearly reflected a belief in government circles in the virtues of the free market and private ownership, but it can also be assumed that the sale of shares to the public on favourable terms helped the acceptance of ‘popular capitalism’” (Leach, 1995:13). The perpetuation of certain ideas over time leads to them becoming locked into the fabric of institutions (lock-in effects); they may become outdated, yet the ideas are ingrained in the form of routines into formal operating procedures (Goldstein and O’Keohane, 1993; Mitchell, 2008; Scrase and MacKerron, 2009). Scrase and MacKerron (2009) used the idea of lock-in to explain why, despite large and growing subsidies for renewable technologies, there has been limited progress in establishing them on the ground. Sabatier, in his linking of ideas and beliefs, demonstrated their strength and durability when proposing that only an external system event (e.g. a catastrophe) has the power to stimulate the reform of core beliefs. Identifying the role of ‘ideas’ in the policy process demonstrates the difficulty of isolating them as a driver, especially as they become institutionalised. Moreover, even prior to this it was the actors within the policy community who carried the ideas.

2.2.2 Actors

The term ‘actor’ within the policy process can be used to describe individuals, organisations or even institutions. Actors include politicians, civil servants, NGOs, industry, ‘epistemic’ communities and even the media, all of whom attempt to shape policy development. The ‘general public’ might also be considered an actor, though its influence on the policy process is contested. However, there are several routes through which members of the public can gain a degree of access to policy making. They may organise themselves into pressure groups, such as the environmental movement, NGOs and

political parties. There are several terms used to categorise groups of actors in the policy process. 'Policy networks', 'actor networks', and 'policy communities' each describe relationships between actors at different scales with varying access to policy. Jordan and Schubert (1992) recognised the variety of labels in use to describe state/interest relationships. They demonstrated the overlap between them, and the somewhat interchangeable use of terms. Network theories seek to explain policy change through these relationships (see Section 2.3). Zito and Schout (2009) argued that at EU level there has been a turn towards network governance due to the doubling of its membership that has created a shift from instruments of integration towards learning-orientated instruments such as the open method of coordination.

The presence of so many actors within policy networks and communities can have profound effects on policy, as they have different interests, priorities and goals. For example, in the area of climate policy, clashes can be seen between environmental and economic interests, such as between the former DTI³ and the Department of Environment, Farming and Rural Affairs (Defra) (Harriss-White and Harriss, 2006)⁴. Harriss-White and Harriss (2006) described how the publication of the 'plan of action' review on climate change targets, inaugurated in 1997, was delayed until 2005 because of departmental disagreements. This illustrates how conflicting actor goals can slow the policy process. Moreover, the DTI had responsibility for industry and energy, meaning that priorities, goals and values were likely to vary widely within the organisation itself. The government restructured its departments in 2008 to create DECC, providing some resolution to conflicting departmental goals in this policy area. However, any reform has the potential to create new conflicts at new policy boundaries.

On occasions, an individual actor can exert a strong influence over the policy process as a 'policy entrepreneur' (Kingdon, 2003). Parsons (2003) described policy entrepreneurs as carriers of ideas, people who advocate certain policy solutions and are willing to invest resources in them, softening policy communities and allowing ideas to gain acceptance. Kingdon (2003) described the role of the policy entrepreneur as the coupler of three streams of policy making: the policy problem, a solution that has political support, and a window of opportunity to introduce the policy. The role of the policy entrepreneur is evident at all policy levels from the EU to local. Zito (2000) highlighted the role of the policy entrepreneur at the EU supranational level in his theories of regional cooperation and integration. Policy entrepreneurs, through their advocacy of certain ideas combined with opportunity and position, are able to stimulate policy change, and, through the diffusion of ideas, stimulate

³ The DTI was renamed BERR in August 2007 after the premiership change in the Labour government.

⁴ BERR and DEFRA, as well as being government departments and therefore part of the institution of government, can also be considered as actors.

learning (Zito, 2000). The identification of a policy entrepreneur, or the lack of one, within the UK renewable energy policy community would be significant for this study as the slow capacity growth has been attributed to ‘lack of political will’ (Harriss and Harriss-White, 2006; Connor, 2004).

Members of the policy community have traditionally been civil servants, bureaucrats and politicians but experts from the academic and scientific communities now also have key roles. The importance placed on expert advice and scientific knowledge in policy making has grown as problems become more complicated. In conditions of uncertainty (e.g. regarding technical dimensions, causes or political consequences of problems), leaders consult experts, who understand the complex links between issues, to clarify and guide policy decisions (Haas, 1990). Haas (1990) described ‘epistemic communities’ as professional groups with shared values that believe in similar cause and effect relationships, which they continue to test in order to assess their truths. Haas (1990) contended that epistemic communities can contribute to policy change by enlightening policy makers through improved causal understandings, or governmental learning. In his analysis of international cooperation surrounding the pollution of the Mediterranean and the ‘Med Action Plan’, Haas investigated the impact of epistemic communities on policy decision makers’ responses from ‘adopting new means’ to ‘a reformulation of world views’. However, he stressed that learning and change can only occur once an epistemic community has established its channels of communication to government, and that policy changes could be reversed if the epistemic community loses its influence. The existence of a strong epistemic community in the UK renewable energy sector would be noteworthy in the context of this study as it would denote the potential for change driven by learning. It is arguable that the Committee on Climate Change (CCC), established in 2008, may partially fulfil this role.

The importance of actors can be seen throughout the different levels and stages of policy, from the EU to the local level, and from decision making through to implementation. Jordan (2005) illustrated their importance at the EU level when he attributed to actors the development of environmental legislation running ahead of the formal (state-directed) process of amending treaties. ‘Street-level bureaucrats’ are also highly influential on the policy process, as they are directly involved in brokering policies to the general public and can interpret policy in many different ways. Jordan et al. (2003) described a shift, seen in environmental policy making, from a front-line implementer negotiating emissions at the local level and the decentralised implementation of targets, to more harmonised and centrally controlled environmental standards set by officials in the Environment Agency (EA). The locus of actor influence is relevant to this study and has methodological implications, as learning is crucial for these actors (see Section 3.3.1). The decision-making stage is viewed as key within the policy process; hence, it has been used to theorise policy change (see Section 2.3.1).

2.2.3 Power

Power in politics concerns an actor's ability to make or change policy. Rose proposed that "power is a primary condition of applying lessons in government" (1993:14). Certain actors within the civil service and government have the ability, either individually or collectively, to influence policy outcomes directly. Thus, a distinction can be made between power and influence, which is useful in assessing what different actors can really achieve. Resource relationships between different actors also constitute a form of power (Sabatier, 1999). Each actor has certain interests and ideas that can be furthered through the use of power and the mobilisation of resources. Some actors have more access than others to resources such as information and finance. Marsh et al. (2001) supported this, arguing that politics does not occur on a level playing field.

Political scientists have explained policy outputs in terms of power exercised by competing interests: central theories include pluralism, neopluralism, elitism, corporatism and Marxism (Carter, 2004). Within the setting of a liberal democracy, the theory of pluralism is highly regarded. Public policy is idealised as an outcome of the free competition between ideas and interests driven by public demands and opinions. Pluralism, as presented originally by Dahl (1961), regards public policy as the outcome of competition between many different groups, all of which have access to the policy process, each using all its resources to influence the policy outcomes (Carter, 2004). No one group dominates the process; power is diffuse and policy moves in the direction of the strongest forces. The main criticism of pluralist theories is that they offer an incomplete, one-dimensional model of power that underestimates the influence of business interests (Lindblom, 1977; Dahl, 1982; Carter, 2004). Closed policy communities have been identified in several UK policy sectors, including energy, transport and water (Marsh and Rhodes 1992; Dudley and Richardson 1996), suggesting a tendency towards elitism. Nevertheless, pluralism is still the dominant perspective in studies of British politics (Marsh et al., 2001). However, power structures may vary between different policy domains within the same country. Thus, who holds the power and how it is distributed are empirical questions for each policy domain.

Theories of agenda control, such as 'the mobilisation of bias' (Bachrach and Baratz, 1962) and 'non-decision making' (Bachrach and Baratz, 1963), which describe the ability of the powerful to keep issues from the agenda, demonstrate that power is not simply the control of observable behaviour. Lukes (1974) addressed the difference between pluralist and non-decisionalist power in a three-dimensional framework, identifying dimensions of non-observable power, which are presented in Text Box 2.1. This could have implications for this study, as lines of power may not be evident (especially those related to the third dimension; see Text Box 2.1) or empirically testable. Parsons (2003) contended that business interests in capitalist systems, which exist in all liberal democracies, have a predominant influence on the policy-making process, leading to 'regulatory capture'

arguments. This relationship is evident in the UK, especially in sectors such as energy which were once nationally owned and where incumbent energy companies have long-established relationships with government (Mitchell, 2008).

Text Box 2.1 Dimensions of Power

First dimension – A has power over B and can motivate B to do something it would not otherwise do through the mobilisation of resources.

Second dimension – A constructs a barrier against the participation of B in decision making.

Third dimension – A influences or shapes the consciousness of B to accept inequalities and induce a sense of powerlessness.

Carter (2004:171) adapted from Lukes (1974).

Gaventa (1980) developed Lukes' dimensions of power and demonstrated that the three dimensions act upon one another and are tightly related, reinforcing one another's effects to make the true effects of power upon the powerless only evident in the light of all three. The total impact of the power dimensions is more than a sum of their parts, since they serve to create power and enforce powerlessness, while power, once established, is often self-sustaining (Gaventa, 1980). The second and third dimensions of power concern psychological dimensions that involve social myths, language and symbols and how they are manipulated (discussed further in Section 2.3.2) (Gaventa, 1980), which are important to acknowledge in order to fully understand the process at work. Marxist theories also address these dimensions by revealing the underlying processes at work in society. Constructivist approaches in political science are also concerned with psychological processes and the ability of reality, preferences and choices to be externally or socially constructed; which in turn are related back to epistemological and ontological questions (Marsh and Furlong, 2002). Harriss-White and Harriss (2006) described the lack of political will in government and the DTI to stimulate renewable energy, which may relate to these psychological dimensions of power.

2.2.4 Institutions

Institutions provide the structure through which new ideas are translated into policy and new problems or issues receive a response. Jordan and O'Riordan (1995) stated that the concept of 'institution' is very broad, as it applies both to structures of power and relationships, memberships or clients, resources and knowledge, and to socialised ways of looking at the world as shaped by communication, information transfer, and the patterns of status and association. For political scientists, institutions are "manifestations of order through their structure, relationships, rules and

norms that pattern society and permit the operation of government in all its varied forms” (Jordan and O’Riordan, 1995:4). Institutions vary in size and operate at different levels. The ‘state’ is an all-encompassing term referring to the entire set of institutions that constitutes the public sector (Howes, 2005). The existence of several different institutions within the state, in the form of ministries such as DECC, Defra and Department for Communities and Local Government (DCLG) in the UK, means that there are many ministerial styles that interact and shape policy development.

Within contemporary politics, the role of the institution has re-emerged as an important driver of policy change under the term ‘new institutionalism’ (Marsh and Olsen, 1984). This focuses attention on the context and structure of political interaction and how institutions shape and channel politics. The institutionalist argument is based on the fact that policies do not occur in a vacuum but are conditioned by the historical-institutional context in which they are made, which contains cultural norms regarding approaches to problem solving (Bailey, 2007). Formalised rules and behaviours enable policy making to take place against a background of stability⁵, which has its positive aspects but can also restrict learning by channelling ideas and behaviours. O’Riordan and Jordan (1995:12-13) argued that “individual action is guided less by conscious calculation of the returns expected from alternative choices than by duties, obligations and notions of what is expected or appropriate to a given situation”. This restricts the ability of the individual to act on new knowledge when behaviour is conditioned. Furthermore, politics is constantly evolving so, with the passing of time, certain practices and ideas can outlive their usefulness. Jordan and O’Riordan (1995) argued that institutions do make behaviours routine, though to some extent the routines are being continually renegotiated by human agency and the wider social structure. Giddens’ ‘theory of structuration’ demonstrates the mutually dependant relationship or dualism of structure and agency, or in this case institution and actors. He proposed that institutions both enable and constrain (Giddens, 1984): they enable by identifying what is socially possible or acceptable in society; they constrain by exerting biases that “funnel the policy process, narrowing the range of choices before policies are actually set” (Jordan and O’Riordan, 1995:1). This demonstrates once again how closely related certain determinants of policy change are and how difficult it is to separate them.

Institutions are fundamentally important in the structuring of society but are not passive entities. Hall (1993:109) contended that institutions are “critical mediating variables, constructed by conscious endeavour but usually more consequential than their creators intended. They are not a substitute for

⁵ Formal institutional procedures often mask the importance of informal arrangements or conventions (Greenaway et al., 1992). The difficulty of studying formal procedures is that “secrecy enshrouds many key bodies (e.g. cabinet committees) and vital components of government are hidden from public view” (Greenaway et al., 1992:3).

interests and ideas as the ultimate motors of political action, but they have a powerful effect on which interests prevail". Dryzek (1995:634) supported Hall with respect to policy development and argued that "any complex system, be it economic, political, or social, embodies imperatives or emergent properties that take effect regardless of the intentions of the denizens of that system". Consequently, institutions have an effect on policy development and change despite other interests. Moreover, they will continue to reinforce certain interests over others.

2.2.5 Policy Precedents

Policy precedents describe several factors, such as national policy principles, policy style and past policy, that set the context of policy making for development and change⁶. Institutional influences are one factor affecting policy principles and style but these can also be influenced by other, perhaps deeper, cultural norms. Jasanoff (2005) emphasised the importance of acknowledging national differences in policy styles when analysing policy development. She argued that policy differences cannot be explained entirely in terms of discrepant ideologies, national interests, policy priorities and states of technical development. The reasons for differences are more complex, as differences occur despite the learning and unifying effects of globalisation and its shared movements of knowledge, capital and society (Jasanoff, 2005). Since policy style may change over time, it is rejected by some scholars as a comparative lens for analysing policy change (Hayward and Page, 1995). Bailey (2007) argued that any characterisation of national policy style is a generalisation of highly complex political and social processes, and therefore prone to inaccuracy.

The transposition of EU legislation into national law by member states highlights a clear example of different national policy styles. The policy style concept, as pioneered by Jeremy Richardson, concerns the relationships between policy communities and has strong links to institutional setting. Richardson (1982) proposes two main dimensions of style in terms of approach and consultation: 'anticipatory versus reactionary' style and 'consensus-seeking versus imposing' style. Traditional portrayals of British 'environmental policy style' have often described it as flexible, informal, consensual, incremental, and devoid of long-term objectives (Wurzel, 2002). The UK policy style is also reactive and especially pragmatic (Jordan et al., 2003) in the field of environmental policies, where Britain's 'principles' have traditionally been based on scientific evidence and practicability or best practical means as opposed to some of its EU counterparts that operate using the 'precautionary principle', such as Germany (but not all member states, for example Greece) (Wurzel, 2002).

⁶ 'Policy principles' refer to the basic conceptualisation of policy as encoded in law and practice (Weale et al., 2005). 'Policy style' defines the distinctive process of policy making within which these principles are exercised (Weale et al., 2005) and 'past policy' refers to policy that preceded the current policy.

However, Wurzel (2002) suggested that the examination of British policy style reveals differences across sectors and over time. Hence, where British policy style rests in relation to Richardson's dimensions is debatable. In reference to this study, renewable energy policy is the responsibility of DECC, but its policies were historically negotiated between the DTI, Defra and The Treasury, linking environment, energy and economy: therefore, several sector styles may influence policy.

In the 1980s, the Thatcher government pursued a neoliberal agenda and a market-based approach to policy making, separating the government and industry by privatising national industries and creating new markets to manage these sectors (Helm, 2003). This approach or paradigm has been labelled the Regulatory State Paradigm (RSP) (Mitchell, 2008). Mitchell (2008:23) proposed, in essence, "RSP principles are that: markets and competition are seen as the most effective way of meeting societies' choices; politicians should be legally separated from the regulation and decision-making of industry; the means of 'steering' the delivery of efficient management of the UK's industries should be based on 'expert' knowledge and economic analysis using open and transparent processes and data; markets should be designed to be technology and fuel blind so that outcomes are not 'picked'; if an outcome is wanted, the policy put in place should mimic markets as far as possible and should not intervene directly in the market or network rules and incentives; as far as possible, direct regulation measures should be instituted only in the face of substantial market failures". Thus, across government, policy is shaped, informed and constrained by these principles (Mitchell, 2008).

2.3 Theories of the Policy Process and Policy Making

Section 2.2 highlighted that policy change and development are influenced by multiple factors. Many academics have sought to conceptualise these processes by according more importance to specific determinants, such as power and actors' networks in the ACF, or by focusing on discrete parts of the process, such as decision making. This section reviews the main theories and models deemed to be relevant to this study and policy learning, including: theories of decision making, discourses and networks.

2.3.1 Decision Making

Decision making has been used by many academics to theorise policy change (Parsons, 2003). It is the stage at which policy alternatives are identified and evaluated; thus, decisions at this level can directly drive change. However, it is recognised that decision making is itself a multi-stage and multi-actor process. Smith and May (1980) declared that the notion of decision making was indisputably central to the policy process. Decision-making theories emphasise the role of the decision maker or actor, whose behaviour may be influenced by institutional setting and rules, ideas, information, learning, interests and resource dependencies. The decision-making process requires 'learning' by the

decision makers about the various options and it is arguably the most important stage for learning given the potential impact of decisions on policy direction (although learning is necessary at every stage). Decision-making theories can be grouped into the following major approaches: power, rationality, public choice and its alternatives, institutional, information and psychological, many of which overlap (Parsons, 2003). With reference to policy change, Smith and May (1980) proposed that two main conceptual ideas have informed research, ‘rationalism’ and ‘incrementalism’: both have proved difficult to test empirically. Rationalism is informed by the rational actor, whereas theories including incrementalism adhere to behaviouralism, where action is conditioned by past experiences. Rationalism, incrementalism and closely related theories will now be discussed.

Several models deal with different concepts of rationality: the concept of economic rationality has developed from economic theory, while sociology has developed bureaucratic rationality (Parsons, 2003). Rationalism in general proposes that decision making follows a logical and explanatory process. Jordan and Richardson (1987) summarise the process as follows:

- Isolate objectives
- Determine alternative policies to achieve objectives
- Select the most appropriate means to secure desired ends
- Comprehensive analysis
- Rely on theory.

Jordan and Richardson (1987).

Thus, rationality proposes that decision making occurs via a rational process in which individuals or organisations with complete information evaluate each option and calculate the best alternative in the light of their objectives. However, “human rationality can be limited by many factors, such as incomplete or fragmented information, capacity of the decision maker, power of observation and communication, habits, psychology, interests and even the physical environment when it affects the process of choice” (Simons, 1957:81). Smith and May (1980) supported this view, arguing (1) that rationality neglects political variables, such as vested interests, that might influence decision making (environmental constraints); (2) that in reality most political decisions have numerous objectives and unpredictable outcomes – ambiguity in these areas should be acknowledged; (3) that the concept of rationality is subjective; and (4) that the assessment of all options is impractical. The concept of bounded rationality considers the limits of the individual and the availability of information, making the concept more pragmatic. This concept of asymmetrical or imperfect information is important in

this study as information informs learning. Interestingly, Simons further used psychology to explain the behavioural patterns of organisations and explored how they move beyond the limitations of individuals by building structures that guide individual behaviour (Zito and Schout, 2009), linking individual and organisational behaviour through structure (see Section 2.4.3).

Incrementalism⁷ contextualises decision making by acknowledging that decisions do not start with a blank canvas but with existing policy. Hence, policy making is an endless process that is always exploratory in nature (Greenaway et al., 1992). Stages are not clearly identifiable and decisions build up as policy makers trace well-tried paths and tend to avoid costly innovations or departures from the routine. Objectives are set in terms of existing means and resources and policy making takes place by trial and error and risk minimisation (Parsons, 2003). Changes considered are minor or incremental; therefore, few alternative options are reviewed and a limited number of consequences are envisaged for each alternative (Smith and May, 1980). One conceptualisation of incrementalism, termed partisan mutual adjustment, is based in pluralist democracies and involves multiple actors with competing views and values. Policy is thus the result of bargaining, negotiation and trade-offs, which makes explicit the political context of decisions.

The main criticisms of incrementalist theory are that it only works well for small and short-term changes, and does not cope easily with technological complexity or rapid policy change (Smith and May, 1980). Incrementalist models apply best when policy is working and problems are stable. Dror (1989) believed that incrementalism reinforces anti-innovation, conservatism and power structures, and that policy making is characterised by inertia and limited innovation. Empirical testing has, however, demonstrated that there are sudden shifts in policy and that large-scale policy changes do occur (True et al., 2007; Jasanoff, 2005). Research by Kingdon (2003) demonstrated that policy change is not dominated by incrementalism and that there seems to be just as many non-incremental changes. True et al. (2007) suggested that large-scale punctuations or changes in policy, from a decision-making perspective, spring from either a change in preference or in attentiveness on behalf of the decision maker, or the emergence of major anomalies (e.g. Hall, 1993; Oliver and Pemberton, 2004; Jasanoff, 2005). It is the large-scale changes and the forces driving them that are interesting in the context of this study because learning is signified by change. Incremental views of policy making imply ‘learning by doing’ but large-scale changes indicate learning of a different scale, driven by crisis and by heightened conceptual and political learning. Incrementalism, nevertheless, may explain why UK renewable energy policy has not changed radically, and why alternatives have not been considered or adopted.

⁷ Also termed ‘disjointed incrementalism’ because decisions are not subject to an overall plan, analysis, control or coordination (Parsons, 2003).

Smith and May (1980) argued that there is an artificial debate between rationalism and incrementalism, that both concepts employ a rationalism of sorts, and that they are actually incomparable as concepts as they explain different things. Mixed scanning, as developed by Etzioni (1967), is a third approach that recognises both rationality and incrementalism and attempts to compensate for the inadequacies of both. It concedes that rationalism requires greater resources than those available to decision makers but still explores long-run alternatives, unlike pure incrementalism (Etzioni, 1967). This is where certain aspects of a problem will be explored in detail with a general sweep across the problem as a whole, but policy change still exhibits incrementalist tendencies. Parsons (2003) further proposed that mixed scanning describes the reality of strategic decision making and is a model for better decision making in that it combines risk management and realism in relation to resources available with a less myopic and reactive view than would be the case for pure incrementalism. Ham and Hill (1984) questioned this theory, commenting that in some situations policy making does not proceed in a structured fashion but, rather, as an ‘unplanned drift’, making mixed scanning inapplicable. Mixed scanning has the potential to encourage fractionalised learning about only selected parts of a problem. Meanwhile, Kingdon (2003) perceived decision making as a much more anarchic and random process. He presented the ‘garbage can’ theory, in which loose collections of ideas, as opposed to coherent structures, exist and ideas ‘float around’ looking for problems and solutions. This theory suggests that learning is random.

2.3.2 Discourses

A discourse is a set of ideas, concepts and categorisations that are dominantly held in society at a given time (Dryzek, 1997). Discourses are the way paradigms and ideologies are articulated. They are social constructs and reveal a hidden bias, as different people hold different perceptions, for example, of what a ‘problem’ really is (Hajer, 1995). Gee (1999) argued that whenever a person writes or speaks they construct six areas of reality: the meaning and value of aspects of the material world, activities, identities and relationships, politics, connections and semiotics (what and how different symbol systems and different forms of knowledge count). Social constructivism and discourses have been developed by Kuhn, Berger and Luckmann, and Douglas and Giddens (Hajer, 1995). Several authors such as Dryzek (1997) and Hajer (1995) have applied discourse analysis to environmental policy change, attempting to understand why at some points certain ideas are accepted and others discredited. Dryzek (1997) described three main ways in which human environmental problem-solving efforts have been coordinated; namely, administrative rationalism, economic rationalism and democratic pragmatism. Dryzek’s discourses allow for generalisations to be made regarding the policy-making context and inform us of the positives and negatives we can expect from each approach including relationships to learning. However, boundaries between discourses are not this clearly cut in reality, and several discourses may exist at the same time in the same policy domain.

Hajer (1995) proposed that the discussion of an environmental problem involves many discourses. Administrative rationalism is a problem-solving discourse that approaches complex environmental problems by disaggregating them into parts for management ease and comprehension, and then re-aggregating solutions. It focuses on the role of the government expert rather than the citizen or producer/consumer, stressing the social relationships of hierarchy rather than equality or competition (Dryzek, 1997). Administrative rationalism is embodied in institutions and practices such as pollution control agencies, regulatory policy instruments and impact assessments. Discourse analysis of administrative rationalism can be seen in Table 2.1.

Table 2.1 Discourse Analysis of Administrative Rationalism

<p>1. Basic entities recognised or constructed:</p> <ul style="list-style-type: none"> • Liberal capitalism, • Administrative state, • Experts, • Managers. 	<p>3. Agents and their motives:</p> <ul style="list-style-type: none"> • Experts and managers, • Motivated by public interest, defined in unitary terms.
<p>2. Assumptions about natural relationships:</p> <ul style="list-style-type: none"> • Nature subordinate to human problem solving, • People subordinate to state, • Experts and managers control state. 	<p>4. Key metaphors and other rhetorical devices:</p> <ul style="list-style-type: none"> • Mixture of concern and reassurance, • The administrative mind.

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Dryzek (1997:76).

As shown in Table 2.1, administrative rationalism operates within the political economic status quo of liberal capitalism and relies on scientific expert knowledge. It does not challenge the current system of production or seek out other types of knowledge. Dryzek (2005) argued that its hierarchical and disaggregated structure provides no way to aggregate pieces of information in an intelligent fashion and that for truly complex problems no intelligent disaggregation may be possible. Dryzek (1997) contended that the structure of administration normally prevents learning being communicated up the administrative hierarchy, such that learning for the organisation as a whole is far more problematic. He observed that “as one ascends the administrative hierarchy the more limited time and information processing resources of individual administrators mean much information is lost; the more an organization is disciplined the less it can be expected to learn”(Dryzek, 1997:82). Research by Smith (2007) on ‘multi-level governance’ of renewable energy in the UK highlights the effects of structure on the movement of information between levels and its effect on policy learning, i.e. that it is slow and patchy. Administrative rationalism is the dominant governmental response to solving environmental problems despite its negative points.

In response, Dryzek (1997) offered the alternative problem-solving discourses of economic rationalism and democratic pragmatism, which are more consistent with current neoliberal government trends. Economic rationalism attempts to compensate for administrative failings by solving problems through the deployment of market mechanisms to allocate resources efficiently to achieve public ends. Operating under the premise that people care more for what they hold in private than they do collectively (Hardin, 1968), economic rationalism requires the privatisation of resources and individual property rights. Liverman (2004) proposed that this style of environmental governance can be seen throughout the world, where there has been a move to ‘commodify nature’ and market its services through allocation of individual land titles, water, forests, biodiversity, fisheries etc, changing the human environment relationship and the political economy of regions and landscapes. Liverman described how, through the use of markets, environmental management is being reworked to include many more actors. This is driven by several factors, including the weakening of central government institutions associated with neoliberal policies of deregulation, budget cuts, privatisation, and decentralisation (Liverman, 2004). Discourse analysis of economic rationalism is shown in Table 2.2.

Table 2.2 Discourse Analysis of Economic Rationalism

<p>1. Basic entities recognised or constructed:</p> <ul style="list-style-type: none"> • Consumers (not citizens), • Markets, • Prices, • Property, • Governments (not citizens). 	<p>3. Agents and their motives:</p> <ul style="list-style-type: none"> • Consumers: self interested, • Some government officials must be motivated by public interest.
<p>2. Assumptions about natural relationships:</p> <ul style="list-style-type: none"> • Competition, • Hierarchy based on expertise, • Subordination of nature. 	<p>4. Key metaphors and other rhetorical devices:</p> <ul style="list-style-type: none"> • Mechanistic, • Stigmatising administrative regulation, • Connection with freedom, • Horror stories.

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Dryzek (1997:115).

Despite the recent propagation of market instruments for environmental problems, several drawbacks have been recognised. Economic rationalism recognises only the individual consumer and not the citizen and thus tends to only count consumer monetary preferences. It addresses nature in an economic rationalist manner, reducing its value to that which can be gauged by money. The use of markets such as the European Emissions Trading Scheme has also been criticised for failing to

stigmatise pollution in the sense of giving ‘rights’ to pollute provided a price is paid. Walker (2001) expressed the views of many ecologists by condemning the use of markets to solve environmental problems as having tenuous connections with reality, reaffirming indiscriminate developmentalism and introducing new sources of anti-ecological rigidity. The jury is still out on their efficacy in solving environmental problems.

Democratic pragmatism, in many ways, offers some solutions to the problems and learning difficulties of administrative rationalism and economic rationalism, as it attempts to solve problems through the processes of liberal democracy (Dryzek, 1997). It operates under the premise that, for any problem, relevant knowledge cannot be centralised in the hands of any individual or administrative state structure. Thus, solutions should be as flexible as possible and include voices and cooperation across a plurality of perspectives (Dryzek, 1997). It is enacted through public consultation, alternative dispute resolution, policy dialogue, public enquiries and ‘right-to-know’ legislation (Dryzek, 1997), the aim of which is to promote dialogue, the sharing of knowledge and perspectives, and consensus building. Discourse analysis of democratic pragmatism can be seen in Table 2.3.

Table 2.3 Discourse Analysis of Democratic Pragmatism

<p>1. Basic entities recognised or constructed:</p> <ul style="list-style-type: none"> • Liberal capitalism, • Liberal democracy, • Citizens. 	<p>3. Agents and their motives:</p> <ul style="list-style-type: none"> • Many different agents, • Motivation a mix of material self interest and multiple conceptions of public interest.
<p>2. Assumptions about natural relationships:</p> <ul style="list-style-type: none"> • Equality among citizens, • Interactive political relationships, mixing competition and cooperation. 	<p>4. Key metaphors and other rhetorical devices</p> <ul style="list-style-type: none"> • Public policy as a result of forces, • Policy-like scientific experimentation, • Thermostat.

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Dryzek (1997:97).

Democratic pragmatism in operation has faced several obstacles. The main limitation is that the concentration of political power towards actors with large financial resources has the potential to skew the outcomes of debate and decision making in their direction (Dryzek, 1997). In addition, not all citizens are motivated by the greater good or with the environment in mind. Thus, outcomes may not favour the environment or public good generally. Dryzek (1997) observed that political rationality means that all actors must be mollified in proportion to their ability to create problems for government, irrespective of their interests, a view that does not correspond with ecological rationality.

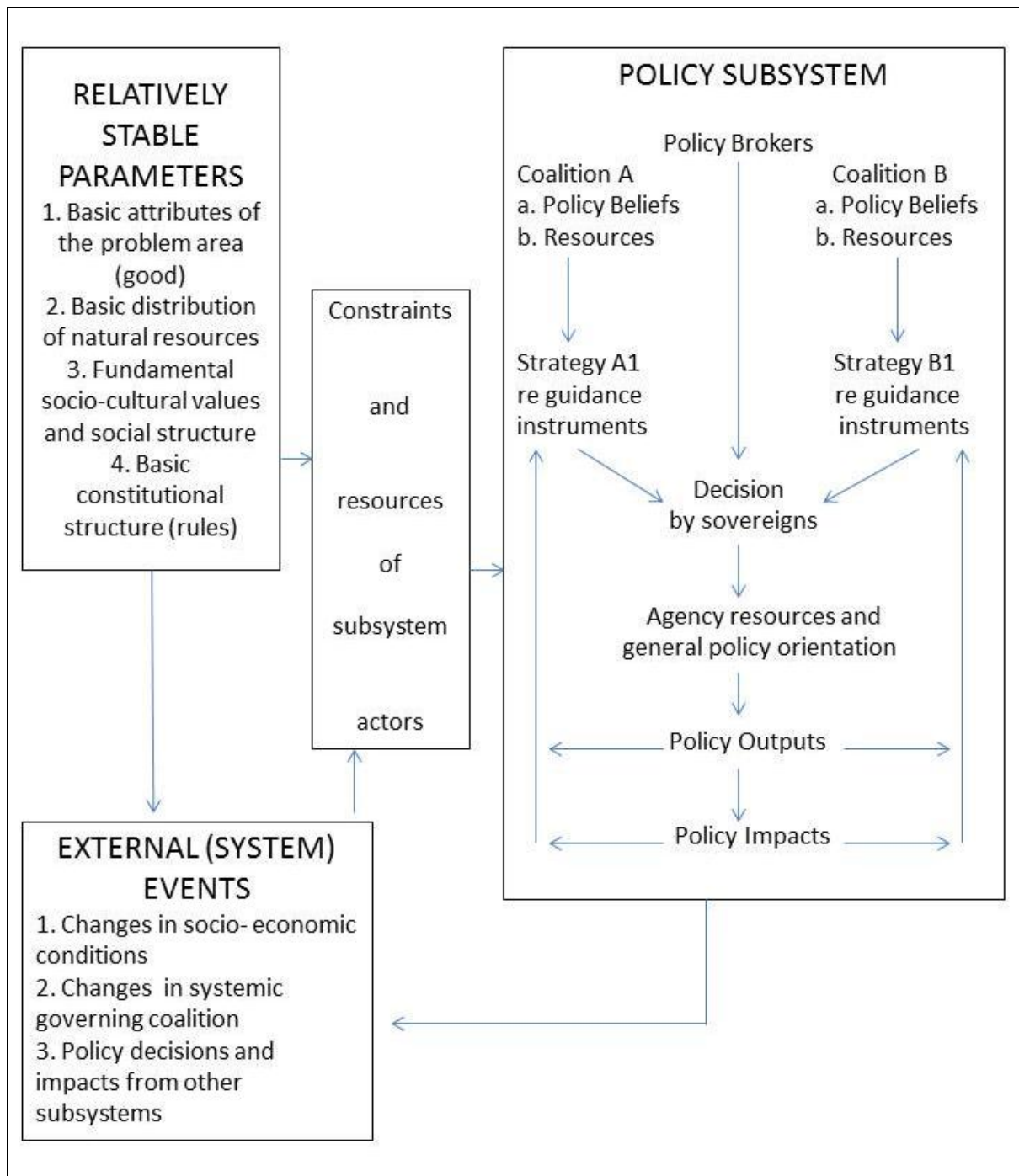
The largest advantage of democratic pragmatism is that it is more conducive to an awareness of its limitations, and so to efforts to overcome these limits (Dryzek, 1997).

2.3.3 Network Analysis

Network analysis focuses on the structures of dependency and relationships within policy networks and interactions between central government and local government, industry and producers to explain policy change (Rhodes, 1988). Early conceptions of policy networks were confined to ‘iron triangles’ i.e. administrative agencies, legislative committees and interest groups. However, these have been expanded to include other actors that might exert some influence over policy processes. The study of networks comprises two basic elements: (1) examining sets of actors and their preferences and influences, and (2) investigation of relationships between sets of actors involved in policy networks (Adam and Kriesi, 2007). The idea of networks is useful to this study in terms of methodology. First, the creation of a network map facilitates the identification of a representative sample of the main sets of actors to be interviewed. Second, it should also reveal important links in terms of who interacts with whom and on what basis (see Figure 3.1). For these reasons, Zito and Schout (2009:1120) observed that the idea of networks carrying and inserting ideas appears in most theorisations of policy learning, and that networks are a “critical dimension to the learning process”.

The ACF is a prominent network theory that stresses the role of actor beliefs and learning in policy making. It uses three sets of processes to explain policy change. First, it examines the role of competition between advocacy coalitions within a policy subsystem to advance their policy positions and beliefs. An advocacy coalition in this context is described by Sabatier and Jenkins-Smith (1993) as “a variety of actors from public and private institutions ... who share a basic set of basic beliefs (policy goals plus causal and other perceptions) and who seek to manipulate the rules, budgets, and personnel of governmental institutions in order to achieve these goals over time” (Sabatier and Jenkins-Smith, 1993:5). A second set of processes concerns factors external to the policy subsystem (e.g. changing socioeconomic conditions, system-wide governing coalitions, and outputs from other subsystems) that affect the dynamics of competing coalitions by creating opportunities and obstacles to advance their policy beliefs (Sabatier and Jenkins-Smith, 1993). The third set of processes involves stable system parameters, for example social structure and constitutional rules, and their effects on the resources and actions of the various actors. How these processes interact is demonstrated in Figure 2.1, which provides an overview of the different features of the framework.

Figure 2.1 The Advocacy Coalition Framework of Policy Change



(Sabatier and Jenkins-Smith, 1993:18).

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One of the most important features of the ACF is its explicit acknowledgement of the role of policy learning (knowledge and ideas) in policy change, in which policy-orientated learning produces “alterations of thought or behavioural intentions that result from experience and or new information

and that are concerned with the attainment of policy objectives” (Sabatier and Jenkins-Smith, 1999:123). Few models deal with the psychological and behavioural aspects of policy learning and its relationship to policy development as explicitly as the ACF framework, although Sabatier (1993) also acknowledges that learning is just one of several drivers of policy change. Sabatier (1993) also proposed that learning by advocacy coalitions is also often instrumental, in that members seek to improve their understanding of the world in order to further their own policy objectives. In other words, actors use learning to defend their belief systems by privileging information that reinforces their beliefs and rejecting information that does not. Sabatier (1999) thus argued that learning alone is unable to drive major policy changes, because it rarely alters core beliefs, and that major policy change is usually driven by factors external to the policy subsystem, external events such as changing socioeconomic conditions, a change in governing coalition, changes in public opinion, and impacts from other subsystems or crisis.

2.4 Policy Learning

2.4.1 Theories of Policy Learning (and Change)

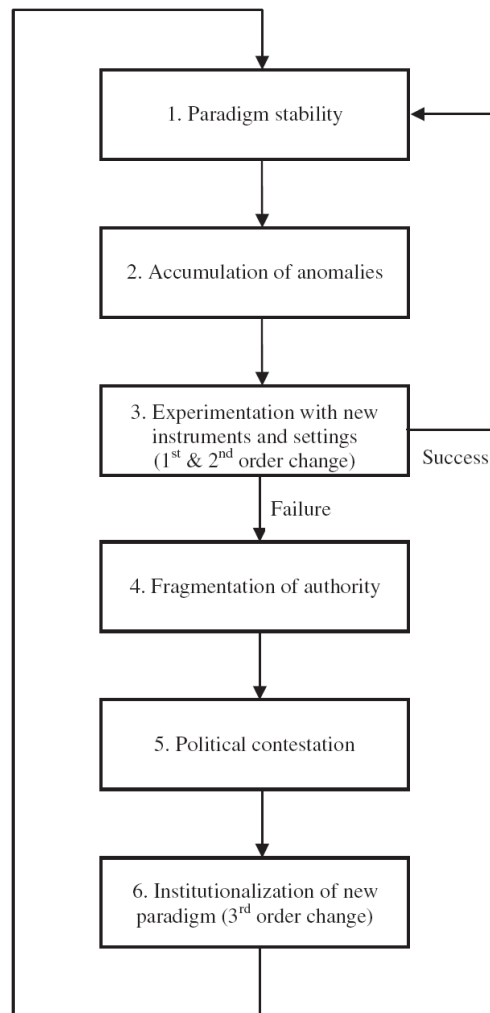
Despite its importance in aiding informed policy change, Nedergaard (2006:312) proposed that ‘policy learning’ is a ‘minefield’ of conceptual and methodological problems “because learning is difficult to define, isolate, operationalize and thus measure empirically”. This section compares several models of policy learning in order to highlight the differences and similarities between different types of learning and some of the key concerns and debates surrounding them. Among the works of policy learning discussed here are Hecló’s (1974) pioneering theory of ‘social learning’, Sabatier and Jenkins-Smith’s (1993) theory of ‘policy-orientated learning’, Hall’s (1993) theory of ‘social learning’ and Kemp and Weehuizen’s (2005) guidance on ‘policy learning’⁸. Bennett and Howlett (1992) proposed three guiding questions to help understand ‘policy learning’: (1) who is learning (elites, high-level politicians, civil servants, policy networks, communities, society or government)? (2) What do they learn (object of learning, what is learned about: instruments, policy, programmes, policy goals)? And (3) what are the effects of learning on policy change (organisational change, instrument change, paradigm shift, how policy problems are viewed and the sorts of policies preferred)? To highlight the relationship between learning and other elements of policy change an additional question is also considered: (4) what are the other factors that affect learning? These questions are now addressed.

⁸ As explained in the introduction, terms are subject to variability and the term ‘social learning’ used in several theories is in fact ‘policy learning’ (the actors are policy makers and government officials) in the context of this thesis.

'Who is learning?' is an important question, as the answer is intimately related to theoretical debates surrounding the role of the state and other actors in the policy process (Bennett and Howlett, 1992) and has implications for empirical testing. Three possibilities were put forward by Bennett and Howlett: (1) learning that takes place solely within the government or state (a state structural argument) where the actors are government elites and civil servants; (2) learning by state actors as a response to society, thus the significant actors are societal; and (3) both state officials and society are engaged in a complex relationship where they determine each other's activities including learning. Heclo (1974) believed that politics was deeply rooted in society and his initial understanding of policy learning was broad and pluralistic. However, his theory of policy learning was based on social policy, which is arguably one of the more open policy networks. He proposed that policy learning may encompass a variety of analytical levels nationally, internationally, individually, and within groups and organisations all interacting with one another through processes of diffusion and evaluation. He described a complex cobweb of interaction and generalised that there is no one pattern of learning in Britain or in any of the policy areas studied (Heclo, 1974). However, he conceded that administrators and civil servants play a leading part in policy development as they 'learn on society's behalf' and need to transfer this into policy. For other academics, the main agents of learning are advocacy coalitions or rather policy networks and policy communities. The ACF and its sub-theory of 'policy-orientated learning' focuses on the policy subsystem in which the actors are administrators, legislative committees and interest groups, but also journalists, researchers and policy analysts who play roles in expressing and evaluating policy ideas. Kemp and Weehuizen (2005) similarly proposed that policy is formed in a networking process with multiple public and private sectors.

Hall's (1993) model suggests that the key actors involved in the learning processes signified by first- and second-level changes (see Section 1.2) are experts, mainly from the state but also from industry working from privileged positions (see Figure 2.2, where boxes one to three represent normal policymaking). However, for third-level change, equivalent to paradigm shift, the debate spills over into the broader political arena and into society (see Figure 2.2). Therefore, the key actors or subjects of learning change in the case of major policy shifts away from civil servants and a handful of experts towards a broader set of societal actors (Hall, 1993). This creates an opportunity for policy entrepreneurs who could be elites from either state or industry. Therefore, it is important when investigating policy learning that state and society are considered; the results of this may offer further insight into 'real' learning.

Figure 2.2 Hall's Model of Paradigm Shift



Adapted by Oliver and Pemberton (2004:418).

This material is reproduced with permission from John Wiley & Sons Inc. Oliver and Pemberton, Learning and change in 20th century British economic policy, Governance, 17, 2004, p418.

What is being learned? The object of learning is central to each theory of policy learning as to an extent it indicates what to observe to determine whether learning is taking place. The object of learning in the concepts presented varies, demonstrating that the concepts themselves are not reconcilable. Bennett and Howlett (1992) commented that for Heclø the object of learning is ambiguous. Heclø believed that learning occurs as actors ‘puzzle’ on policy problems and this puzzlement is expressed through policy, suggesting that policy is the object of learning. However, he also realised that learning occurs about substance and process; thus, governments learn not only about what has been done in the past but how it was done (Bennett and Howlett, 1992).

For Sabatier and Jenkins-Smith (1993), policy learning is about the strengthening of core beliefs through the gathering of information and ideas that support or develop them. Bennett and Howlett (1992) proposed that policy-orientated learning generally involves: improving one's understanding of the state of variables defined as important by one's belief system (or secondarily by competing belief systems), refining one's understanding of logical and causal relationships internal to a belief system, and identifying and responding to challenges to one's belief system. "What is being learned is how to achieve one's ends better or how to better implement public policies" (Bennett and Howlett, 1992:284). Thus, as Heclo said, what is being learned is process and substance.

Hall's model of policy learning has three levels, each corresponding to a different element of policy (instrument settings, instruments, and goals and beliefs) and therefore a different object of learning (see Section 1.2). First-level change involves learning about instrument settings in the light of experience and new knowledge, while the overall goals and instruments of policy remain unchanged (Hall, 1993). Second-level change involves learning about different policy instruments as well as their settings, which are altered in response to past experience even though the overall goals of policy remain the same (Hall, 1993). Third-level change involves learning about all three components of policy, the instrument settings, the instruments themselves and the hierarchy of goals behind policy (Hall, 1993). Hall clearly believes that learning can occur at all levels including goals and beliefs whereas Sabatier and Jenkins-Smith reject the idea that core beliefs (similar to Hall's third level) change through learning, as information that contradicts these beliefs is rejected.

Nilsson (2005) observed that the Swedish government learnt about decision-making processes as they attempted environmental policy integration and reframed towards sustainable development. This was indicated by changes in institutional routines, such as changing decision-making processes to include more stakeholders. Zito and Schout (2009) categorised learning about process as organisational learning (see Section 2.4.3). Big changes to process are easy to identify and attribute to learning, but more subtle and incremental changes to process might go unnoticed. Thus, the objects of learning can be multiple and might not necessarily be easily or quickly expressed in policy. This has implications for empirical research in that 'tacit' learning or rather 'know how' may go unobserved.

What are the effects of learning? Identifying and measuring the effects of learning are important in order to be able to determine that learning has taken place and, furthermore, to be able to make prescriptions about how to maximise learning (Nedergaard, 2009). However, a lack of empirical testing is rife within this research area (Nedergaard, 2006). Heclo does not really present what the 'effects' of learning might be, apart from more effective policy. For Hall (1993) the effects of learning are evident through change and the amount of change signifies the extent of learning. Several academics have argued that for policy learning to have taken place there must be a cognitive change in actor understanding, as well as a behavioural change (Fiorino, 2001; Zito and Schout, 2009).

However, Flockhart (2004) argued that learning can occur without policy change and terms this passive learning. Similarly, Zito and Schout (2009) presented the concept of blocked learning, which has a similar outcome, i.e. no observable change, where there is a cognitive change at the level of the individual but structures, interests and current world views prevent learning from being embedded. Both concepts pose methodological difficulties: if there is no observable change it is difficult to identify whether learning has taken place (Nedergaard, 2006).

Identifying and understanding how different factors affect learning might explain whether learning is or is not taking place and if its effects are constrained (blocked) or stimulated. It also may enhance empirical testing, as certain factors may be associated with learning. For example, Nilsson (2005) proposed that increasing resource dependencies and new actor configurations facilitates conceptual learning. Other factors might also influence the type of learning taking place. The ACF describes how information and knowledge are manipulated by the powerful to exert influence in the policy domain. Jasanoff (2005) highlights the importance of knowledge and information in politics today as she describes the transformation from industrial society to 'knowledge society'. She proposes that important aspects of political behaviour and action cluster around the way in which knowledge is generated, distributed and used to underwrite collective decisions (Jasanoff, 2005). Thus, learning is channelled by the manipulation of knowledge and information by the powerful. Furthermore, if information is only partial then learning will be bounded, a point highlighted by the decision-making concept of bounded rationality presented in Section 2.3.1. Sabatier (1999) argued that policy-orientated learning is more difficult in Britain than in many other countries because of the norms of secrecy that permeate the civil service. This suggests that institutional factors or policy-making style affect learning. Jordan and Greenaway (1997:27) criticised the ACF for neglecting enduring institutional factors that apportion resources unevenly and help to exclude "outsiders".

Nilsson (2005) commented that configurations of actors, power and institutional rules are of particular interest in exploring interactions between external factors, institutions and learning. He believed that policy-making rules influence policy learning, as they influence the way in which actors interact. He explained that central government's hierarchy and rules mean that it is difficult to share ideas and engage in long-term thinking (Nilsson, 2005). Such rules and bureaucracy create a lag time between learning and actual policy decisions (Nilsson, 2005). That institutions constrain learning supports the ideas presented by the administrative rationalism discourse in Section 2.3.2. It also has implications empirically, as if learning is not expressed in policy for some time, long timeframes are needed to analyse learning. However, using extended timeframes mean that it is almost certain that instances of policy learning will be identified (Radaelli, 2009).

2.4.2 Reconciling Different Theories

The previous discussion of the major ‘policy learning’ theories has revealed that different approaches and conceptualisations of learning cannot be easily contained under one umbrella definition (Grin and Loeber, 2007). Different models identify different aspects of policy learning, and some conceptions conflict. Bennett and Howlett (1992) concluded that ‘policy learning’ is an all-encompassing term that embraces three highly complex processes: learning about organisations (government learning); learning about programmes (lesson drawing); and learning about policies (social learning). Further to this, Zito and Schout (2009) suggested that learning is contingent on conditions and, thus, that the policy process reveals different forms of learning and non-learning. Building on the work of Bennett and Howlett (1992) they provided the classifications of learning models shown in Table 2.4.

Table 2.4 Learning Models

Learning types		Literature thread/ author	Learns what	To what effect
Learning	Organisational learning	Organisational learning: Simon, Cyert, March	Process-related behaviour and strategy	Organisational change and political positioning
	Lesson drawing (instrumental learning)	Policy learning and diffusion: Rose, Bennett and Rodgers	Instruments	Programme change
	Social learning	Policy learning and international networks: Heclo, Sabatier, Hall, Hass	Ideas, world views	Core paradigm, value shift
	Political learning; also symbolic learning	May, Heclo; DiMaggio and Powell	Understanding preferences of others; sell the argument	Win elections (politicians) or maximise budgets (bureaucrats); to gain legitimacy
	Un-learning	Implicit in most threads but especially organisational learning: Argyris and Schon	Abandonment of particular ideas	Actors seek to substitute with new ideas perceived to be better
‘Non-learning’	‘No’ learning	Organisational and policy learning: Simon, Rose	No change in cognition and behaviour	Actors in process are satisfied with status quo
	Blocked learning	Organisational learning: Crossan, Hedberg	Cognitive change occurs but structures, interests and current world views block behavioural change	Learning remains at individual or group level and is not embedded into organisational and network routines

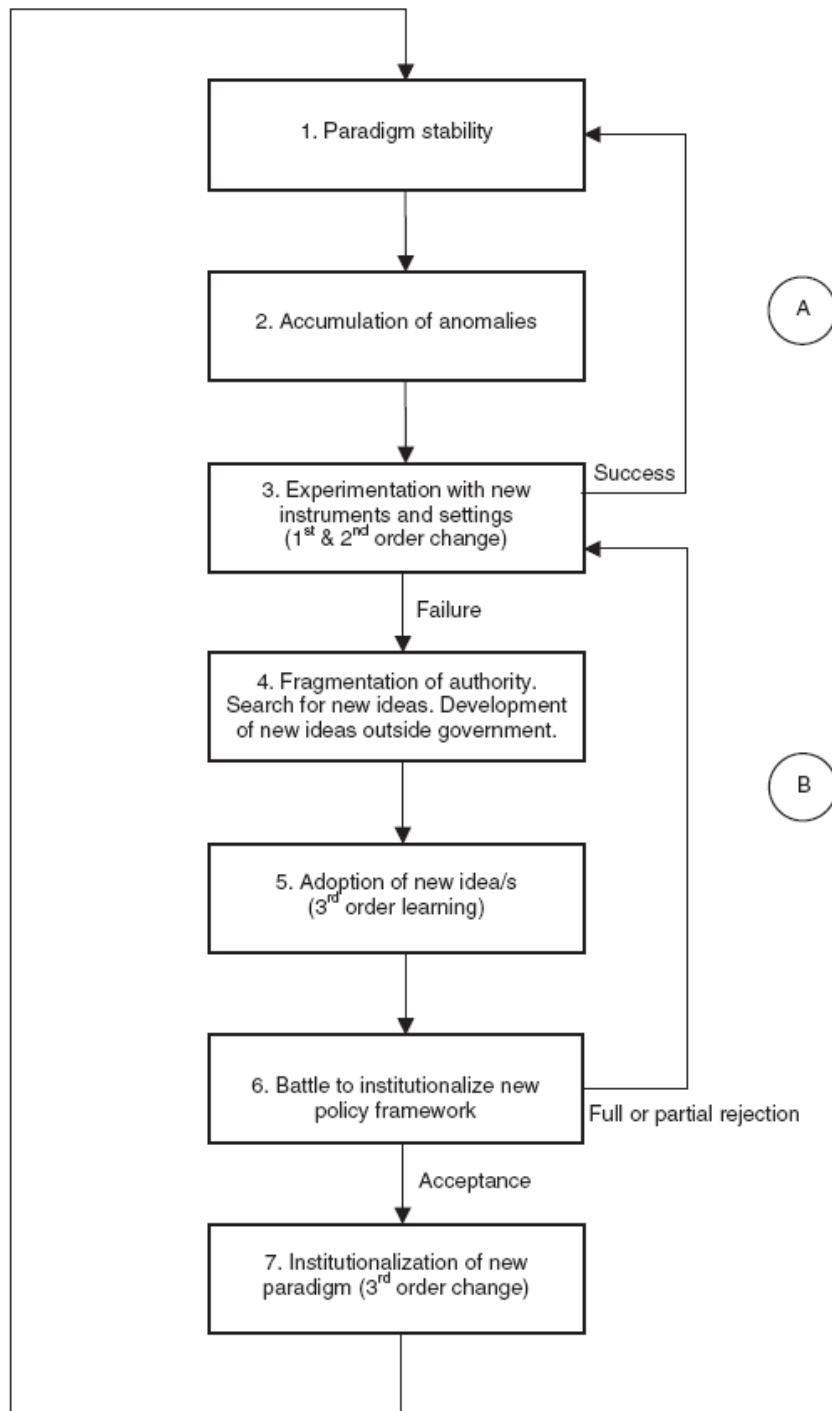
From Table 2.4 we can see the effects of each type of learning and how they might be identified using the effects as a proxy indicator of the different types of policy learning or non-learning taking place. Bennett and Howlett (1992) concluded that it might be impossible to isolate learning, as policy change can be attributed to other social or political forces. However, Nilsson (2005) proposed that learning can be separated from other drivers of policy change by tracing events over sufficiently long timescales. Nevertheless, given the complexity of the political system it may be the case that the learning taking place cannot be neatly categorised. Jordan and Greenaway (1997) tested Hall's model in reference to British coastal water policy. They concluded that the results showed just how 'complicated' and 'multi-layered' and 'messy' the policy process can be and that attempts to classify beliefs or policies into a hierarchical, tripartite structure verge on the over-dogmatic.

Varone et al. (2004) also used Hall's model in a comparative study to investigate the effect of market liberalisation on renewable electricity policy in several EU countries. They concluded that the model might not be appropriate for the specific policy domain investigated because the distinction between changes may not fit with the actual description of the importance of those changes. They cited the German example, where the payments for photovoltaic electricity (PV) increased sevenfold. This would be defined by Hall's model as a minor change but it stimulated a major PV boom (Varone et al., 2004). They proposed that the increase was comparable to an intermediate or even major change. It is arguable, however, that this was the result of successful policy that did not reflect a paradigm change or a change in beliefs or major policy goals. Oliver and Pemberton (2004) reinforced this argument by revealing the inadequacies of Hall's model through its application to UK economic policy making from the 1930s to 2004. They argued that Hall's model is only adequate when applied to the years between 1970 and 1989 and not for the policy change and the movement of ideas that signified the Keynesian revolution, 1930s and Keynesian-plus changes, or 1960s (Oliver and Pemberton, 2004). They demonstrated that, in several cases, struggles between ideas and large-scale policy change did not lead to wholesale paradigm replacement.

Oliver and Pemberton (2004) then developed a more sophisticated model of 'policy learning' from Hall's model, which allows for disruptions and failing of policy synonymous with third-level change that does not result in paradigm shift (see Figure 2.3). Their model acknowledges the importance and impact of policy networks in the battle to institutionalise new ideas. They suggested that an administrative battle of ideas might be just as important a determinant of political change as political struggle (Oliver and Pemberton, 2004) and also acknowledged the importance of exogenous shocks in catalysing change. Their model of 'evolution and revolution' contains two feedback loops (A and B in Figure 2.3). The first (A) deals with normal policy making, where solutions are effective and the

paradigm returns to stability similar to Hall's (1993) levels one and two. The second (B) deals with situations where new ideas regarding problem solutions are rejected, which leads to further experimentation and searching. At points 4, 5 and 6, the battle to institutionalise new ideas is fought and there can be one of three outcomes: rejection, partial rejection or acceptance. They illustrate how, in several cases of economic policy making, policy paradigms changed through punctuated equilibrium and an administrative battle that took place within government. For example, the move from the Keynesian to the monetarist paradigm took place over decades rather than through a clear shift. The process involved a complex series of iterations of first- and second-order changes combined with partial integration of ideas from outside the prevailing framework. Vested interests were successful in resisting radical change and, with no additional outside shock, new ideas were incorporated into the existing framework (Oliver and Pemberton, 2004). This demonstrates how core beliefs are resistant to learning and suggests that vested interests can act as a barrier to learning. Thus, Oliver and Pemberton (2004) concluded that paradigms did evolve and that changes occurred that were insufficient to justify the term paradigm shift but that were more significant than Hall's second-level change. The Oliver and Pemberton (2004) model is potentially useful in the context of this study as it increases the number of levels of change possible, which may add insight into the types of learning associated with such changes.

Figure 2.3 Policy Revolution and Evolution



Oliver and Pemberton (2004:420).

This material is reproduced with permission from John Wiley & Sons Inc. Oliver and Pemberton, Learning and change in 20th century British economic policy, Governance, 17, 2004, p420.

2.4.3 Individual and Organisational Learning

An important distinction is between individual and collective learning (Kemp and Weehuizen, 2005). “Traditionally the analysis of learning has been dominated by approaches based on psychological, pedagogical and philosophical theories” (Nedergaard, 2006:312) that focus on the individual. These behaviourist approaches perceive learning as a cognitive accumulation of facts⁹. Therefore, in broad terms, policy learning is undertaken by the individual (through cognition) who then influences policy in some way. However, in most policy situations, decisions are not taken by one individual, but involve multiple actors and organisations, and, therefore, group or collective learning processes. In this respect, organisational learning is often more relevant than individual learning (Kemp and Weehuizen, 2005). Nevis et al. (1995:15) defined organisational learning as “the capacity or processes within an organization to maintain or improve performance based on experience”¹⁰. The organisational learning literature presents several insights into group learning processes in organisations. However, government learning is arguably even more complex than organisational learning, as it involves multiple governmental and non-governmental organisations. “These include the executive, legislative, and judicial bodies, as well as a multitude of civil service departments, agencies, and state-controlled enterprises” (Blindenbacher, World Bank, 2010).

Argyris and Schön (1974) proposed a model of organisational learning based on theories of action or rather actor behaviour which they termed ‘single- and double-loop learning’. Single-loop learning involves searching for a new strategy without questioning established goals and objectives (Kemp and Weehuizen, 2005) and this parallels technical learning as defined by Hall. The values involved in single-loop learning are “achieving purpose as others define it, winning, suppressing negative feelings, and emphasizing rationality” (Argyris, 1976:367). Double-loop learning occurs when the detection and correction of errors involves the modification of the organisation’s objectives, goals and norms (Argyris and Schön, 1974) and parallels conceptual learning as described by Hall (see Chapter 6). The values involved in double-loop learning are valid information, free and informed choice, and internal commitment (Argyris, 1976). Kemp and Weehuizen (2005) argued that organisations are acculturated to primarily be single-loop learners because organisational structures reinforce stability and guide individual action. “Participants in organisations are encouraged to learn to perform as long

⁹ It is noteworthy that several academics have pursued constructivist approaches that analyse learning through communication processes, when words are situated in different relationships to each other (Nedergaard, 2006; Zito and Schout, 2009).

¹⁰ There is no theory or model of organisational learning that is universally accepted (Fiol and Lyles, 1985), so it has multiple definitions (Gilson et al., 2008).

as the learning does not question the fundamental design, goals and activities of their organisations”; thus, the limitation placed on learning through limited exploration and information helps provide stability but inhibits learning about fundamental organisational issues (Argyris, 1976:367).

Nevertheless, Argyris (1976) argued that double-loop learning is necessary if individuals and organisations are to make informed decisions in rapidly changing and/ or uncertain contexts. He did not make suggestions as to how to stimulate double-loop learning under ‘non-crisis’ circumstances, but he did describe the behaviour required to satisfy the values of double-loop learning.

“Articulateness and advocacy are coupled with an invitation to confront one another’s views and to alter them, in order to produce the position that is based on the most complete and valid information possible” (Argyris, 1976:369). Thus, the behavioural strategies of double-loop learning involve power sharing with anyone who has competence, restricted ‘face saving’, creating decision-making networks where the most competent people are selected and individual contributions to group work are maximised, providing the widest exploration of views (Argyris, 1976).

2.4.4 Policy Diffusion and Transfer

“The concept of policy learning is often used interchangeably, or at least simultaneously, with policy diffusion, lesson drawing and policy transfer” (Bomberg, 2007:255). These terms are all used to describe how experiences from one policy area shape the development of policy in another. Bomberg (2007) argued that policy diffusion is not the same as learning because policy diffusion is primarily concerned with the convergence of policies and not non-convergence, whereas ‘policy learning’ involves learning about existing policies in one context and considering how or whether to alter policy in another (Bomberg, 2007). Thus, learning may not produce convergence. Zito and Schout (2009) proposed that diffusion studies are concerned with the objects of change rather than the processes. Further to this, Tews (2005) suggested that diffusion occurs through certain channels over time, for example through NGOs, and the infiltration of ideas is not an active search for solutions, giving it a passive dimension.

Dolowitz and Marsh (1996:343) defined policy transfer as a “process in which knowledge about policies, administrative arrangements, institutions etc in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place”. Grin and Loeber (2007) proposed three types of transfer: voluntary transfer, direct coercive transfer, and indirect coercive transfer. They highlighted that with policy transfer there are issues surrounding the motivations for the adoption of new policy as these may be political and not purely to do with the merits and applicability of the policy being transferred. Bomberg (2007:255) argued that “most transfer approaches focus on the institutional conditions and context of the actual transfer, whereas learning approaches are usually broader and emphasise the process by which actors acquire and use knowledge in decisions regarding the adoption or development of policies, principles and so on”.

Tews (2005) argued that there are a range of stimulants for policy transfer that are not directly related to learning. These include: harmonisation or cooperation at the international level that moves policy towards an agreed standard, e.g. EU directives; hierarchical positioning where one country or organisation adopts the policy of another to secure resources, e.g. EU ascension; competition, e.g. the race to the top or to the bottom; and communication of new knowledge or ideas about how to design and implement policies. Bomberg (2007), through research with Environmental Non-Government Organisations (ENGOS) and their influence on the uptake of New Environmental Policy Instruments (NEPIs) concluded that they are important carriers of ideas and best practice, but that there is a political dimension in the way that they advocate some NEPIs and not others. She shifts the focus of policy learning away from the importers of policy and the methods of transfer or diffusion and asks who is doing the teaching? Teaching what? And to what effect? This expands on the work done by Bennett and Howlett (1992) and unpacks the concept of policy learning as a multifaceted process (Bomberg, 2007). She uncovers competition between the ‘teachers’ who have rival lessons to export (Bomberg, 2007). Thus, policy learning can be seen to have a push and pull dynamic.

2.5 Social Learning and Policy

As for ‘policy learning’, there is no widely accepted or consistent definition of ‘social learning’ (Glasser, 2007). As a result it does not necessarily possess a common theoretical perspective or discipline (Parson and Clark, 1995). In spite of this, Keen et al. (2005:4) attempted to provide a definition of social learning as “the collective action and reflection that occurs among different individuals and groups as they work to improve the management of human and environment interrelations”. While the social learning process is ambiguous, the goal is a society that is continuously becoming better adapted to addressing policy problems. Parson and Clark (1995) proposed that the deepest difference in perspectives on social learning is that, for some people, it means learning by individuals that takes place in a social setting, whereas for others it means learning by social aggregates. For instance, Gale (1996) defined social learning as learning that occurs in any situation in which agents learn by observing the behaviour of others, whereas Siebenhuner and Suplie (2005) proposed it to be learning that is collective. Whether the process of social learning is individual or collective is not fundamental to this study, which focuses rather on its relationship to policy change and development.

Dyball et al. (2007) suggested that there are five strands of social learning: (1) iterative reflection, undertaken when we share our experiences and ideas with others; (2) systems thinking, which informs social learning when all human interactions with the environment are considered to create a holistic understanding of change; (3) integration and synthesis, which requires frameworks to be created that link people in society, vertically and horizontally; (4) negotiation and collaboration, bringing together all viewpoints and perspectives and reminding us that conflict is an important part of change as it

provides learning experiences; (5) participation and engagement, which requires collaborative community learning partnerships. Glasbergen (1996), through his work on policy learning, described three features of social learning: (1) structural openness, which describes the government policy-making structure and a shift towards communicative governance, defined by ongoing and accessible relationships between government, industry, NGOs, the public and other actors; (2) an approach to implementation that relies on cooperation, networks and shared responsibility for achieving goals (in contrast to traditional models, which rely on hierarchy and control); and (3) the recognition of uncertainty within science, incomplete knowledge of problems, and the capacity of policy to solve them. This suggests the sorts of activities that should be occurring within society to engage in social learning.

The socio-technical transitions literature argues that the transition to a sustainable energy system requires new ways of ordering society, new ways of organising our institutions, and continuous processes of social learning (Lehtonen and Kern, 2009). Additionally, social learning “based on interaction and communication is vital for legitimacy of policy: strong social support is needed for governments pursuing long term radical policy objectives” (Lehtonen and Kern, 2009:120). Lehtonen and Kern (2009) further contended that social learning will not arise spontaneously and that it falls to government to orchestrate participation. MacKerron (2009) proposed that this can be achieved through wide-ranging public and stakeholder engagement. However, a key challenge for participatory processes is aligning disparate interests. An investigation into the extent of social learning for renewable energy is beyond the scope of this study but interviews with stakeholders should indicate whether mechanisms exist that enable knowledge and information to be transferred to key policy actors. Mechanisms that link policy and social learning may include public consultation, focus groups, or deliberative workshops such as regionally based citizens panels (MacKerron, 2009). However, Mitchell (2008:42) observed that the current regulatory state paradigm relegates “individuals, citizens and small businesses, local and regional government to the side-line of policy design and development”, which suggests that the potential for social learning to take place in UK renewable energy policy is low. The general public will not be included in the empirical study of this thesis as its specific focus is policy learning rather than social learning. However, their views and potential to influence policy may be ascertainable through representative organisations.

2.6 Conclusion

The aim of this chapter has been to review the existing literature on the concept of policy learning and its role in the wider process of policy change. Section 2.2 outlined the main factors influencing policy change, and attempted to determine their relative importance and how they are interconnected. In fact, it demonstrated that the importance of each factor is subjective. Different authors place more emphasis on some factors than on others so there is no coherent pattern or order. In addition, the

complex, multi-layered relationships between factors make it difficult to create a comprehensive picture. Of the factors considered (ideas, actors, power, institutions and policy precedents), few are 'visible' and all are difficult to measure or prove causal relationships, or gather empirical data on. However, all the factors that influence policy are enacted through key actors, such as politicians, civil servants, industry and NGOs. This study will therefore concentrate on these actors. A range of actors were interviewed about how they are influenced by the other policy factors. Method and respondent triangulation was used to understand the contribution of these other factors to policy events and their relationship to policy learning.

Section 2.3 presented the main theories and concepts relating to policy change and development relevant to this thesis. Once again, the volume of academic theories underlines divergent perceptions of the policy process and policy change. Such theories informed the study but few are directly applicable, though several link to policy learning. The network approach seems the most useful as it allows several key questions to be answered, such as who are the key actors involved in policy learning? The network approach allows links to be made between organisations in terms of power and resources and how information and knowledge are transferred.

Section 2.4 compared several concepts of policy learning and focused attention on their aggregate components. This demonstrated that there are multiple conceptions of policy learning, many of which cannot be easily reconciled (Bennett and Howlett, 1992). This exercise informed this study's methodology on several counts. The question of 'who is learning?' could not be answered from the concepts of policy learning presented. This will be overcome by using the network approach, which, although domain specific, will go some way to identifying 'key learners', and how they are situated in the wider policy network. The objects of learning are also manifold (e.g. targets, instruments, goals, values etc) and how they are related is unclear. Learning may not correlate directly with policy change but looking at renewable energy policy over a 20-year period should allow learning to be traced and become evident over time.

Analysis of the concepts of policy learning has shown that none are individually encompassing enough to singularly inform this study's methodology. However, Hall's/Oliver and Pemberton's model, combined with the definitions of Kemp and Weehuizen (2005) and Nilsson (2005), ('instrumental learning', 'political learning' and 'conceptual learning'), provide a picture of how different types of learning may correspond to change. Nilsson's (2005) definition of 'political learning' may prove particularly insightful when explaining why policy has not changed despite learning that has taken place. Using these concepts will allow changes to be evaluated in terms of their size, importance, impact and to an extent identify the conditions and motivations that have stimulated them. A major problem for the methodology is that there is no certain way of identifying when change is the result of learning or other political economy factors. Looking at the conditions

surrounding the change may indicate this, but it is ultimately a personal interpretation. Another quandary is how to evaluate whether policy learning is actually taking place or not. The identification of policy learning mechanisms through interviews with government and stakeholders will determine whether policy learning is possible. However, whether or not learning is actually happening is a value judgement. As will be discussed in the methodology, this might be overcome by creating a list of criteria to try to separate learning and change.

Chapter 3 – Methodology

3.1 Introduction

The first part of this study outlined a range of ideological, political and practical issues relevant to the concept of policy learning and renewable energy policy in the UK. This chapter introduces the methodological approach used to address the study's aims and objectives (see Section 1.4). To examine the contribution of learning to the development of UK renewable energy policy, a qualitative methodology was employed that combined semi-structured interviews with analysis of policy documents in order to elicit expert opinions and review relevant policy events. This is an established approach for studying policy change (Hertz and Imber, 1995) and has been used in several previous studies of policy learning (see Table 3.1). The chapter starts by reviewing these previous studies and their methods, paying special attention to those that analyse policy learning (Section 3.2). The next section reviews general research considerations and how these were managed within the present study, including analysis of the spatial and temporal dimensions of policy learning; enhancing validity and reliability through methodological and respondent triangulation; and issues associated with researcher values (Section 3.3). The next two sections detail the data collection methods used. The strengths and weaknesses of interview techniques are analysed and the process of conducting semi-structured interviews is described, focusing on interviewee selection, interview design, and the recording and transcribing of interview data (Section 3.4). Document analysis is also examined and the selection of policy documents is then described (Section 3.5). The method used for data analysis was similar for both data collection techniques, so the analysis section deals with both techniques together to avoid repetition. It examines the use of content analysis over other analysis techniques, coding and categorisation of data, and the specific analysis of policy learning (Section 3.6). The chapter concludes with a summary of the chosen methodological approach (Section 3.7).

3.2 Previous Studies

The literature review (Chapter 2) revealed numerous previous studies of policy learning. Many studies touched on policy learning briefly, perhaps in their conclusions, even if the empirical research itself did not directly focus on policy learning (e.g. Mitchell and Connor, 2004). Several studies engaged with policy learning more directly, either at a purely theoretical level (e.g. Bennett and Howlett, 1992), or by examining policy learning theories in a specific policy area (e.g. Nilsson, 2005). Only one previous study directly addressed the analysis of policy learning: Kemp and Weehuizen (2005), who also observed that there has been limited empirical research on how to study policy learning. Thus, most studies fail to address the key methodological issue associated with the concept, i.e. how to separate policy learning from other drivers of policy change and how to observe change through time. Table 3.1 outlines the methods used in previous relevant studies.

Table 3.1 Methods Used in Previous Studies

Key: D = documents, FW = field work, I = interviews, SSI = semi-structured interviews, NMS = no methods stated, TP = theoretical paper, S = postal survey.

Author	Year	Study	Methods
Studies that briefly mention the concept of policy learning, e.g. in the conclusion			
Mitchell & Connor	2004	Renewable energy policy	D
Szarka	2005	Wind power, policy learning and paradigm change	FW
Jordan & Greenaway	1997	British coastal water policy	D
Foxon & Pearson	2007	Policy processes and UK renewable electricity	D
Studies that specifically focus on policy learning			
Bennett & Howlett	1992	Policy learning	TP
May	1992	Policy learning and failure	D
Hall	1993	Policy paradigms, social learning, and the State. The case of economic policy making in Britain	D
Sabatier & Jenkins-Smith	1993	The dynamics of policy-orientated learning	TP
Glasbergen	1996	Learning to manage the environment	D
Fiorino	2001	Environmental policy as learning in the USA	FW & D
Braun & Benninghoff	2003	Policy learning in Swiss research policy	D
Oliver & Pemberton	2004	Policy learning in UK economic policy	D
Nilsson	2004	Learning, EPI, energy policy	30 SSI & D
Siebenhuner & Suplie	2005	Biodiversity policy and institutional learning	NMS
Nedergaard	2006	Policy learning in the EU - employment strategy	NMS
Hermans	2007	Policy learning and water resource management	D
Bomberg	2007	Policy learning, EU, NEPI, diffusion, transfer	SSI 5 groups & D
Smith	2007	Renewable energy governance policy learning	32 I & D
Grin & Loeber	2007	Theories of policy learning	TP
Zarkin	2008	Organisational learning in communication regulation	D
Studies that suggest how to empirically test policy learning			
Kemp & Weehuizen	2005	Policy learning - how to analyse it	TP
Other policy studies			
de Lovinfosse & Varone	2004	Renewable electricity policies in Europe	D
Connor	2004	Renewable electricity in the UK	D
Bailey	2007	Market environmentalism and NEPI	45 I, 1200 S & D

Table 3.1 shows that the studies that have applied policy learning concepts to specific case studies cover many policy domains and sectors: e.g. Sabatier and Jenkins-Smith (1993) on energy policy; Hall (1993) on economic policy; Nilsson (2005) on energy policy; Hermans (2007) on water resource management; and Fiorino (2001) on environmental policy in the USA. Many of the texts rely heavily on documentary data and few have tested their hypotheses empirically. Those that did so include Hall (1993), Oliver and Pemberton (2004), and Hermans (2007). Therefore, other studies relevant to this thesis (such as other types of policy studies) have also been included to demonstrate how specific phenomena are interpreted. These include: de Lovinfosse and Varone (2004) on renewable electricity policies in Europe, and Bailey (2007) on environmentalism and NEPIs. The following section discusses the merits of these approaches in the context of this study. This is supplemented by analysis of specialist methodological studies, including May (2001), Berg (2001), Marsh and Stoker (2002), and Denscombe (2003).

Table 3.1 also highlights that document analysis or a combination of document analysis and interviews are the most common approaches to empirical examination of policy learning. Kemp and Weehuizen (2005) made four suggestions to guide analyses of policy learning: (1) distinguish between three types of policy learning: technical, conceptual and social (giving attention to their interactions); (2) establish what is being learned, either directly by asking questions or indirectly by analysing statements and documents; (3) establish how the actors learned in terms of experience without special study (learning by doing), observation of others (lesson drawing), or specially commissioned studies; and (4) examine the role learning played in promoting policy change, comparing explanations with socio-economic, power and institutional explanations.

The use of interviews enables ‘what is being learned’ to be addressed directly with policy makers, although there is often some variation between claimed and actual learning, i.e. interviewees claim to have learned something but it has not manifested in their behaviour (Easterby-Smith et al., 1997; Kemp and Weehuizen, 2005). Combining interviews with policy documents is helpful in distinguishing between ‘declared’ and actual learning because policy documents usually provide some indication of policy outputs resulting from learning processes. The two methods complement each other in the case of UK renewable energy policy, since secondary texts provide a record of past events (including the outcomes of policy learning in terms of policy outputs) and insights into ‘organisational thinking’ (for instance, through consultation documents and responses). Interviews are especially helpful in revealing individual perspectives and learning as well as group experiences. This is an established approach for studying elite groups (Hertz and Imber, 1995), for whom little information about the internal workings or culture of decision making tends to be recorded (Useem, 1995).

Other qualitative methods were considered, including focus groups and ethnographical research. However, these were unsuitable for several reasons. The actors involved in policy learning are policy

elites from government, civil servants and key representatives from industry, NGOs and academia. The nature of their positions dictates that these are highly pressurised and time-constrained individuals who are therefore unlikely to agree to participate in time-consuming focus groups. Furthermore, ethnographic or observational approaches are restricted by access issues. The central producer of national energy and renewable energy policy is DECC¹¹. Participant observation within DECC is therefore pivotal; however, contact was made with the director for renewable policy and a preliminary meeting ruled out using observation, due to national security factors and confidentiality. Access is the primary weakness of the observation method (Denscombe, 2003).

3.3 General Considerations

3.3.1 Scale and Temporality

Scale is a popular concept in human geography for examining processes and relationships, although according to Marston et al. (2005) there is no consensus on the meaning of the term. Traditional conceptions of scale are associated with vertical relations between nested, territorially defined, political entities, e.g. nation states, and contrasts with networks that transcend such spatial layers (Leitner, 2004). Vertical scalar hierarchies focus on levels of social activity, from the global to the national, regional, local, and personal. Scale analysis can proceed downwards or upwards, so causality is global to local or vice versa, which links respectively to ‘scale as structure’ or ‘scale as agency’ (Jonas, 2006). In vertical models the emphasis is on unidirectional flows, which have been criticised for being too rigid and for failing to explain flows that bypass levels or involve two-directional feedback. Various scholars have become dissatisfied with this vertical model and have turned to network models of social processes, which expand horizontally. In some cases, scholars have attempted to combine both vertical and horizontal concepts of scale (Bulkeley, 2005). Marston et al. (2005) went so far as to suggest that the concept of scale should be eliminated from human geography. Despite the debate surrounding vertical conceptions of scale, it is a useful if simplistic way of locating UK renewable energy policy activities.

Legislative powers for UK renewable energy are held by central government and most policies are targeted at a small number of large energy producers (Mitchell, 2008). “Broadly speaking, the national level is responsible for market creation and support (e.g. the RO), infrastructure provision, promoting technology development, and setting broad guidelines for land use planning and renewable energy” (Smith, 2007:4). The key institution involved in policy development has changed over time, as responsibility for renewable energy has moved from the Department of Energy (DoEn) (1983 to 1992) to the DTI (1992 to 2007), BERR (2007 to 2008) and DECC (2008 onwards). In addition, other

¹¹ DECC was created partially from BERR and Defra.

important policy actors include Ofgem (the energy market regulator), energy utilities, the environment ministry (Defra), and the planning and local government ministry (formerly the Office of the Deputy Prime Minister, now the DCLG (Smith, 2007). Thus, these actors operate at the national level.

Regional authorities, in contrast, have no legislative powers in respect of renewable energy policy, though they have been mandated by central government to conduct regional renewable energy assessments and to adopt renewable energy targets in regional strategies. They also have considerable powers in the areas of strategic planning and consenting. Regional networks for promoting renewable energy work through general purpose institutions such as Regional Development Agencies, Government Office and Regional Assemblies. These institutions have specific remits and priorities, and can create a messy framework for renewable energy (Smith, 2007)¹². Local governance structures nevertheless operate under regional and national level guidance, e.g. planning policy statements such as PPS22, so the strategic direction of renewable energy policy is fundamentally determined by central government. Furthermore, links between the general public and policy actors involved in renewable energy policy are weak, as the former tend to be represented through intermediary bodies like NGOs. Thus, the key actors involved in policy development for UK renewable energy are mainly situated at the national level and limited power is devolved to the regional and local levels (Smith, 2007; Roberts, 2008). For these reasons, this research focuses mainly on policy learning and change at the national level, although a representative from regional government was interviewed to cross-reference these assumptions. A different approach to the research question could nevertheless be derived from examining the implementation of renewable energy projects, where interactions between national policy and regional or local planning systems would be more prominent.

Recently, the government has produced policy targeted at the general public to stimulate more decentralised renewable energy generation at the meso- and micro-levels (HM Government, 2009). This raises questions about the assumptions made about the changing role of the public in renewable energy development, especially when one considers the diverse socio-technical interactions that exist between the public and the renewable energy ‘landscape’ (Walker and Cass, 2007). Despite these complexities, most renewable energy is still produced by private suppliers, while policy design involves limited direct input from individuals, small businesses and local and regional government (Mitchell, 2008). The Merton Rule¹³ is one example of local authorities’ ability to influence national planning policy, but this ‘bottom up’ example of learning is uncommon within the UK’s generally

¹² Regional government networks were developed by the Labour government between 1997 and 2010 and have been subject to major streamlining since the current coalition government took power in 2010.

¹³ Merton was the first UK local authority to include a policy in its Unitary Development Plan that requires new non-residential developments to generate at least 10% of their energy needs from renewable sources. This has been followed by numerous other authorities and has been codified in national planning policy guideline PPS22.

‘top-down’ model of renewable energy policy. However, the influence of regional and local government and general public on renewable energy policy learning represents an opportunity for future study.

The timeframe of investigation for this study was approximately 20 years, from 1990 to 2010. The cut-off date of May 2010 marks the end of the Labour administration. Sabatier (1993) proposed that, for policy research, a period of a decade or more is necessary to allow major policy changes to take effect. Focusing on short-term decision making underestimates the influence of policy learning because it tends to show demonstrable influence on the perceptions and actions of policy makers only over longer time periods (Weiss, 1977). The literature on policy implementation also points to the need for timeframes of a decade or more, in order to analyse at least one full cycle of policy formulation, implementation and reformulation and to attain a reasonably accurate portrait of the successes and failures of policy programmes (Mazmanian and Sabatier, 1989; Sabatier and Jenkins-Smith, 1993). The 20 year timeframe used in this study covers most of the policies aimed at promoting renewable energy introduced in the UK, as it is a relatively new policy area: the first market support programme was initiated in 1990. Prior to this, UK renewable energy policy was research and development focused (see Section 4.2). With regard to interviews, it was anticipated that most interviewees would have recent experiences of renewable energy policy. Accessing interviewees who were involved in the early stage of UK renewable energy policy development was challenging because many have left their posts and there were relatively few actors involved. However, a small number of retired actors were interviewed. With regard to documents, a change in the style of consultation from the start of the Labour government in 1997 and the general growth of renewable energy policy meant that documents have existed over a longer period but most, still, have been produced in recent years. Thus, most of the documents analysed were produced after 1997. Some older documents were examined, and these were complemented by existing academic sources analysing UK renewable energy policy.

3.3.2 Validity and Reliability

Maintaining validity and reliability are general considerations in scientific research (Bryman, 2004). Validity is interpreted as “the extent to which an account accurately represents the social phenomena to which it refers” (Silverman, 2005:210), while “reliability is concerned with whether the results of a study are repeatable” (Bryman, 2004:28). For qualitative research, the replication of results is challenging because the social world is constantly changing, making research time- and context-specific. Furthermore, the interpretive nature of qualitative research can be difficult to repeat by a different researcher because each individual observes things differently. Steps can nonetheless be taken to enhance validity and reliability, such as methodological rigour and triangulation to test the robustness of findings gained from a particular approach (Berg, 2001). In this chapter, a detailed

account is provided of procedures for: selecting data collection techniques; developing indicators for policy learning concepts; administration of data collection techniques (such as semi-structured interviews); and data analysis (see Sections 3.4-3.6). The methodology literature highlighted weaknesses in the qualitative approach: that it tends towards anecdotalism and can focus on confirming evidence; and that the process of extracting material from its original source can lead to alternative explanations (Silverman, 2005; Bryman, 2004). These issues can be addressed, and validity enhanced, through the use of methodological and respondent triangulation (Silverman, 2005).

‘Triangulation’ offers the opportunity to corroborate or refute findings through the use of different methods and data sources (Denscombe, 2003). It strives to locate a ‘true’ position whilst recognising that the notion of a single reality is controversial (Denscombe, 2003). It involves directing several methods towards the same question, with each revealing a slightly different perspective on the same phenomenon (Berg, 2001). Triangulation has several advantages and disadvantages. Using several methods across time breaks assumptions built into single methodologies: for example, that reality is stable and problems are constant (Berg, 2001). It also increases the validity of research by compensating for the weaknesses inherent in any one approach (Read and Marsh, 2002). Berg (2001) suggested that triangulation increases the richness of research by providing a more complete range of evidence, symbols and theoretical concepts. However, poor research design can lead to the inappropriate pairing of methods, where different problems are actually being examined, relationships are weak, or different levels of analysis are compared (Hoggart et al., 2002). In addition, ontological and epistemological differences between quantitative and qualitative methods may render data analytically incomparable (Read and Marsh, 2002).

Triangulation was originally employed to describe multiple data collection techniques (Berg, 2001). Denzin (1978) extended the metaphor to include multiple theories, multiple researchers and multiple methodologies. Thus, there are four types of triangulation. ‘Data triangulation’ (using multiple respondents or data sources) enables inaccurate information or personal interpretations to be identified by cross-referencing results and corroborating findings. ‘Investigator triangulation’ (using multiple researchers) reduces the chances of an individual researcher’s values excessively influencing the research process. ‘Theoretical triangulation’ (using different perspectives and hypotheses) ensures that interpretation is not distorted by the theoretical approach used, and ‘methodological triangulation’ (employing different methods) helps to eliminate the weaknesses inherent in any one method (Berg, 2001). Three or more methods are usually employed, but it is possible to use just two (Berg, 2001). This research employs several forms of triangulation to enhance validity, including methodological triangulation (using interviews and documents) and respondent triangulation (using multiple respondents). The suitability of interviews and documents in the context of this study’s objectives is discussed in Sections 3.4 and 3.5.

3.3.3 Values

Values are important as they pervade every aspect of society and have the potential to influence the results of qualitative methods, for which interpretation is central. In social science it is generally accepted that ‘value freedom’ is not tenable (Williams, 2003). Values are culturally determined and influence every choice or act (Weber, 1974). Thus, to an extent, they cannot be avoided. Text Box 3.1 identifies the points at which values can enter into social research. Williams (2003) argued that some forms of bias are acceptable as they do not lead to errors, and gives the example of the research agendas of UK research councils, which are linked to government values and interests. However, some forms of bias are more problematic, such as the “deliberate selection of interview respondents who will confirm one’s views” (Williams, 2003:26). To avoid such bias, the points at which errors could enter this research were reflected upon and considered as objectively as possible. This chapter lays out the reasoning behind choices made to demonstrate that they are as value-free as possible. Further details on specific techniques for avoiding bias are contained within the individual sections. However, ultimately the researcher is the medium through which the research takes place and decisions on data collection and interpretation may be subconsciously influenced by personal preferences, experiences and knowledge.

Text Box 3.1 Values in Social Research

Moral or political values can enter into social research in the following ways:

- (i) Why, who and how decisions to research x or y are made
- (ii) Choice of topic can be an expression of value
- (iii) Choice of method
- (iv) Choice of theory
- (v) What to analyse and how to analyse
- (vii) Reporting of results.

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(Williams, 2003:25).

3.4 Interviews

This section reviews the strengths and weaknesses of the interview approach and justifies its use in this study. It also provides details of interviewee selection, interview schedule design, and interviewing and transcribing procedures. Interviewing involves maintaining and generating conversations with people on a range of topics (May, 2001). The most important advantage of the

interview is the quality and depth of information attainable (Hoyle et al., 2002). In most interviews (excluding telephone and email interviews) the researcher is able to observe facial expressions, body language, and the context of the interview, as well as its content. There are four main types of interview: structured, semi-structured, unstructured, and group (May, 2001). The group or focus interview differs from the others, as it is conducted with a group of people and so introduces different influences, such as group dynamics. Therefore, it was not considered for use in this study for the same reasons as focus groups. Interview methods range between quantitative and qualitative, categories that relate to structured versus unstructured (May, 2001). On the continuum from structured to unstructured interviews, the researcher shifts from a situation in which they seek to maintain control of the interview through pre-determined questions, to one in which the respondent is encouraged to answer the question in their own terms and define topics thereafter (May, 2001). There are advantages and disadvantages to each technique, and a combination of techniques may be used in a research project.

The structured interview uses standardised questions, structure and presentation, so that differences between respondents are not the result of the interview (May, 2001). However, this technique provides little flexibility, as it does not permit the interviewer to probe themes or to elaborate on questions for clarification, apart from standardised responses. In addition, although structured questions enhance comparability and replication, the ordering of questions by the researcher creates a framework that contains assumptions made by the researcher about the relationships between phenomena (Merton et al., 1990). For these reasons, structured interviews were not used in this study.

The unstructured interview is open-ended in character (May, 2001). The respondent answers questions in their own frame of reference and creates the connections and relationships between events and phenomena. The language used by the respondent and the meanings that they attach then form a narrative that gives the researcher greater insight into the respondent's view of the world. The key disadvantage of an unstructured interview, and the reason that it was not used in this study, is that the interviewee directs the conversation and can potentially avoid key issues (May, 2001). Thus, the inexperienced interviewer may struggle to redirect the interview. The lack of structure also creates issues with validity, comparability and replication, as respondents can choose to present information in different ways.

The semi-structured interview combines the tools from structured and unstructured techniques in that it provides some uniformity of questions, so that the interviewer directs the interview, but also allows for probing (Denscombe, 2003). Merton et al. (1990) believed that 'probing', when interviewees are requested to describe their reactions in greater detail, means that they are less likely to conceal the actual nature of the response. Probing can also enhance validity by enabling cross-questioning and the reinforcement of answers. Standardised probes were also used to expand on and verify respondent

answers. The flexibility of the semi-structured interview also enhances the quality of the information by allowing misunderstandings to be explained (this is not to be confused with re-interpreting the question, which can create bias), the probing of inadequate or vague answers, and the reordering of questions (Denscombe, 2003). Flexibility was particularly important in the context of this research because of the diversity of interviewees and their range of experiences and knowledge. It also allows for adjustment to be made to the line of enquiry during the interview and for new lines to be opened up (Denscombe, 2003). Given the variety of actors involved in the UK energy policy network, flexibility was a key consideration in determining the type of interview used in this research. Reflecting on the strengths and advantages of each technique, the semi-structured interview provides the greatest potential to answer the research questions.

3.4.1 Interviewee Selection

In qualitative studies, many researchers deny that representative sampling is necessary as one should not even try to generalise (Williams, 2003). In addition, probability sampling was not practicable in this research due to time constraints and imbalances in each respondent's ability to discuss particular themes. However, although interviews may not be representative, they generate a range of divergent and corroboratory perspectives. Thirty-five semi-structured interviews were carried out with 'key learners' i.e. those people who have potential to influence policy decisions directly or indirectly e.g. advisors and consultants (other studies of policy learning used a similar number of interviews; see Table 3.1.). These actors were from public and private organisations within the policy sub-system. Conceptions of the policy sub-system were broadened from traditional political actors to include journalists, researchers, and policy analysts who play an important role in the generation, dissemination and valuation of policy ideas (Hecló, 1978; Sabatier, 1993). Figure 3.1 represents the actor groups that populated the renewable energy policy network at the time of research and the number of interviews undertaken in each group¹⁴. This study was undertaken at the national level; however, interviews were carried out with representatives of organisations that operate at multiple levels, including the supra-national (European) level, in order to gain triangulated data on different aspects of UK renewable energy policy.

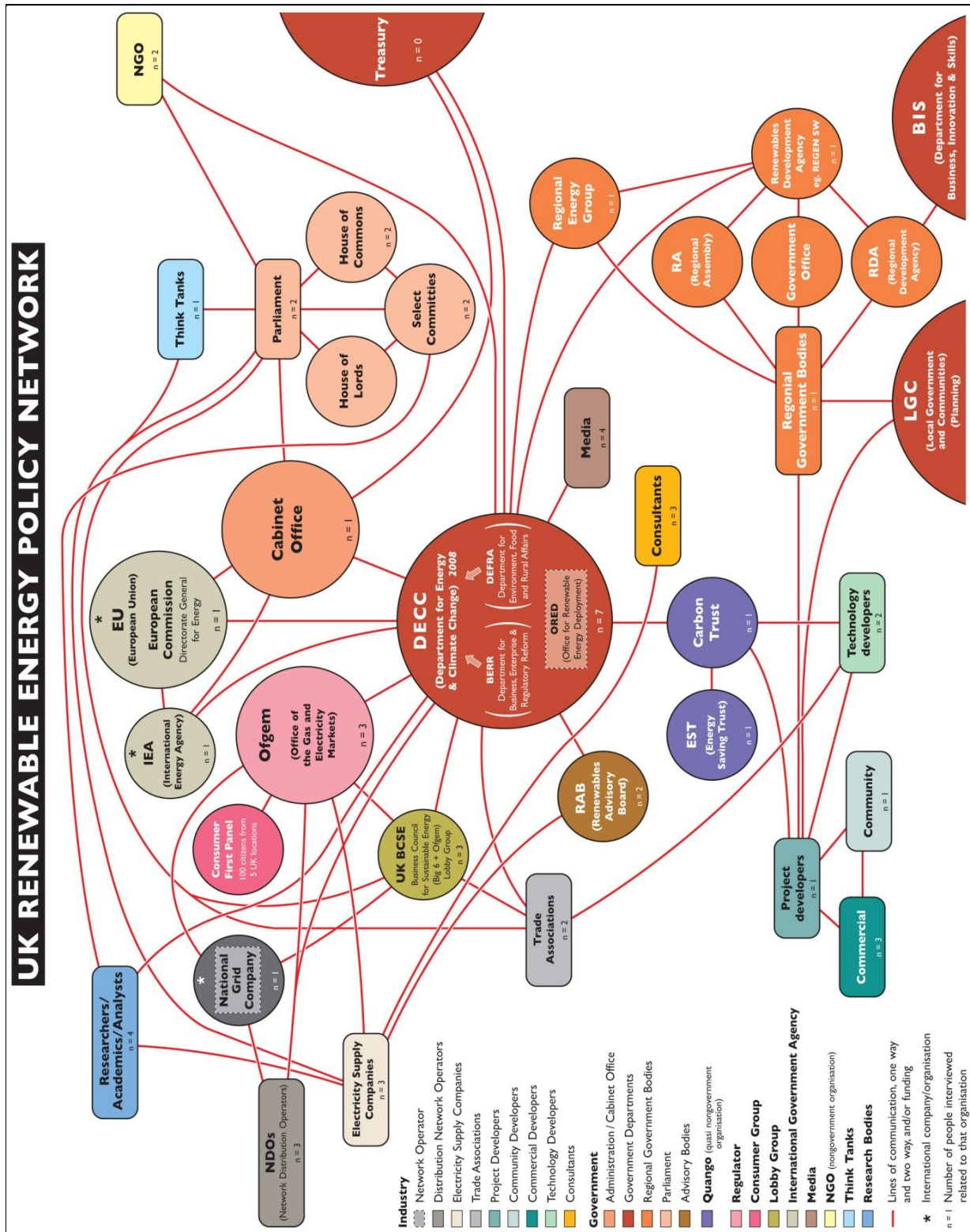
The initial intent was to select the interviewees using a mixture of purposive sampling and snowballing. Purposive sampling is when respondents are 'hand-picked' because the researcher already knows something about their experiences and relevance, or because they will produce the

¹⁴ This diagram was developed at the end of the empirical research at the beginning of 2010, prior to the general election. However, the network is constantly evolving and the impact of recent austerity measures and the dissolution of numerous quangos mean that it has substantially changed since 2010. It therefore represents a snapshot of the UK renewable energy policy network at the time the research was conducted.

most valuable data (Denscombe, 2003). Snowballing is when the sample emerges through a process of reference from one person to the next (Denscombe, 2003). The first sets of interviewees were selected because of their experience with UK renewable energy policy. Representatives from government, academia, industry and NGOs were approached. Each respondent was then asked to select several other policy actors who they considered to be relevant to the investigation. However, the snowballing process did not work because only one referred person responded. Thus, the rest of the interviewees were selected by the researcher. To avoid researcher bias in the selection process, organisations rather than individuals were targeted, and the most relevant representative (for example, senior policy advisor) was selected. The organisations were selected through a combination of government consultation lists (for example the Renewable Energy Strategy (RES) (HM Government, 2009) and the 2003 energy white paper (EWP) and conference attendance lists (for example the ‘All-energy’ conference 2008 and Falmouth Energy Week Conference 2009).

The number of interviewees contacted was approximately the same for each actor group, but response rates varied greatly. There was a low response rate from politicians due to the proximity of the general election. As later chapters show, this restricted the number of actors interviewed who were engaged in conceptual learning. However, two politicians were interviewed and many non-government actors also commented on government learning processes, which provided some insight into conceptual learning. Other efforts were made to gather politicians’ perspectives through select committee reports, which include direct quotations, and through Hansard.

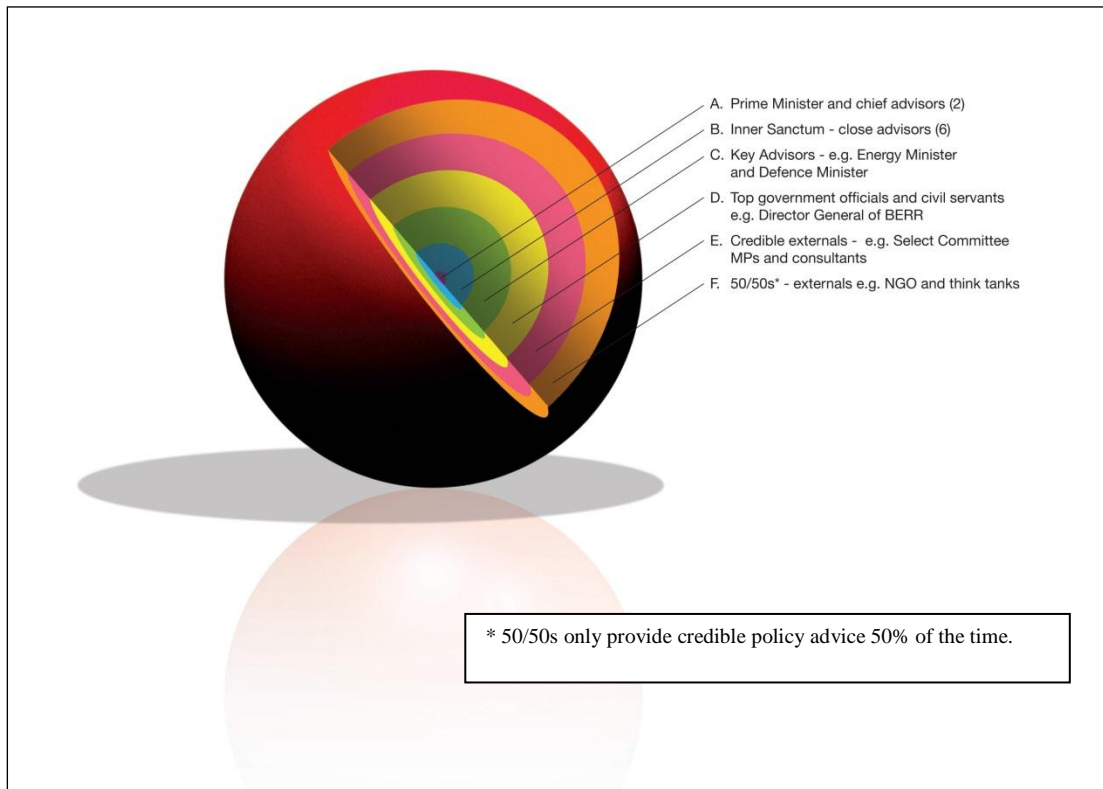
Figure 3.1 Actor Groups in the UK Renewable Energy Policy Network¹⁵



(Source: Author).

¹⁵ Please note that the number of interviewees was 35, but several had experience of working in several organisations or had performed several roles.

Figure 3.2 The Policy Network



(Personal communication with Professor C. Mitchell, 2008; Murrall and Bailey, 2008).

Figure 3.2 shows a breakdown of this policy network and actors, focusing on the level of influence of each group on decision making. The general assumption is that actors further away from the centre have less ability to influence policy. However, this is a major simplification of how actors in policy networks operate. In reality, boundaries are fluid and, at times, actors that are only notionally involved at the margins of policy making may gain much greater access to, and influence over, major decisions (for example, in times of policy instability). Actors in the central rings were not accessible for interview. A and B are used here to represent the ‘inner circles’ of policy making, i.e. the Prime Minister and close advisors. Therefore, groups in category C and below were targeted, including top government officials, civil servants, other government officials and ‘externals’ (high-level representatives from industry and NGOs). Face-to-face interviews were scheduled with respondents and all interviews took place in the UK or Brussels.

3.4.2 Interview Design

Lofland and Lofland (1995:78) proposed that in designing interviews, the researcher must first ask “just what about this thing is puzzling me?” This can be linked back to the research questions (Bryman, 2004). Thus, the interview questions were guided by the research objectives (see Section

1.4), which were used to define areas of interest or rather themes. These included questions regarding: (1) factors that have driven policy change; (2) key policy lessons gained from policy operation and change; (3) the key actors involved in policy development; (4) communication links between stakeholders and government; (5) new policy ideas or messages for government; and (6) learning mechanisms. Another major design issue was how to identify and distinguish policy learning from other factors affecting policy decisions (Murrall and Bailey, 2008). In order to address this, and in addition to asking direct questions on what actors were learning, features of the four main policy learning types were woven into the questions as indicators (see Table 3.3). For example, one question concerned changing overarching policy goals and attitudes, two main indicators of conceptual learning. The first questions were used to ascertain personal information, such as the length of time individuals had worked in energy or renewable energy and their areas of experience. This was done primarily to relax the interviewee, but also it helped to contextualise the interview and aided interpretation (Bryman, 2004). Once the interview schedule had been collated, the questions were reviewed by a supervisor for relevance and clarity. A pilot interview was then conducted with a colleague to ensure questions were clear and concise. On a less formal basis, questions were moderated after each interview, as the researcher learned by doing, in order to adapt questions to improve responses. See Appendix 1 for the standard interview schedule used.

3.4.3 Recording and Transcribing Interview Data

Recording interviews has several benefits. These include: correcting the natural limitations of interviewer memory; allowing thorough examination of what was said; enabling scrutiny by others; countering accusations of bias; and allowing data to be reused (Bryman, 2004). There are three main options for recording interviews: field notes, tape recorder or video camera, or any combination of these. Each method has strengths and weaknesses. The mode of recording the interview depends of the depth of detail required. If deep analysis is needed, field notes are insufficient as they do not capture the nuances of what is being said, but they can be a useful addition to other techniques (Williams, 2003). A tape recorder enables a large amount of detail to be recorded in a relatively non-intrusive manner. A tape recorder was used in this case to allow fuller concentration on interviewees' responses and non-verbal gestures (Denscombe, 2003). However, some respondents may find a tape inhibiting and it may affect behaviour and interaction (May, 2001; Crang and Cook, 1995).

Denscombe (2003) argued that this effect usually wears off quickly as the respondent forgets they are being taped and, to overcome issues associated with confidentiality, all interviewees were offered anonymity. A combination of a tape recorder and field notes was used in this study. A request to record the interview was submitted several days prior to the interview and all interviewees agreed to be recorded. However, the tape recorder failed on two occasions, although field notes were taken. Technical failures are a disadvantage of using tape recorders (Williams, 2003).

May (2001) warned that although transcription familiarises the researcher with the data, it can be time consuming. One hour of recording can take approximately nine hours to transcribe. Therefore, three people transcribed the interviews: two researchers from the University of Plymouth and the primary researcher. All were bound by university codes of conduct, but also signed confidentiality agreements. To protect the anonymity of respondents each interview transcript was individually referenced using a letter to denote the actor group, such as I for Industry, and a number, for example I5 (see Appendix 2 for a list of the interviewee reference codes). This system of referencing is used for quotes within the discussion chapters. The potential impact of using three researchers was recognised and care was taken to avoid errors (Bryman, 2004). The quality of transcriptions was controlled by re-reading them while listening to the recordings to ensure there were no differences. However, even seemingly trivial issues such as the style of punctuation may influence the presentation of arguments, so these were also reviewed to ensure consistency. The information held in the transcripts was ordered and organised using NVivo software and manually (see Section 3.6).

3.5 Documents and Texts

Documents and texts fall into the category of ‘unobtrusive methods’ as they study social behaviour without affecting it (Babbie, 2007). As such, they are less subject to researcher bias except in relation to choice of documents and how they are interpreted.

Documentary research enhances understanding by allowing contemporary accounts of events to be situated within a historical context (May, 2001). This enhances validity by enabling comparison of the observer’s interpretations of events with those recorded (May, 2001). Thus, the use of documents and interviews are complementary. Documents are particularly useful in research into policy change because they enable arguments and decisions to be traced over time. They may contain information on, for example, social norms and behaviours, and ideas, and reveal how they have changed (Nilsson, 2005). This is particularly insightful for energy policy, where past policy decisions have had long-term effects. One example of this is the selection of market-based means of promoting renewable energy resulting from privatisation of the energy sector. However, a limitation of formal documents is that they tend to record decisions and not the rationale and learning behind those decisions (Useem, 1995). To balance this, interviews were used to access information on individual learning.

Nilsson (2005) suggested that the use of documents helps overcome some methodological issues associated with studying policy learning, such as how to separate policy learning from other drivers of policy change, such as power and vested interests that are ever present and difficult to factor out. However, this can be somewhat addressed by tracing arguments and decisions over long timeframes, as this aids in the identification of learning patterns and their causes. Table 3.1 revealed how common document analysis is in studies of policy learning and policy studies more broadly, further supporting

this method of investigation as appropriate for this study. Documents are heavily relied upon in government communications, both between departments and with the general public. Thus, they contain large amounts of information on the social practices informing decisions, preferences, attitudes and motivations. Many documents in the public domain are easily accessible and well organised to promote transparency and accountability (Berg, 2001). However, there is always the likelihood that sensitive government documents, such as official private documents, internal notes and memos, will be unavailable. Furthermore, certain documents, especially those related to defence and strategic energy decisions, are protected for reasons of national security. Despite the context of the research, all documents required were made available by the National Archives. Of course, secrecy norms mean that the researcher was not necessarily aware of other relevant documents and materials.

Documents are representative of the practical requirements for which they were constructed (May, 2001). This affects the style in which they are produced and their content. They could therefore be viewed as biased or distorted as they are very obviously social constructs (May, 2001). Government publications and statistics might seem to be authoritative, objective and factual but their reliability hinges on the following factors: (1) how clear cut and straightforward the entities or phenomena being measured are; (2) whether there are vested interests (political or other) in the results produced; and (3) the extent to which the products are the outcome of a series of decisions and judgements that are not revealed in the final document (Denscombe, 2003). The more outcomes or statistics involved in choices and decisions, the more 'socially constructed' and open to criticism they become (Denscombe, 2003). The style or framing assumptions contained in documents could also be viewed as a disadvantage. However, in some regards this is advantageous for research, as they engage with the frames and meanings in the texts. The credibility and the positionality of the source of documents were reflected upon when selecting and analysing them. For example, positionality was established by considering the organisations' goals and reasons for potential bias.

3.5.1 Document Selection

A plethora of documents exist that could have been used to analyse policy learning in UK renewable energy over the past 20 years. However, their volume and length dictated that only the most relevant could be analysed within the timeframes allowed for this study. The existence of multiple types of policy learning made it necessary to select a range of documents to cover all learning types.

Government policy documents were the obvious starting place, since they contain a record of the government's attitudes, preferences, goals and policy approach at a point in time. Certain government documents, such as white papers and consultations, by their nature signify points of policy change. However, it was important to balance these documents against non-government documents that challenged and provided a contrast to government action and learning.

EWPs record the government's overarching policy goals and preferences at the time of publication, and therefore have the potential to demonstrate conceptual learning. However, although white papers are presented as 'consensus' documents, in reality they are an exercise of diplomacy between government departments that might have divergent viewpoints. Parliamentary debates revealing the personal opinions of politicians were used to check for such differences. Similarly, select committee reports and hearings were also useful in scrutinising government opinions because they are cross-party and include direct quotes and their sources. Other government documents, such as consultation documents, were used to explore the finer details of policy decisions and potential technical learning. There have been numerous consultations about renewable energy, particularly since the Labour government came to power in 1997. In many cases, the consultations, along with responses from NGOs and industry, were available in electronic form and provided a supplement to interviewee learning experiences. Several NGO reports were also analysed as a way of recording dimensions of social learning, as well as other forms of learning.

In total, thirty-two documents were selected and analysed using content analysis (see Section 3.6). The types of documents that were considered suitable for investigating policy learning and UK renewable energy policy are presented in Table 3.2. For a full list of documents see Appendix 3.

Table 3.2 Types of Documents and their Sources Used in this Study

Document Source	Document type	Example
Legislative instruments	Acts	The Sustainable Energy Act 2003 Electricity Act Utilities Act
	Statutes	The Non-Fossil Fuel Obligation 1998 Renewables Obligation 2002
Official policy documents	White papers	2000, 2003 and 2007 Energy White Paper, Transport Fuel obligation
	Consultations	Banding of the RO 2007, Renewable Transport Fuels Obligation 2007.
	Government consultation responses	Government response to Keeping the Lights On: Nuclear, Renewables and Climate Change 2006, Renewable Transport Fuels Obligation response 2008.
Other government documents	Select committee reports: Commons, Lords and Joint	Policy Innovation Unit Report 2002; 2004 Science and Technology Committee 4th report session; Renewable energy: practicalities. 2005 National Audit Committee – DTI and Renewable energy
	Departmental reports	2006: Third Annual Report on Implementation of the Energy White (DTI and Defra)
	Consultant reports produced for government	1999 - SPRU ¹⁶ - Evaluation of the DTI New and Renewable Energy Programme -1994-8 - FINAL REPORT Stern Report 2006, Renewable Heat Mechanisms Report 2007
	Press releases	Department of Energy and Climate Change 03.10.08

¹⁶ SPRU stands for Sussex Policy Research Unit.

International documents	European Union and International Energy Association	The Renewables directive 2001
Non-government documents	Consultation responses	Renewables Advisory Board, Ofgem, Energy d France (EDF), British Wind Energy Association, Friends of the Earth responses to RO consultations
	Academic reports	Renewable Energy Policy in the UK Mitchell and Connor 2004 RO can it deliver? Tyndall Centre 2002
	NGO reports	Feed in Tariff Report - Friends of the Earth

3.6 Data Analysis

This section describes how the empirical data were analysed to reveal patterns, relationships, and further insights into policy learning. Although there are differences between interviews and documents, the main analysis techniques used were broadly similar, so are presented together. Flowerdew and Martin (2005) forewarn that data analysis methods require careful thought, as they are significant in moving a project from a descriptive exercise to one that produces insight and knowledge. As for data collection, both qualitative and quantitative data analysis techniques exist. A range of analytical approaches were available, including grounded theory, discourse analysis or content analysis. Tesch (1990) in fact identified forty-three approaches to qualitative analysis. The analytical approach used in this study was guided by the research objectives and previous studies of policy learning and policy change (see Section 3.2). Content analysis appeared as the established analytical approach for mapping policy change over time and for examining competing political ideas. It has been used by several researchers in empirical studies of policy learning and in related fields such as environmental politics (for example, see Hajer (1995), Dryzek (1997), Nilsson (2005) and Rooijen and Wees (2006)). Qualitative content analysis enables the structured breakdown of materials using codes and categories to facilitate the interpretation of meaning (Flowerdew and Martin, 2005). This is preferable to discourse analysis because discourse analysis focuses heavily on semiotics, concerned with uncovering the process of meaning production, rather than the substantive implications of what is being said in policy-related interviews and documents. Somewhat contentiously, Hammersley (2003) even argued that discourse analysis underplays psychological factors as a means of explaining human behaviour. The main criticism of using qualitative content analysis and the process of coding is that by removing chunks of texts it is possible to lose the context

of what is being said, leading to misinterpretations (Bryman, 2004). Therefore, to prevent the de-contextualisation of arguments, coded units were generally no smaller than a paragraph unless the meaning was considered to be indisputably clear.

3.6.1 Coding and Categorisation

There is a large amount of overlap between different analytical approaches in terms of their methods for processing, coding and categorising data. Berg (2001) proposed a standard sequence of analytical activities, which was used to guide the analysis conducted for this study (see Text Box 3.2). Once data were prepared into similar formats (Denscombe, 2003), they were coded and categorised using key words and themes (Sarantakos, 1998). There are several approaches to coding: inductive, deductive and abductive coding. The inductive approach focuses on generating codes from the data and only then drawing generalisations (Holt-Jensen, 1999). The benefit of this approach is that themes are grounded in the data and the researcher is less able to influence the analysis through the pre-selection of codes (Berg, 2001). The deductive approach establishes the codes through pre-selected theoretical approaches and hypotheses (Holt-Jensen, 1999) i.e. themes and issues generated in the literature review. This approach allows the researcher to guide the analysis but can lead to important information being overlooked or interpreted to suit the theoretical standpoint being used. Abduction combines the two approaches, using both induction and deduction. Abduction was used in this study, whereby some codes followed on from the interview questions informed by the research objectives, for example, around the different types of learning mechanisms, such as experiences of consultations. However, others were allowed to develop from the data, such as attitudes towards government. Once the data were indexed, the categories were analysed and interpreted to reveal patterns and messages (Holsti, 1968).

Text Box 3.2 Standard Analytical Activities

- (i) Data are collected and made into text (e.g. field notes or interviews transcribed)
- (ii) Codes are analytically developed or inductively identified in the data and affixed to sets of notes or transcript pages
- (iii) Codes are transformed into categorical labels or themes
- (iv) Materials are sorted by these categorical labels or themes
- (v) Sorted materials are examined to isolate meaningful patterns and processes
- (vi) Identified patterns are considered in light of previous research and theories, and a small set of generalisations are established.

(Berg, 2001:240).

Computer-assisted qualitative data analysis software can perform a wide variety of functions including retrieving, sorting, coding, managing and mapping, and also enables a large amount of related information to be displayed in different formats to aid interpretation. Despite these benefits, such software packages do not fully lend themselves to the form of qualitative analysis needed for this study, as they are only able to provide logical/numerical analysis and do not help with coding decisions or interpretation in complex areas such as policy learning. Weitzman and Miles (1995) stated that there is no computer programme that will interpret data for the researcher.

A range of computer programmes were available, including Atlas, Nudist, Ethnograph and Nvivo. Initially, Nvivo 8 was selected for use in this study as it relates well to content analysis, and a two-day training course was undertaken. However, after an initial trial, the programme was considered unnecessarily complex for the relatively simple indexing task required, while not providing the level of analytical sophistication needed to identify and distinguish different forms of policy learning from other factors affecting policy change. Thus, the transcripts were coded thematically and then indexed using cut and paste in Word.

3.6.2 Analysing Policy Learning

Certain methodological issues were anticipated during this research, the most significant of which was how to distinguish between learning and other drivers of policy change, such as power and interests. Time and scale issues have been addressed already in this chapter but the relationship between policy learning and policy improvement also presents a methodological challenge. Learning implies improvement, for instance. However, learning-induced policy change can create new problems as well as solving or mitigating old ones, and there remains the challenge of linking events to policy learning in a plausible and balanced way. The approach taken was to evaluate whether learning had occurred: the deficits of previous policy were focused upon and the following questions addressed:

- Has the intervention addressed the deficits of previous policy? Completely, well, partially or poorly?
- Has it created new problems? Are they serious, moderate or minor?

However, it is acknowledged that even with such a guide, assessments are subjective and evaluation of problems can change over time.

If it is accepted that governments are continually learning, what types of learning are discernable from the above analysis? Table 3.3 summarises the attributes of the four types of learning adapted from Fiorino (2001) and Nilsson (2005). This framework can be used to identify the types of learning occurring. For example, if the main focus of discussion and explanation for policy change in

interviews is technical issues, such as instrument viability – as opposed to policy goals – it can be inferred that technical learning tended to dominate. The triangulation of interviews and texts should then produce a reasonably robust picture of policy change and learning in UK renewable energy, although some element of subjective interpretation is likely to remain, which requires external validation to increase reliability.

Table 3.3 Categorising Learning

	Policy learning			
	Technical	Conceptual	Political	Social
Learning about	Instrument viability and effectiveness	Problem definitions, goals and strategies	Strategies for gaining support for given goals	(technical and conceptual) Values, responsibilities, relationships and multiple perspectives
Indicated in policy	Policy revisions of instruments or levels of instruments	Policy revision of new problems and old goals, e.g. attitude to innovation – picking winners	Symbolic policy revisions, not lasting over time	Engagement with multiple stakeholders including public; experimentation with new methods of communication and participation
Indicated in arguments	Accounts and citing of evaluations and experiences	New problems, goals, and systems descriptions	New tactics in arguments	

(Adapted from Fiorino, 2001 and Nilsson, 2005).

3.7 Conclusion

This chapter has examined the major issues and decisions involved in the design of the study. It has discussed the range of methods that were available for data collection and determined an approach based on the suitability of the methods to the research question. It was argued that the two chosen methods – interviews and documents – offered a complementary way of analysing policy learning in UK renewable energy policy. Secondary texts and documents provided a record of past policy events (including the outcomes of policy learning in terms of policy outputs) and insights into ‘organisational thinking’ and the nature and drivers of group learning. Interviews, in contrast, provided greater insight

into individual perspectives and individual learning. This is an established approach when studying elites (Hertz and Imber, 1995), as little information on the internal workings or culture of decision making tends to be recorded in documents (Useem, 1995). Comparing results from the two methods further helps distinguish between 'declared' learning and the practice of learning as expressed in the outputs of policy. This methodology was also used in Nilsson's study of policy learning in Swedish energy policy (2005). A qualitative form of content analysis was used to interpret the data and provide new perspectives on the concept of policy learning in UK renewable energy.

This chapter has also documented and justified the specific details of the research techniques used. It argued that a broad range of stakeholders should be interviewed to generate a range of divergent and corroborative perspectives. In the context of the research, purposive sampling, where respondents are selected based on their experiences and relevance, or because they will produce the most valuable data, was considered the most appropriate means of interviewee selection (Denscombe, 2003). Thirty-five semi-structured interviews were conducted face to face, using a semi-structured format to enhance comparability between respondents while also allowing flexibility to probe particular areas of interest (Merton et al., 1990). Interview questions were derived from the research questions, covering themes related to: (1) factors that have driven policy change; (2) key policy lessons gained from policy operation and change; (3) the key actors involved in policy development; (4) communication links between stakeholders and government; (5) new policy ideas or messages for government; and (6) learning mechanisms. Thirty-two documents were selected that had the potential to cover all learning types, from a range of government and non-government sources. These included legislative instruments, official government policy documents, other government documents, international documents and non-government documents. Both interview transcripts and documents were analysed using qualitative content analysis. Texts were deconstructed and interpreted through their systematic and structured breakdown using codes and categories (Flowerdew and Martin, 2005).

Chapter 4 – Patterns and Key Drivers of Policy Shift

4.1 Introduction

This chapter addresses the first objective of this study by identifying the patterns of shift in renewable energy policy over the past 20 years and the main factors that have driven these shifts. The characteristics of energy policy and provision and the life spans of energy assets, dictate that much of what exists today is a consequence of decisions taken in the past. Equally, what happened in the past still influences the present and future. This chapter will provide a historical overview of the renewable energy sector from the first government renewable energy programme in 1974 to the end of the Labour administration in May 2010, the study's cut-off date. It will outline the background conditions that shaped energy policy and the context in which energy policy goals were set. This includes policy influences from other sectors, for example the macro-economic shifts that took place in the first years of renewable energy policy development, and from other governmental bodies, in particular the EU. The chapter draws out the significant drivers of the policy process as detailed in Chapter 2: power relations, interest, ideas, actors, past policy and policy learning.

The chapter is divided into four sections, which correspond to different periods of renewable energy development and policy: Section 4.2 describes the first steps toward renewable energy policy development, categorised by government-led research from 1974 to 1990; Section 4.3 depicts the evolution and operation of the UK's first renewable energy policy, the NFFO, from 1990 to 1998; Section 4.4 describes the policy development process surrounding the replacement of the NFFO, from 1998 to 2002; and Section 4.5 describes the evolution of the second renewable energy policy, the RO, from 2002 to the present day. The chapter is supported by secondary documents, data from the interviews and academic texts. Section 4.6 concludes the chapter.

4.2 First Steps in the Development of Renewable Energy (1974-90)

4.2.1 *National Interest, Research and Development*

The first national interest in renewable energy in the UK was stimulated by the 1973 oil crisis, as was the case in many other western states (Elliott, 1999). At this time the UK electricity and energy industries were nationally owned and operated, and the electricity industry was a vertically integrated statutory monopoly (Helm, 2003). In January 1974, under Edward Heath's Conservative government, the DoEn was separated from the DTI, elevating energy policy to a new level of importance. This reflected the growing importance of energy issues globally but also, and more significantly for the UK, a desire to exploit recently discovered North Sea oil and gas reserves. This discovery set the context for energy policy over the coming decades, against assumptions of plentiful and cheap fuel

supplies. The DoEn was responsible for the development of national and international policies in relation to all sources of energy, including renewable energy (BIS, 2011).

In response to security of supply issues highlighted by the oil crisis, the newly established Energy Technology Research Unit launched the UK's first Renewable Energy Research and Development Programme in 1974 (Elliott, 1999). Its role was primarily to assess the technical viability of all renewable energy options. The rationale underpinning the programme was that there were numerous market imperfections, one being the presence of environmental externalities, acting in favour of established technologies (SPRU, 1999). In 1988 the DoEn published Energy Paper 55, which set down three central goals for UK renewable energy policy that have remained fairly fixed ever since (Connor, 2004). These were: (1) to stimulate the full economic exploitation of renewable energy in the UK; (2) to develop options for the future; and (3) to market the UK renewable energy industry domestically and internationally (Connor, 2004). Grubb (1995) characterised UK policy towards renewable energy before 1990 as both ambiguous and very much research led.

4.2.2 Privatisation, Neoliberalism and a Window of Opportunity

Government investment through the DoEn continued to be the main driver for renewable energy until the privatisation of the electricity industry through the Electricity Act (1989). During the 1980s, Margaret Thatcher and her Conservative government pursued a privatisation agenda, which was gradually rolled out in most sectors (Helm, 2003). Privatisation became the driving force of energy policy, in a reversal of nationalisation (Helm, 2003). The role of government was limited to setting the framework through which market forces provided results. The neoliberal ideology of deregulation and privatisation was an attempt to depoliticise energy decisions and develop competition through markets and economic growth (Robinson, 1993). The electricity industry was restructured by breaking up regional monopolies and by vertically de-integrating companies to open up competition at the generation level through the power pool system (Dinica, 2002). However, the motivation for privatisation was not simply a desire for a more economic and efficient performance for UK industry and the decoupling of public and private affairs, but also included political reasons surrounding longstanding disputes with the unions and, particularly, the miners (Helm, 2003).

Privatisation became the key driver of a market enablement policy for renewable energy. At the outset, renewable energy technologies were expensive compared with fossil fuels. Similarly, the nuclear industry, which had enjoyed shelter from economic audits under the old state-funded system, was proving difficult to privatise due to its high liabilities and the costs of waste disposal and decommissioning. To make the nuclear industry more appealing to private investors, the government wrote off all past investments and provided a way to fund future liabilities by increasing revenues through the NFFO (Helm, 2003). Thus, the NFFO policy instrument, which was primarily designed to

support the nuclear industry, inadvertently provided support for renewable energy (Elliott, 1999; Helm, 2003; Connor, 2004; Mitchell, 2008). Helm (2003:350) proposed that “the inclusion of renewable energy was more a matter of ‘spin’ than deliberate policy choice: the tax would be more acceptable if it was labelled ‘non-fossil fuel’ rather than ‘nuclear’”. The inclusion of renewable energy also helped to obtain clearance in the EU where the policy was scrutinised for ‘unfair state aid’ (Helm, 2003).

Mitchell and Connor (2004) proposed that the justification for the support of renewable energy was never clarified or widely agreed and lack of political support for the industry has been noted as a limiting factor in its development. The government’s early attitude to renewable energy was illustrated by an ex-DoEn civil servant who commented:

“Renewables was put in a really quite separate box in some ways actually. It wasn’t central to energy policy making in the DTI. It was seen really as part of innovation policy. I think the purpose of using NFFO to encourage different sorts of renewables, nobody quite understood, I think, at that point, what the potential was. I think everybody at the DTI would have to admit that compared to interest in atomic energy or electricity, interest in renewables was pretty much on the edge of the department’s interests” (SCS1)¹⁷.

High-profile policy advocates or policy entrepreneurs are important policy drivers and issue champions (Kingdon, 2003), but in the case of renewable energy, in contrast with the nuclear lobby, they appear to have been largely absent at this point (Harriss and Harriss-White, 2006).

4.2.3 Legislation in Support of Renewable Energy

The 1983 Energy Act was the first piece of legislation to grant rights to renewable energy (Helm, 2003). The primary purpose of the Act was to encourage private generation and supply of electricity in line with the government’s overall policy of privatisation and stimulating competition (Great Britain, 1983). Through public purchase tariffs, renewable generators were able to sell their electricity if they were grid connected, and the electricity boards were obliged to buy it (Mitchell, 1995). Helm (2003) argued that the rights granted by the Act were largely ineffective because renewable energy remained uneconomic. Research suggested that renewable energy generators were paid an average of 30% less than the Central Electricity Generating Board for their electricity (Mitchell, 1995). Thus, the Act, which did little to aid renewable energy development, cannot be said to have acted as a driver.

The 1989 Electricity Act provided the legal framework for the privatisation of the electricity supply industry and established a licensing regime and an industry regulator, the Office of Electricity Regulation, which has since become Ofgem. The 1989 Electricity Act set out the legal arrangements

¹⁷ Abbreviations for interview respondents (see Appendix 2).

for the NFFO and a complementary financial support mechanism, the Fossil Fuel Levy (FFL). It placed a legal obligation on regional electricity companies (RECs) to buy electricity from renewable energy and nuclear generators¹⁸. Mitchell (1995) proposed that the Act was extremely open and a potentially powerful tool to support renewable energy, in that the sections referring to ‘electricity from non-fossil sources’ and the FFL were not linked. This means that in principle, however unlikely, the Secretary of State could order RECs to purchase all renewable electricity without any compensation (Mitchell, 1995). The simplicity of the 1989 legislation also provided a large amount of flexibility for the government as it made no reference to: the number of NFFO orders that may take place, the time period they must take place in, capacity targets or technology (Mitchell, 2000). This meant that the terms of each NFFO order could be altered, ameliorating problems from previous orders. This provided an opportunity for technical learning about the mechanism and optimum settings.

4.3 The Renewable Non-Fossil Fuel Obligation (NFFO; 1990-98)

The influence of the neoliberal agenda and the previously designed NFFO policy for nuclear energy is evident in the design of the renewable energy part of the NFFO. Political change in the context of election cycles, departmental restructuring and the relegation of the DoEn into the DTI generated power and ideas shifts that also affected renewable energy. Issues that evolved during the life of the NFFO provided opportunities and barriers for policy learning.

4.3.1 NFFO Policy Design and Development

The NFFO was a market mechanism, in line with the neoliberal approach of the Conservatives. Several interviewees commented that the policy development process was channelled by this dominant ideology, which limited the scope for alternative policy instruments. For example:

“Only things which were competitive were considered, the price had to be set by the market not by the Government. A system which was viewed as being non-competitive such as the German feed-in tariff, which required the public sector to decide what price was appropriate for the different technologies, was not consistent with the theology of the market economy. The feed-in tariff didn’t fit with the philosophy of the government at that time” (CS5).

When asked if there was a formalised scoping process for alternative mechanisms to the NFFO and if a feed-in was considered, the interviewee replied:

¹⁸ NFFO legislation refers to Public Electricity Suppliers (PES), but only PESs who are RECs have the obligation (Mitchell, 1995).

“The players in the game were aware of it, and I would have said, we talked about it [Interviewer “in terms of the formal process?”]. I don’t think the game panned out that way. Later in subsequent renewed energy policy, yes! For that particular time renewables were not really the core part of policy” (CS5).

This highlights that once ideas become institutionalised, such as neoliberal ideas did through privatisation legislation, they constrain policy choice by limiting the range of policy options under consideration (Goldstein and O’Keohane, 1993). Feed-in tariffs, commonly called FITs, refer to the obligation placed on supply companies or regional/national transmission operators to buy all the renewable electricity that is ‘fed’ onto the grid: see Text Box 4.1. FITs offer a fixed price rather than a quantity, so the full costs of the policy to the government are unknown. This policy feature perhaps discouraged the UK government, because it was reminiscent of their experiences of the nuclear programme under nationalisation.

Text Box 4.1 Feed-in Tariffs (FITs)

FITs are the most widely used policy instrument in Europe for stimulating renewable energy (Bechberger and Reiche, 2005). The precise details of each FIT system vary from country to country, but broadly speaking they operate through fixed tariffs (prices), for fixed periods, differentiate between technologies, scales and locations, and guarantee purchase (Girardet and Mendonça, 2009). This is in contrast to quantity-based mechanisms such as that in the UK, where the market sets the price. Research has argued that FITs are the most successful mechanism for stimulating capacity growth and innovation (Bechberger and Reiche, 2005). The most successful renewable energy industries have developed under FIT systems, e.g. in Denmark and Germany. The advantage of a fixed-price mechanism over a quantity-based mechanism is that it provides a low-risk environment, which enables entrants from all sectors of the market, from domestic producers to utilities. The disadvantage is that the full costs of the policy are unknown and they can prove expensive per KW/h (Ringle, 2006).

The three goals set down in Energy Paper 55 (see Section 4.2.1) formed the foundation of the NFFO mechanism and underlay policy for the next decade (Connor, 2004). Interviewee CS5 stated that an initial capacity target of 1000 MW was established at the start of the NFFO. However, Mitchell (1995) proposed that it was not until the timetable for privatisation began to slip, and renewable and nuclear energy were separated, that the government announced a 600 MW DNC¹⁹ target for renewable energy. This was increased to 1500 MW by NFFO 3 (Mitchell, 1995).

¹⁹ Declared Net Capacity (DNC) = the equivalent capacity of baseload plant that would produce the same average energy output (Mitchell, 1995).

The government funded five NFFO project rounds, using different terms and conditions for each. For NFFO 1 (1990) the price paid for each KW/h was agreed following a process of ‘cost justification’, whereby renewable energy generators provided information to justify their bids (Mitchell, 1995). Then “each project was assessed separately and no direct competition occurred between projects or technologies” (Mitchell, 1995:1080). For NFFO 2 to 5, contracts were awarded through a competitive tendering process, where generators using eligible types of renewable energy competed for limited capacity within specified technological bands (Dinica, 2002). Contracts were then awarded to the projects with the lowest bids (Mitchell, 2000). Broadly speaking, NFFO was competitively designed to bring down the average price of electricity in each round (Mitchell, 2000). The technologies eligible for NFFO support also varied for each round (see Table 4.1).

Table 4.1 Technology Eligibility in NFFO Rounds

Technology	NFFO 1	NFFO 2	NFFO 3	NFFO 4	NFFO 5
Wind	√	√	√	√	√
Wind Sub Bands	-	√	√	√	√
Hydro	√	√	√	√	√
Landfill Gas	√	√	√	√	√
Sewage Gas	√	√	-	-	-
Municipal and industrial waste (M&IW) – mass burn technology	√	√	√	-	-
M&IW – fluidised bed technology	-	-	-	√	√
M&IW – combined heat and power (CHP)	-	-	-	√	√
Biomass – steam generation	√	√	-	-	-
Biomass – gasification	-	-	√	√	-
Wet Farm Wastes – anaerobic digestion	-	-	-	√	-

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(Mitchell, 2000:291).

The five government-funded NFFO project rounds initially increased UK nuclear capacity and then, gradually, renewable energy (Elliott, 1999): the lion’s share of funding went to the nuclear industry. Under NFFO 1 (1990/1), renewable energy received none of the revenue from the FFL: this had increased to only 8% by 1995/6 (Helm, 2003). This was because nuclear plants were already operational, so could take immediate advantage of the subsidy, whereas renewable energy plants had

to be developed from scratch (Connor, 2004). NFFO rounds took place in 1990, 1991, 1994, 1997 and 1998 (Connor, 2004). They were not scheduled and their irregularity undermined stability and the potential for long-term planning and investment (Connor, 2004). Irregularity was not the original design intention but an influence of the political process (CS5). Initially, each NFFO round gave funding for a maximum of 8 years terminating in 1998, but this was extended to a standard 15 years for rounds 3-5 (Mitchell, 2000).

Academic literature suggests that the mechanism's initial short timeframe had several unanticipated effects. The fixed period of support meant developers were not guaranteed a market for their electricity beyond 1998, so bids had to cover all capital costs by then (Connor, 2003). This drove up tenders for NFFO 1 and pushed them even higher for NFFO 2, when the subsidy period foreshortened (Connor, 2003). The short-time horizons reduced investor confidence and biased tenders towards big business that could afford shorter capital depreciation periods, e.g. the ex-monopoly companies. Many small-scale projects and independent generators found it hard to obtain finance (Mitchell, 1995). Extending the time horizons had more to do with the removal of nuclear's eligibility, insisted on by the EU Commission, than the tweaking of policy through 'learning by doing'. Mitchell (1995) argued that the government, had they genuinely wished to support renewable energy, could have exempted it from the 1998 end date. The European Commission let it be known that they would consider an application for the extension of the NFFO for renewable energy, but the UK government preserved the 1998 limit in an attempt to retain the nuclear component (Mitchell, 1995). See Appendix 4 for a review of NFFO policy outcomes.

The end of NFFO support in 1998 coincided with the total liberalisation of the energy market. The market for renewable energy slowed to a virtual halt as policy makers, suppliers and potential customers waited to see how this sector would evolve (Lipp, 2000).

4.3.2 Institutional Change and the Relegation of the Department of Energy

Institutional change through the creation of the DoEn was a positive driver for energy policy. However, the 1992 election and change in Prime Minister from Margaret Thatcher to John Major led to disbanding of the DoEn and responsibility for energy programmes being transferred to the DTI. Still, the neoliberal paradigm had created a government belief that the market would ensure that supply met demand. One interviewee captured this attitude, "if you remember the words of Nigel Lawson, 'there is no such thing as energy policy'" (SCS1). The importance of energy policy was significantly diminished along with its resources, people and power. Furthermore, privatisation initiated a shift in the types of people who populated the civil service, from engineers to managers (Farnham et al., 2003). In this instance, the decision to restructure the government departments came

as the result of a change in leader, rather than a change in party, but it still highlights the effects of election cycles and leaders on policy.

This structural change arguably had a negative impact on energy and renewable energy policy. The DTI had its own goals and objectives, with which all DoEn programmes had to be brought in line (SPRU, 1999). An evaluation report by SPRU highlighted the impact of restructuring on information flows and policy outputs. The final evaluation report for the New and Renewables Programme (1994-8) recorded lessons drawn from its experiences by government and various stakeholders. The report identified the need to widen the focus of the New and Renewables Programme and integrate it with the NFFO. However, while the integrated programme was being developed, departmental restructuring occurred and the new 10-year strategy was introduced under the DTI (DTI, 1994; SPRU, 1999). A range of activities was proposed, covering administrative issues such as planning guidance to local planning authorities, financing, grid integration, business and market development, education and training, and public information and awareness. However, there was no suggestion that the research and development programme should be linked with the market enablement programme (NFFO), though there were strong arguments for it (Mitchell, 1995), particularly from the DoEn (interviewee SC5).

Energy Paper 62 (DTI, 1994) illustrated that certain key problems, such as planning, financing and grid connection, have existed for over 20 years. The SPRU report stated that “expenditure decisions (large reduction in budget) and other ministerial decisions since 1993/4 had a significant impact on the shape and content of the support programme” (1999:11). The move to a sub-unit of the DTI relegated the importance of energy, which affected all energy policy, not just renewable energy. This reduced departmental power may partly explain why the removal of planning, financial, grid and administrative barriers to renewable energy was largely unsuccessful.

4.3.3 A Change in Government: The Labour Party (1997)

In 1997 the Labour party won the general election. This had major implications for renewable energy because of the Labour party’s desire to support it, stimulated by their belief in climate change (Mitchell, 2000). This was evident in their 1997 manifesto commitment to “lead the fight against global warming, through our target of a 20 per cent reduction in carbon dioxide emissions by the year 2010” (Politicalstuff, 2009). Whilst the manifesto gave no figures for renewable energy it stated that “We are committed to an energy policy designed to promote cleaner, more efficient energy use and production, including a new and strong drive to develop renewable energy sources such as solar and wind energy, and combined heat and power. We see no economic case for the building of any new nuclear power stations” (Politicalstuff, 2009). Helm (2003) argued that Labour reached out for the

green vote. A pledge of achieving 10% renewable energy by 2010 was formalised in the 1998 EWP (Mitchell, 2000).

When the Labour cabinet took power, the economy-wide transition to competition was almost complete (Helm, 2003). The transition exposed cross-subsidies previously hidden by monopoly structures and, as a result of their removal, much of the coal industry closed down and there was a significant increase in the use of gas in electricity generation (Helm, 2003). Labour's subsequent energy policy decisions were motivated by old allegiances (in protecting their electorate, in particular the miners), and they tried to marry these political imperatives with the market (Helm, 2003). The 1998 White Paper on Energy Sources placed a moratorium on new combined-cycle gas turbines, claiming that coal had been placed at a disadvantage and that the policy was an attempt to correct market distortions (DTI, 1998). Despite these decisions, the 1998 White Paper claimed that "energy policy would set competitive markets in the context of security of supply, diversity and sustainable development" (Helm, 2003:3). The government's climate change commitments lay at odds with their other policy decisions. The Royal Commission on Environmental Pollution's (RCEP) 22nd report 'Energy – the changing climate' commented that the 1998 review of the electricity supply industry and energy decisions was politically motivated (RCEP, 2000). Despite the rhetoric, Labour's election created a 'policy rupture' as there were many changes, most significantly a change in actors' configurations and political direction. However, Labour retained the market-based ideology that the Conservatives had established, meaning that the rupture was not as extreme as it could have been.

4.4 Policy Replacement: Transition to the Renewables Obligation

4.4.1 Drivers for Policy Change

Several factors contributed to end the NFFO rounds. The timetabling of the European Single Electricity Market (SEM) was a key driver for change during the 1990s and early 2000s, as European countries restructured their electricity industries (Mitchell, 2000). The Labour manifesto affirmed the UK government's commitment to the SEM in 1997 and in the UK the Utilities Act in 2000 enshrined the new principles upon which energy policy was to be based (Mitchell, 2000). The Act established the New Electricity Trading Arrangements (NETA), but also vertically segregated the electricity sector into four sections: generation, transmission, distribution and supply (Mitchell, 2000). The UK Electricity Market was in transition as a result of "domestic supply competition, utility regulation and reform, reform of the electricity pool, electricity wholesaling trading arrangements and industry restructuring" (DTI, 1999a:30). The design and economics of the NFFO mechanism were heavily tied into the old electricity industry pool trading mechanism, so much so that when it changed to the bilateral trading of NETA, NFFO also needed to be replaced (Connor, 2004). The publishing of the Renewables Obligation Preliminary Consultation response to coincide with the Utilities Bill

highlights its importance as a background driver for policy. Stephen Byers, in the foreword, remarked that the introduction of the Utilities Act and NETA would irrevocably change the complexion of the electricity market in the UK (DTI, 2000b).

Other events and reports that provided context for the Renewables Consultation are the Marshall Report (1998) and the RCEP 22 report on 'Energy – the Changing Climate' (RCEP, 2000). The Marshall task force was established to investigate the potential for new economic instruments to improve the industrial and commercial use of energy and reduce greenhouse gas emissions (Marshall Task Force, 1998). The report looked at the options of taxes or permits, and argued for a tax that would reflect the carbon content of different fuels (Marshall Task Force, 1998). However, Labour opted for an energy tax (the Climate Change Levy (CCL)) to protect the coal industry. The RCEP report strengthened arguments for renewable energy as it increased the credibility of climate change science, pushing it further up the political agenda. It also placed responsibility for the issue at a national level, as it was a UK-specific report regarding contributions and potential for national adaptation. These reports illustrate the impact of politics on policy making and the difficulties in responding to legitimate information when it confronts party ideology and interests.

4.4.2 The Policy Vacuum and the Development of the RO (1998-2002)

When the NFFO ended there was a strong demand for the government to continue to support renewable energy. A UK renewable energy industry had developed during the NFFO and with it a renewable energy lobby had grown powerful due to the entrance of large companies into the market (CS5). Towards the end of the NFFO, there was significant amalgamation of energy and renewable energy companies, as the new RECs (formed out of the old national electricity industry) bought up smaller renewable energy generators/developers. The lobby, made up of powerful electricity companies, placed pressure on the government to continue to support renewable energy. However, it took 4 years and another election before a new policy was put in place in 2002. Table 4.2 lists the policy documents, consultations and responses produced in those years.

Table 4.2 Consultations and Responses between 1998 and 2002

1998	EWP	A review of energy sources for power generation.	Gov
1999 March	Consultation	New & Renewable Energy – Prospects for the 21st Century – John Battle.	DTI
1999 July	Analysis of consultation responses	New & Renewable Energy, Prospects for the 21st Century: analysis of the response to the consultation.	DTI
2000 February	Government consultation response	New & Renewable Energy, Prospects for the 21st Century: conclusions in response to the public consultation – Helen Liddell.	DTI
2000	Government consultation	New & Renewable Energy, Prospects for the 21st Century: The Renewables Obligation – Stephen Byers.	DTI
2001 March	Consultation analysis	The RO Preliminary Consultation – analysis of responses to the consultation paper.	DTI
	Government	Draft Renewables Obligation Order 2002.	
2001	Statutory consultation	New & Renewable Energy, Prospects for the 21st Century: The Renewables Obligation Statutory Consultation.	DTI
2002	Statutory instrument	SI 2002 No 914 – the Renewables Obligation Order 2002.	DTI

The consultation, analysis and government response documents released during the development of the RO highlighted several key themes. Policy development (scoping and design) was again channelled by the government’s neoliberal ideology and did not extend outside what was deemed acceptable in the framework of competitive markets. The first consultation document stated, “this paper does not look in detail at wider fiscal options which raise different and more general policy questions ... emphasis is on the obligation mechanism” (DTI, 1999a:30). The prospect of the support mechanisms taking the form of an obligation was forwarded in the first document and confirmed by the government’s official response, which correspondingly announced that the obligation had been enshrined in legislation through the Utilities Act (see Table 4.3 for features of the RO). This suggests that the department had already set the direction of policy and that the consultation was about fine tuning and industry approval. Furthermore, the statement implies that the department had little power over wider policy direction. Despite rhetoric at the beginning of the consultation documents claiming to place the environment at the ‘heart of decision making’, the main emphasis throughout was on ‘cost effectiveness’.

Table 4.3 Features of the RO Announced in the Government Consultation Response

Profile (target)	5% renewable energy by 2003; 10% by 2010
Obligation	Placed on suppliers, proportion of renewable energy to be supplied will be specified each year
Options for meeting obligation	(1) generate own renewable energy (2) by certificates (3) pay buy-out price, e.g. 2p/KWh to Ofgem
Buy-out price cap	Limit costs to the customer e.g. 4.3p/KWh
Recycling mechanism	Recycling of receipts to suppliers who meet the obligation to provide further incentives to purchase green certificates
Scheme administered by	Ofgem
Period of the obligation	At least until 2025
Eligible technologies	Co-firing and combined heat and power eligible using renewable energy
Ineligible technologies	Hydro over 10 MW
NFFO	Ex-NFFO 1 & 2 projects are eligible Transition arrangements for NFFO 3, 4 & 5
Exemptions	Businesses using green electricity will be exempt from the CCL

(Source: DTI, 2000a).

The first consultation analysis revealed how unpopular the NFFO was with stakeholders and noted that a “rather large number of respondents have highlighted perceived problems and failures” (DTI, 1999b:6). This provided the government with a good opportunity for lesson drawing and technical learning. The consultation documents, including the perceived successes and failures of NFFO, are summarised in Appendix 54. The government response acknowledged that the consultation analysis had offered no single preferred support mechanism so, following further discussions with interested parties, the government decided to move away from the NFFO and adopt a supply obligation²⁰. The lack of consensus amongst stakeholders reflects their diverse nature and the diversity of renewable technologies. The continued commitment to the market-based approach suggests that this was becoming firmly entrenched in the Labour government’s ideology.

²⁰ ‘Interested parties’ is interpreted as meaning those actors who are closest to government.

For a detailed review of the policy development process, policy decisions and details, refer to Appendix 4.

4.5 The Renewables Obligation (2002 to date)

Since the RO's establishment there have been several major policy changes, both to the broader policy context in which renewable energy policy rests and to the RO itself. There have been three EWPs (in 2003, 2007 and 2009), and two major reviews of energy policy. Each demonstrates changes in the energy policy agenda and sets a different tone, despite coming from the same Labour administration (although it did undergo a leadership change). There has been departmental restructuring, again elevating the importance of energy policy and for the first time putting energy and climate policy together. EU legislation set higher targets for renewable energy, including electricity, heat and bio-fuels, which prompted several new policies, e.g. the Great Britain Feed-in Tariff (GB FIT). This came at a time when concerns about energy security, particularly the electricity supply gap, were mounting. There have been several amendments to the RO statutory instrument, most of which have been minor and are shown in Table 4.4. However, in 2009 the DTI decided to band the RO to provide more support for less mature technologies such as wave energy.

4.5.1 Policy Making for Sustainable Development

In July 2001, after the 2001 general election, Tony Blair asked the Performance and Innovation Unit (PIU) to carry out a review of the strategic issues surrounding energy policy, to set out a vision and strategy for future energy policy to 2050, and to propose practical measures for achieving them (PIU, 2002). This was triggered by the various energy concerns, including energy security, supply diversification following the 1999 oil price shocks and climate change (Helm, 2003). The review was set in the context of meeting the challenge of global warming while ensuring secure, diverse and reliable energy supplies at a competitive price (PIU, 2002). The findings were also to inform the government's response to the report from the Royal Commission on Environmental Pollution Energy - the changing climate (Helm, 2003). Helm (2003) proposed that the government was struggling to respond to the report, so used a review to buy time and generate some practical suggestions. It is interesting that the government selected the PIU to conduct the review rather than the Energy Directorate within the DTI: Helm (2003) suggested that this demonstrated the decline of the directorate's standing. However, the review required substantial oversight as it reached far beyond the DTI's responsibilities and the decision may have been an attempt to avoid departmental politics. It could also be seen to reflect the learning capacities of individual departments whose evaluation capabilities were limited to technical matters.

In 2002, the PIU released its report 'The Energy Review'. The report drew together for the first time the themes of climate change and energy security. It took on board the science from the Royal Commission report on climate change and articulated the UK's changing situation in relation to energy security, i.e. that the depletion of UK oil and gas reserves meant that the UK would become increasingly dependent on imports. It showed the difficulty of balancing policy objectives and suggested that environmental goals should be given priority (PIU, 2002). Interestingly, in the 2003 EWP, the government did not take up this suggestion. It acknowledged that there were conflicts between the different energy goals but argued, "there is no simple mechanism for determining the relative 'weights' of different objectives" (DTI, 2003:11). This means that there was no established hierarchy and, therefore, that economic goals embedded in the market approach continue to take de facto importance.

The Energy Review strongly advocated the development of renewable energy, recommending that it be an immediate priority and that a target of 20% renewable electricity by 2020 be put in place (PIU, 2002). The report also proposed that the renewable energy industry faced three institutional barriers that must be removed if it was to succeed: "the excessive discount which, following the introduction of the New Electricity Trading Arrangements, is currently imposed on the prices paid to small and intermittent generators; the urgent need to change the way in which local distribution networks are organised and financed; and the working of the planning system, which at present fails to place local concerns within a wider framework of national and regional need" (PIU, 2002:11).

Another suggestion was for structural change, with the creation of a new department specifically to bring together the areas of energy, climate change and transport. In addition, the report proposed a new cross-cutting policy unit to draw the elements of energy policy together, involving civil servants from different ministries, the regulator, devolved administrations, and experts from industry and the private sector (regional government was not mentioned). This highlights the structural issue for energy policy, that responsibility was dispersed between several government bodies e.g. DTI, DEFRA, Department for Transport, Local Government and the Regions, Ofgem, and involvement/interests at different geographical scales. The PIU report was not an official government report, although its steering committee consisted of ministers, so every line was not debated and approved by relevant departments. This meant that the ideas and suggestions it contained were not necessarily taken up by government. One interviewee commented that this was a good thing for the report, as it did not have to be accountable to all departments (SCS1). Thus, it acted as a mechanism for getting new ideas into the debate that might not have been approved by government.

The PIU Energy Review report was launched in February 2002, shortly before the RO in April. Thus, policy development for the RO was running concurrently with the Review. Data from the interviews

revealed that despite the overarching importance of the Energy Review, the PIU team was not allowed to review the RO mechanism:

“I was head of the Performance and Innovation Unit (PIU) team, which prepared the energy report, which was the precursor to the 2003 EWP. Renewable energy policy was quite a key element of that [...] it was just the time when the renewable energy obligation was coming in, and in some ways there wasn't exactly a blank sheet. The government had made decisions about renewable energy and the renewables obligation which one could do much to upset or rather even question about it” (SCS1).

This illustrates the path dependence of policy and the difficulties of diverting it once it has been set in motion.

The Energy Review recommended a national public debate about sustainable energy, which stimulated a public consultation and led to the 2003 EWP. The consultation exercise asked many of the same questions as the PIU review and was perceived by Helm (2003) as a delaying tactic. The 2003 EWP took forward many of the PIU report's suggestions, including acceptance of the RCEP recommendation that “the UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% from current levels by 2050” (DTI, 2003:8). It reinforced liberalised and competitive markets as the cornerstone of energy policy (DTI, 2003:11), but avoided setting new targets for renewable energy and reaffirmed the commitment to supply 10% renewable electricity by 2010. It did not set energy efficiency targets, prioritise energy policy objectives or recognise that structural change was needed (DTI, 2003). It recognised that greater involvement was needed from the regions and devolved administrations and touched on all the major barriers to renewable energy growth, again documenting that such issues were recognised by government. The EWP also recognised the importance of being able to adapt policies to a changing environment (DTI, 2003). In response to this it set out a policy review process to provide annual public reports on the government's progress towards its aims. This mechanism had the potential to stimulate technical learning about policy efficiency.

Generally speaking, the 2003 EWP placed strong emphasis on ‘sustainability’ and ‘greening’ of energy policy. The theme of ‘sustainability’ was carried forward by the legislation to enable the implementation of the 2003 EWP in the ‘Sustainable Energy Act’. It stated that “This Act contains a number of sections, all of which are linked to the promotion and achievement of a sustainable energy policy” (Great Britain, 2003), emphasising the intention to embed sustainability into UK energy policy. The Act set out several provisions to achieve this, including: a duty on the Secretary of State to report annually on progress towards four specified energy policy goals; a duty on the Secretary of State to set targets for the use by the Government of electricity generated using Combined Heat and Power (CHP); there is also a corresponding duty on the Secretary of State to promote renewable

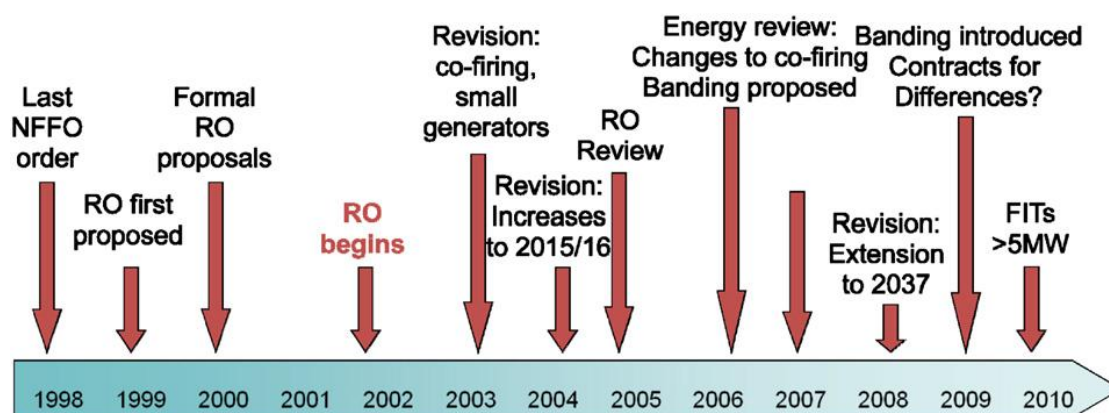
energy (Great Britain, 2003). This embedded a mechanism for technical learning into the government’s legal framework in the form of annual progress reports.

4.5.2 Key Stages in the Operation and Development of the RO (2002 onwards)

The RO has been adjusted nearly every year since its initiation in 2002 (see Figure 4.1).

Most changes have been technical adjustments to improve the efficacy of the instrument, as outlined in Table 4.4. Each change has been translated into UK law through amendments to the RO Statutory Instrument. Prior to each amendment there has been a consultation process, including a preliminary consultation, a regulatory impact assessment and a statutory consultation. The changes have predominantly benefited the established players who have time and resources to lobby government. This was supported by interview data that revealed the sophisticated and organised lobbying ability of the ‘big six’²¹. Changes in the 2004 amendment relaxed the rules so that small generators, such as PV installations on houses, could qualify for Renewables Obligation Certificates (ROCs) (see Table 4.4). The inclusion of small-scale energy from the domestic market could show the broadening of policy to encompass more stakeholders. However, the complicated nature of trading ROCs meant that it was unlikely to drive this market for renewable energy. Thus, the domestic market remained unaddressed with the exception of a small number of grants. The 2007 amendment also benefited small generators (50 kW and under) by allowing agents to act on their behalf within the RO. This sought to address some of the biases contained in the electricity trading arrangements. These policy amendments demonstrate technical learning by the government department though the process of learning by doing.

Figure 4.1 Key Stages in the Development of the RO



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²¹ The ‘big six’ refers to the six large energy companies that control most of the UK’s gas and electricity supply and generation.

Table 4.4 Amendments to the RO and Other Important Policy Documents

Amendment	Purpose	Effective
Renewables Obligation Order 2002	Policy initiation.	
EWP 2003	Established long-term policy framework.	
Renewables Obligation Order 2004 'amendment on late payments'	<ul style="list-style-type: none"> - Minor technical adjustments; - Change the rules on co-firing of biomass with fossil fuels; - Relax the rules so that small generators, such as PV installations on houses, can qualify for ROCs. 	April 2004
Renewables Obligation Order 2005 'safeguarding the buy-out fund' (amendment)	<ul style="list-style-type: none"> - Extend the profile of the Renewables Obligation from 2010/11 to 2015/16 (as announced in December 2003); - Permit recognition of Northern Ireland Renewables Obligation Certificates in Great Britain on the same basis as GB ROCs; - Introduce measures that will further secure the buy-out fund in the event of a shortfall occurring; - Consider the introduction of a single recycling mechanism for the three different buy-out funds; - Introduce more flexibility for small generators (of up to 50 kW). 	April 2005
2005/2006 Review of the Renewables Obligation	<ul style="list-style-type: none"> - Assess effectiveness of RO to date; - Extend the profile of the Obligation; - Alter aspects of the working arrangements; - Modify the rules for low-cost technologies; - Review the position of CHP and some other technologies; - Simplify the administrative arrangements for the RO. 	
Renewables Obligation Order 2006 (amendment)	<ul style="list-style-type: none"> - Change the eligibility of electricity generated from mixed wastes; decision not to make RO waste neutral; lower purity limit for biomass to 90%; make energy from waste CHP acceptable; - Reduce payments to landfill gas (first steps towards banding) (further consultation); - Administrative and technical changes. 	April 2006
The Energy Review 2006 – the energy challenge	Major review of UK energy policy and its ability to meet UK energy policy goals. (Consulting on possible adjustments to the RO ("banding") to provide greater support to emerging technologies and reduced support for more established technologies).	
EWP – Our Energy Challenge – May 2007	- Extension of the obligation level to a maximum of 20% on a headroom basis;	

	- Removal of the caps on co-firing.	
Reform of the Renewables Obligation May 2007 (released at same time as 2007 EWP to consult on its proposals)	- Extension of the obligation level to a maximum of 20% on a headroom basis; - Removal of the caps on co-firing.	
Renewables Obligation Order 2007 (amendment)	- Allow agents to act on behalf of small generators (50 kW and under) when participating in the RO; - Require agents who are acting on behalf of two or more small generators of the same technology to amalgamate the output of those generators; - Remove the necessity for generators who themselves consume the electricity they generate to obtain what are known as “sale and buyback agreements” in order to claim ROCs; - Change the rules on co-firing that would allow the burning of energy crops and fossil fuel to take place outside the existing co-firing caps; - New definition for energy crops; - Change to enable a fuel which is not biomass to be treated as biomass when it is used with at least one other fuel and 90% or more of the energy content of those fuels is derived from biomass.	April 2007
Renewables Obligation Order 2009 (amendment)	- Banding of the RO; grandfathering rights; continuation of co-firing cap; - Banding regime operation processes; - Biomass and waste issue resolutions; - Administrative changes.	April 2009

(Source: Author).

The 2003 EWP committed to review the RO after 3 years of operational experience (DTI, 2003). Prior to the review, several other government reports highlighted the instrument’s inadequacies. In February 2005, the National Audit Office (NAO) produced a report for the DTI on renewable energy. Its findings concurred with the conclusions of a previous report by the House of Lords Science and Technology Select Committee, which were that, after modelling of the current renewable energy policies, the UK would not meet its 10% by 2010 target and that a step change would be required if the targets were to be met (NAO, 2005). It also highlighted that the RO was expensive compared with other policies for carbon reduction and that it was providing an excessive level of support for certain technologies (NAO, 2005). The reverse could be said for fledgling technologies. The 2005/6 RO review considered several aspects of the mechanism (see Table 4.4), in particular how to reflect the economic needs of different technologies, and was the first step towards a major change in the RO instrument.

The 2005 RO Review fed into the 2005/6 Energy Review (Text Box 4.2). The most significant of its proposals was to ‘band’ the RO to make it technology specific. The other noteworthy output of the Review was the government’s announcement of its intention to build new nuclear generation capacity, due to changes in nuclear’s economics as a result of rising fossil fuel prices (DTI, 2006a). This decision was contested by Greenpeace, which took the government to the High Court for unlawful decision making and a flawed Energy Review process. The High Court upheld the challenge, stating that “something has gone clearly and radically wrong” with the process (Vidal, 2010).

Text Box 4.2 Government Proposals to Encourage Renewable Energy Outlined in the 2006 Energy Review

In order to support the development and deployment of renewable technologies, the Government proposes to strengthen and modify the Renewables Obligation (RO) to provide longer term certainty and create a greater incentive for investment into those technologies that are further from the market.

This will include:

- extending obligation levels to 20% (when justified by growth in renewable generation) – this will be made cost-neutral to the consumer by freezing the buyout price from 2015;
- consulting on amending the RO to remove risk of oversupply of ROCs;
- consulting on possible adjustments to the RO (“banding”) to provide greater support to emerging technologies and reduced support for more established technologies;
- providing new funding for renewable energy through the Environmental Transformation Fund;
- working with industry, Ofgem and the National Grid to accelerate access to the electricity grid for renewable electricity generators; and
- working with the Devolved Administrations to ensure that, across the UK, planning systems for renewable energy projects can reduce delays and uncertainty for developers and others, while maintaining the openness, fairness and accountability of the current system.

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(DTI, 2006a:106).

The 2006 Energy Review informed the 2007 EWP, so the two documents are similar. Energy security concerns set the partial context for the EWP. The House of Commons Environmental Audit Committee (HoC EAC, 2005-6) released a report entitled ‘Keeping the Lights On: Nuclear,

Renewables and Climate Change' in which it highlighted the pending energy gap and concerns over energy security. In October 2006 the Stern Review was published, providing a long-term economic imperative for carbon abatement. This provided an argument for stronger measures and policies to stimulate low-carbon technologies and is heavily referenced in the 2007 EWP. This highlights issues regarding the legitimacy of knowledge and the role of scientific information, which will be discussed further in Chapters 5 and 6.

The 2007 EWP reiterated the UK's four energy policy goals, as set by the 2003 EWP, but relegated them to the footnotes. This layout emphasised what were forwarded as the two key challenges, energy security and climate change. Within the document there is increased focus on renewable energy, particularly heat and distributed generation, which were allocated their own section. For large-scale renewable energy, there was a much more structured approach to understanding the policy barriers, and a further consultation on banding the RO was announced. The document also contains the first mention of the EU 2020 target. For nuclear energy, there was a reconfirmation of government support and the announcement of a public consultation. This is interesting because the HoC EAC's report made it clear that nuclear was not an option given the timeframes of the predicted energy gap, i.e. a loss of 15-20 GW by 2016 (HoC EAC, 2005-6). There was also no mention of departmental restructuring within the 2007 EWP or the 2006 Energy Review. This indicates that the decision to create BERR or DECC was not on the agenda (or not for the public domain) at this point.

In 2007, BERR was launched as the new name for DTI. The DTI had been re-branded before, in 2005, to become the Department for Productivity, Energy and Industry (DPEI). However, seven days later, ministers reverted to DTI following criticism that it would be referred to as 'dippy' (Out-Law.com, 2010). The re-branding of the department had no obvious effect on energy or renewable energy policy. The strategic objectives remained business focused and underpinned by markets, although two of the seven objectives directly concern energy (see Text Box 4.3). This highlights that energy issues were a small part of the department's interests.

Text Box 4.3 BERR's Departmental Strategic Objectives

1. Promote the creation and growth of business and a strong enterprise economy across all regions,
2. Ensure that all government departments and agencies deliver better regulation for the private, public and third sectors,
3. Deliver free and fair markets, with greater competition, for businesses, consumers and employees,
4. Ensure the reliable supply and efficient use of clean, safe and competitively priced energy,
5. Manage energy liabilities effectively and responsibly,
6. Ensure that government acts as an effective and intelligent shareholder, and provide a source of excellent corporate finance expertise within government,
7. Provide the professional support, capability and infrastructure to enable BERR's objectives and programmes to be successfully delivered.

(National Archives, 2010).

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After four years, multiple consultations, a major Energy Policy Review and a further EWP, it was decided to band the RO by awarding certain technologies more or less than 1 ROC per MW of generation. Several technology bands have been defined and are shown in Table 4.5. A greater technology focus represents a change in government thinking from an instrument that was market driven with low government involvement to an instrument with a higher level of government involvement. The disadvantage of greater government involvement in determining the level of support for different technologies is that it arguably becomes subject to more political lobbying. An example of this was seen shortly after the introduction of banding when the number of ROCs awarded to offshore wind was increased from 1.5 to 2.0 in the 2009 budget. Interview data suggested that this was a result of lobbying pressure by large energy companies and developers with interests in the Thames Array (I6). However, the government has continued to move towards greater involvement in instruments, for example through the design of the GB FIT.

Table 4.5 ROC Allocations for Technology Bands under the RO

Band	Technologies	Support ROCs/MWh
Established 1	Landfill gas.	0.25
Established 2	Sewage gas, co-firing on non-energy-crop biomass.	0.50
Reference	On-shore wind; hydro-electric; co-firing energy crops; energy from waste with combined heat and power; geo-pressure.	1.00
Post-demonstration	Offshore wind*; dedicated regular biomass.	1.50
Emerging technologies	Wave; tidal stream; advanced conversion technologies (anaerobic digestion; gasification and pyrolysis); dedicated biomass burning energy crops (with or without CHP); dedicated regular biomass with CHP; solar PV; geothermal, tidal lagoons; tidal barrages (<1 GW).	2.00

*It was proposed in the 2009 budget to raise the allocation for offshore wind to 2 ROCs for 2009/10 and 1.75 for 2010/11.

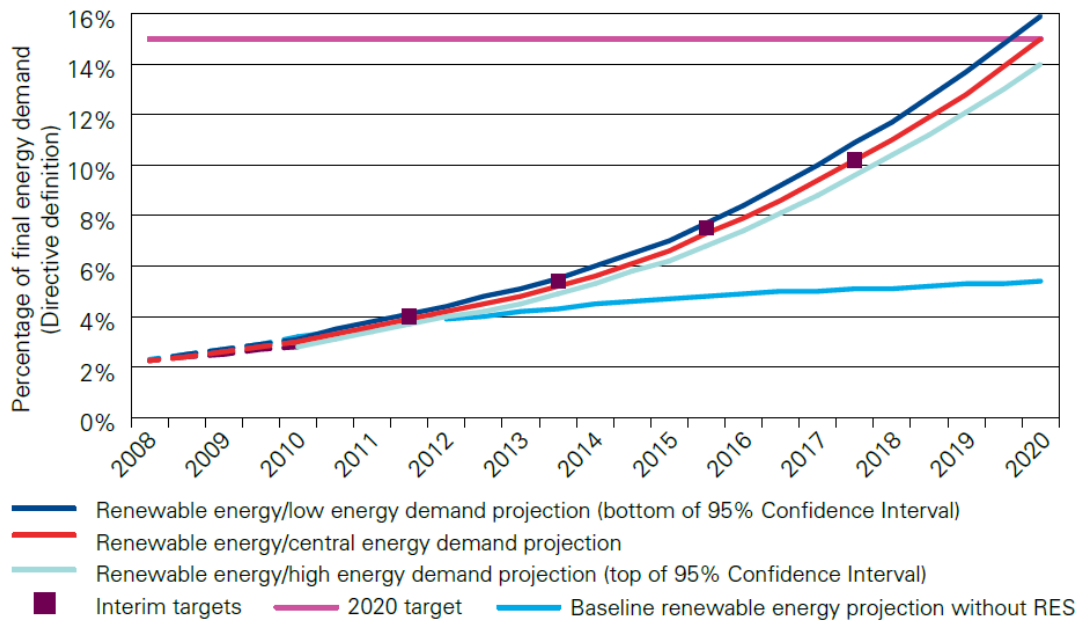
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The banding of the RO legally came into operation in April 2009.

4.5.3 The EU 20/20 Targets and their Influence in the UK

On the same day in 2008 that the EU published its proposal for a new directive on renewable energy, BERR issued a statement announcing the government’s plans for developing a strategy to increase renewable energy use in the UK. The EU’s draft directive forwarded a framework for achieving 20% of energy from renewable sources by 2020, which included electricity, heat and transport (Parliament, 2008). Each member state was issued an individual target; the UK’s was set at 15% total energy. BERR welcomed this as a “good starting point for discussion”, highlighting that this would be a very challenging task for the UK given the low starting point, “our existing share is less than 2% and lower than most other member states” (Parliament, 2008:1). At the time it represented a near tenfold increase in the UK’s renewable capacity (Parliament, 2008). However, reduced energy demand as a result of the recession has lessened this. Figure 4.2 demonstrates just how demanding the targets are. The red line represents the central projection for achieving the 15% renewable energy target.

Figure 4.2 Lead Scenario Trajectory and Interim Targets



(HM Government, 2009:12).

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The responses of other government stakeholders to the 2020 targets confirm that they are extremely challenging but not unachievable. A Renewables Advisory Board (RAB) report entitled the ‘2020 vision’ warned that to achieve the targets a “rapid development of a transformed energy framework with new economic, political and social drivers is required” (RAB, 2008:9). It argued that renewable energy must be placed at the heart of energy policy (RAB, 2008). This would be a major shift given the historic sidelining of renewable energy by the civil service energy teams mentioned by several interviewees. A House of Lords European Union Committee (HoL EUC, 2008) report concluded that although the EU targets are extremely challenging, they should be accepted because they provide political momentum, without which the UK will continue to underperform in renewable energy generation.

The phrase ‘good starting point for discussion’ (see above) and the general feel of the ministerial statement suggested that the UK would attempt to reduce the 2020 target. However, the document also pointed out that “the government played a key part in securing agreement at the 2007 spring European Council to a target of 20% of the EU’s energy to come from renewable energy resources” (Parliament, 2008:3). This reveals an interesting scenario in which Tony Blair and the Labour administration negotiated and agreed to extremely challenging draft targets against the recommendations of the civil service. An interviewee from BERR commented that the targets came as a total shock to the department who had advised Blair on the UK’s renewable energy potential. Most interviewees speculated on the reasons for this, and it is discussed further in Section 6.3.3. The UK

has since expended considerable time unsuccessfully trying to renegotiate its individual target. The target brings into question how information is used by government to inform policy decisions. In July 2008 the NAO released a report entitled ‘Options for Scrutiny’ that identified this as an issue (NAO, 2008). The production and use of information by government is discussed further in Section 6.4.

In June 2008, BERR released a consultation entitled the ‘UK Renewable Energy Strategy’ to consult on a range of measures to increase the rate of renewable energy development and meet the EU 2020 targets (BERR, 2008c). These measures are outlined in Text Box 4.4. The consultation did not mention departmental restructuring. However, the 2008 NAO report suggested that the roles and responsibilities of the main public bodies involved in renewable energy policy should be explored (NAO, 2008). The report also highlighted that there is no overarching strategy for renewable energy, although there are multiple reviews covering its different aspects (NAO, 2008). The departmental structuring and the distribution of responsibility for renewable energy (and energy) as a limiting factor in policy development has been a recurring theme within certain types of policy document that are not officially endorsed by government departments, the first being the 2002 Energy Review. However, no official policy documents from the DTI, BERR or Defra contain such debates. This confirms that the structuring of departments is considered at a high government level, most likely by just the executive.

Text Box 4.4 Measures to Increase Renewable Deployment Outlined in the RES Consultation

- Extending and raising the level of the Renewables Obligation to encourage up to 30-35% of our electricity to come from renewable sources by 2020;
- Introducing a new financial incentive mechanism to encourage a very large increase in renewable heat;
- Delivering more effective financial support for small-scale heat and electricity technologies in homes and buildings;
- Helping the planning system to deliver, by agreeing a clear deployment strategy at regional level similar to the approach established for housing;
- Ensuring appropriate incentives for new electricity grid infrastructure and removing grid access as a barrier to renewable deployment;
- Exploiting the full potential of energy from waste by discouraging the land-filling of biomass as far as is practical;
- Requiring all biofuels to meet strict sustainability criteria to limit adverse impacts on food prices, or other social and environmental concerns;
- Promoting the development of new renewable technologies through effective support particularly where the UK has the potential to be a market leader;
- Maximising the benefits for UK business and jobs by providing a clear long-term policy framework, working with Regional Development Agencies to tackle key blockages, considering support for specific technologies and addressing skills shortages.

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(BERR, 2008c:3-4).

In October 2008, DECC was formed from the energy team from BERR and the climate change team from Defra. DECC's seven departmental strategic objectives are listed in Text Box 4.5 and are energy focused, in contrast to the business focus of DTI/BERR (see Text Box 4.3). This demonstrates a refocusing of goals and objectives within government and the rising importance of energy issues. The creation of DECC not only overcame the practical difficulties of having the two closely linked policy areas within different departments, but also helped to resolve significant cultural differences and disagreements between the departments. The problematic relationship between the two departments

was highlighted by several academics (Harriss-White and Harriss, 2006; MacKerron, 2009) and interviewees as being a barrier to a more synergistic energy policy.

Text Box 4.5 DECC's Departmental Strategic Objectives

1. Secure global commitments that prevent dangerous climate change;
2. Reduce greenhouse gas emissions in the UK;
3. Ensure secure energy supplies;
4. Promote fairness through our climate and energy policies at home and abroad;
5. Ensure the UK benefits from the business and employment opportunities of a low carbon future;
6. Manage energy liabilities effectively and safely;
7. Develop the Department's capability, delivery systems and relationships so that we serve the public effectively.

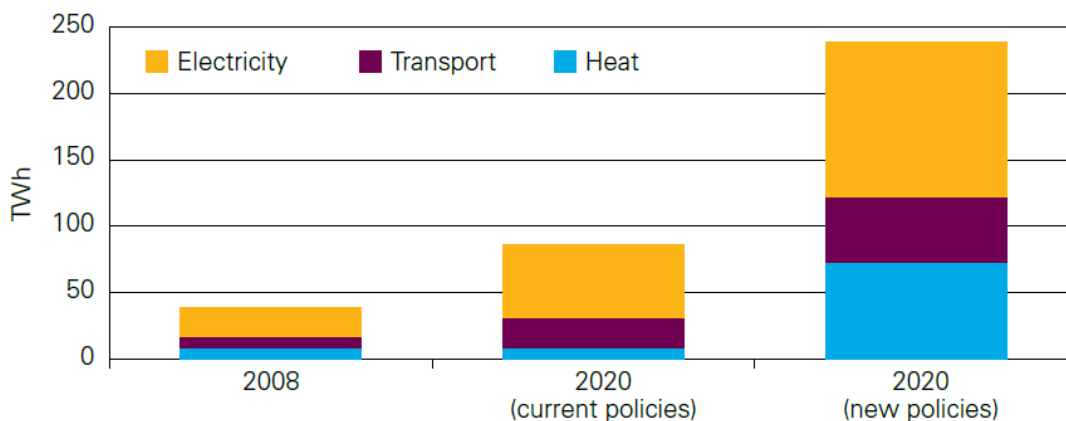
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Within DECC there are several teams focusing on renewable energy, including the Office for Renewable Energy Deployment (ORED), which arguably represents a more measured and structured approach than previous departments to developing renewable energy. There is also an Office for Nuclear Development. DECC is significantly better resourced than the previous departmental teams in BERR and Defra in terms of its number of employees, funding and ministerial power. Several interviewees commented that the appointment of an energy minister within the cabinet was very significant for energy policy and the political power of the department. One interviewee commented that this would give the civil servants within the department more confidence.

In October 2008, an early day motion was brought about by Alan Simpson MP, supported by a coalition of NGOs, to amend the current energy bill to support a feed-in tariff and to require the government to introduce a tariff in the next 12 months. The purpose of the tariff was to support small-scale renewable energy generation. The bill received Royal Assent on November 26th and, after a year of consultation, the GB FIT came into operation in April 2010 (DECC, 2010). The GB FIT is significant for several reasons. First, it represents a different policy-making approach from that generally found in the UK, i.e. it is not market based. Second, the policy was driven by cross-party backbench MPs rather than ministers and civil servants. The significance of this in relation to policy learning will be discussed in Sections 6.5 and 6.6.

The final RES was launched in 2009 alongside the Low Carbon Transition Plan introduced as a result of the Climate Change Act. This suggests that the government could remove supply-chain issues by stimulating a low-carbon industry. The RES proclaimed the need to radically increase the development of renewable energy and DECC’s commitment to the EU targets (HM Government, 2009). The strategy’s lead scenario suggests that more than 30% of our electricity, 12% of heat and 10% of transport could be derived from renewable sources by 2020. Figure 4.3 shows that this is particularly challenging for heat, as this is a policy area in which the UK has limited experience. Throughout the past 12 years, the government has produced only rhetoric and no real policy on heat. However, DECC has recently announced the Renewable Heat Incentive, which will provide financial support for the installation of heat technologies (DECC, 2011b).

Figure 4.3 A Scenario to Reach 15% Renewable Energy by 2020



(HM Government, 2009:11).

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The general perception of interviewees was that the RES did little more than bring together various renewable energy policy initiatives under one policy document. That there were few ‘new’ policies created concern; however, one interviewee commented that although the policies outlined may not seem radical, from an economic perspective the amount of money being directed into renewable energy will rise dramatically due to the banding of the RO and the GB FIT (which will be paid for by energy consumers). This could be perceived as the government starting to treat renewable energy more seriously. An interviewee from DECC believed that the RO, even in its banded form, would provide no more than 13-15% renewable electricity (SCS3): many interviewees, including civil servants, believed that the EU 2020 target was unachievable in the 11-year time frame (SCS3, I5). Several interviewees also raised the issue that the relatively short time period (at the time of interview) might encourage short-termism and channel policies and technologies down pathways that might not be best in the long term (I3, A2). This is supported by a House of Lords report that, in an

effort to meet the target, investment will be aimed at the most proven technologies and not those which may be more cost effective in the long term (HoL EUC, 2008). Other interviewees commented that if carbon savings are the main goal, then renewable energy might not be the most economical way to achieve this (L1, I3). This again highlights the difficulty of having four non-complementary energy policy goals.

4.6 Conclusion

Chapter 4 has shown that the significant policy shifts in UK renewable energy policy over the past 20 years have mainly been stimulated by drivers external to renewable energy policy and the energy sector. For example, macro-economic change provided a lever for renewable energy, albeit an opportunistic one, which initially stimulated the industry. On the one hand this could suggest that policy learning is not an important driver of change. On the other, it could be argued that it was a 'spill-over' of conceptual learning in economic policy that led to change in policy. This suggests that policy learning is transferable between sectors. Other aspects of the neoliberal approach, which remained dominant despite changes in government, have been more questionable. Price competition has led to technology channelling and slow, expensive development. This shows that such learning does not always provide a positive outcome. The EU has also been a significant policy driver, especially in recent years. It could be argued that this suggests that the UK is not engaging in policy learning of its own accord. However, the UK is intimately involved with policy development at the EU level and it is an iterative process. This suggests that intra-state policy learning is taking place at a very high political level. It is likely that the dominant learning taking place at the EU level is conceptual learning, given the diversity of member state mechanisms to stimulate renewable energy.

There is evidence that power shifts and regime change have strongly influenced the development of renewable energy. John Major's premiership orchestrated the relegation of the DoEn to within the DTI and reduced the importance accorded to energy policy and its resources. It is arguable that the effect on renewable energy was reflected in the inability of policy makers to remove policy barriers, such as planning barriers. However, it is also recognised that, in its policy infancy, renewable energy was not taken seriously. Tony Blair's premiership and a change in governing party provided new political support for renewable energy at a high level, demonstrated by the party's manifesto and commitment to climate change. However, it was Labour's support (and desire to put their stamp on the policy area) combined with the external driver of the SEM that led to the replacement of the NFFO. Despite Labour's political support and the growing recognition of climate change, energy was not represented at Cabinet level until 2008, 10 years after Labour took power. This highlights that although support for renewable energy existed in theory, concrete action was rare.

Institutional restructuring influenced policy development and learning for renewable energy and, more broadly, energy policy. Renewable energy policy has been moved from the DTI, to the DoEn, to the DTI, to BERR, to DECC. Each department's objectives have influenced renewable energy. The formation of DECC appears to be positive for renewable energy policy and has provided greater focus and a better structure for tackling policy problems. However, the relatively short time period since this move makes it difficult to evaluate: tentatively, it has provided greater continuity and given the civil servants within DECC more power to implement policy. Structural issues have been raised several times throughout the history of renewable energy (e.g. the 2002 PIU report), yet it took until 2008 for the changes to be sanctioned. This suggests that policy learning is taking place over long timeframes or, rather, that long timeframes are necessary to bring about change and that barriers to learning become embedded in institutional structures and processes. Fiorino (2001) proposed that policy learning does not occur unless it has been institutionalised in some way. Chapters 5 and 6 will investigate this further.

Chapter 5 – Analysing Policy Learning: Government Actors

5.1 Introduction

The aim of this chapter, and the following two chapters, is to analyse the role played by policy learning in the development of UK renewable energy policy. This will be achieved by analysing the concept of policy learning, identifying: (1) who is learning (the key actors); (2) what they learn; (3) the effects of learning on policy change (Bennett and Howlett, 1992), distinguishing between different types of learning (technical, conceptual, social and political); and (4) the process and means of learning and how it is embedded. This analysis therefore covers objective 2 and aspects of objective 3 as outlined in Section 1.4. Structuring this and the next chapter around the different learning experiences of key groups enables these aspects of learning to be addressed systematically. The following key actor groups were identified: politicians, civil servants, industry, NGO, media and academics/researchers/analysts. These actor groups relate broadly to those shown in Figure 3.1. Within the groups, there is a natural boundary between government actors (those directly involved in the production of policy) and non-government actors (the receivers and lobbyists of policy) (Adams and Kriesi, 2007), which is used as a chapter break. Thus, Chapter 5 focuses on the learning experiences of government actors, namely politicians and civil servants, differentiating between civil servants within the department with responsibility for energy policy and those in regulation, who are responsible for market regulation and energy policy administration within Ofgem. Chapter 6 then focuses on the learning experiences of non-government actors: industry, NGOs, the media and academics/researchers. To avoid repetition, learning mechanisms and their influence on different types of learning are addressed in Chapter 7. As this is a historical study of renewable energy policy from the 1990s to the end of the Labour administration in 2010, aspects of policy learning over time will be addressed, using evidence from interview data, policy documents, reports, the media and minutes of select committees.

5.2 Politicians

The aim of this section is to analyse the learning experiences of politicians²². In some more restrictive portrayals of the policy process, elected officials are the sole agents for learning in that domain²³ (May, 1992). The politicians implicated most in policy-learning processes are those who form the government executive, as they have the greatest individual roles in determining the direction of

²² Politicians are members of either the House of Commons or the House of Lords.

²³ Less restrictive models include non-state policy elites (May, 1992).

policy, although they are of course answerable to parliament. They are important actors for several reasons: they are responsible for developing and implementing policy (establishing overarching policy goals, determining areas of policy development and approving policy instruments) and drafting legislation (Parliament, 2010a). Changing policy goals are a feature of conceptual learning (Nilsson, 2005), which suggests that these politicians are key actors in this process. However, all politicians have the potential to impact indirectly on policy in that they play a part in establishing the legislation in which policy is set. In addition, some are involved in select committees, which inform government through critique and ideas flows (Jogerst, 1991).

5.2.1 Politicians' Learning – Pre-NFFO (pre-1990)

Chapter 4 established that pre-NFFO (1990) government programmes did exist for renewable energy, but they were geared mainly towards research and development. The comparatively small budgets and resources allocated to renewable energy (a few civil servants in the DoEn) suggest that there was little interest from Cabinet or from the DoEn itself. One civil servant commented that “I think everybody at the DTI would have to admit that compared to interest in atomic energy or electricity, interest in renewable energy was pretty much on the edge of the department’s interests” (SCS1). Policy goals for energy, determined by the government executive, were “related to the exploitation of the UK Continental Shelf [...] and privatisation [...] privatisation overhung everything that they did, at that point” (SCS1). Thus, the real interest of the Conservative executive pre-NFFO, and the focus of learning, was the privatisation of British industries and the introduction of a competitive market (Helm, 2003). This was ideologically driven by Margaret Thatcher, who believed that privatisation was one of the central means of combating socialism (Thatcher, 1993).

Privatisation represented a fundamental change in terms of the ideas that informed policy making. Privatisation was rolled out in virtually every national industry, directly or indirectly involving all departments. Each department was learning how privatisation would affect its industries, while its industries were learning about how privatisation would affect them, as part of a filter-down effect (CS5). The general public was also learning about privatisation through share offers and media reporting. The change in strategy (reduced state control), principles (state ownership to private ownership) and instruments (command and control to markets) that accompanied privatisation are features of conceptual learning (Nilsson, 2005). The scale of the changes that accompanied privatisation aligns with Hall’s idea of third-order learning, where policy learning in one area (in this case macro-economic/fiscal policy) spills over into other policy areas as part of a broader paradigm shift (Hall, 1993). It also supports Rose’s theory of lesson drawing, where policy lessons from one sector are transferred to another (Rose, 1993). Therefore, for the energy sector, privatisation induced policy change and top-down learning, from conceptual learning about goals to technical learning about instruments to achieve them.

Broadly speaking, the reform of the policy system and the process of privatisation are examples of top-down driven change, which demonstrates the importance of the government executive and key ministers in conceptual learning. However, in contrast to the idea of conceptual learning as a top-down process, Howlett and Ramesh (1993) illustrated that the learning that occurred within fiscal policy and led to privatisation began with technical learning and negative lessons regarding the use of 'command and control' policies and state ownership. They proposed that "politicians learned that excessive state intervention increased budget deficits, promoted citizens' alienation when goals were not achieved and made the government appear responsible for any resulting economic malaise. Bureaucrats and officials learned that they did not have solutions to the problems they were increasingly being asked to resolve. Social groups and actors learned that continued large-scale government intervention involved a higher tax burden than many of these groups were willing to bear" (Howlett and Ramesh, 1993:17). Interestingly, they argued that it was cumulative lessons regarding instruments, involving all actors (including social actors), that led to preferences for private instruments and stimulated a paradigm shift (Howlett and Ramesh, 1993). This partially accords with Hall's three-tier model of learning, suggesting that technical learning is linked to and leads to conceptual learning, which leads to paradigm shift, but that society and social learning are implicated throughout. May (1992) proposed that technical learning and social learning are not mutually exclusive and that policy change can entail either or both. This provides some insight into how the different learning types fit together.

The case of privatisation also provides some explanation of how conceptual learning by policy makers can stimulate social learning. According to Thatcher, the sale of British Telecom laid the basis for share-owning popular capitalism in Britain (Leach, 1995). Share offers to the general public and the filter-down of privatisation increased political support for the Conservative government and engendered social learning. The percentage of adults holding shares rose from 7 to 25% during the 1980s (Parker, 2003). It is unclear whether this was a deliberate move by the Thatcher government to increase its popularity or that of neoliberalism. However, two motivations for political learning are identified, illustrating that multiple motivations may operate in unison. In Thatcher's memoirs she declared that she pursued, "privatisation which led to the widest possible share ownership by members of the public [and thus] the state's power is reduced and the power of the people is enhanced" (Thatcher, 1993:676). This indicates that engaging the general public fulfilled her ideological aspirations and implies that share offers were a deliberate attempt to stimulate social learning. This suggests that policy learning is a multi-directional process whereby technical learning (including social actors) leads to conceptual learning and paradigm shift, which leads to technical and social learning. It also suggests that political learning is present alongside other forms of policy learning.

There was evidence from civil servant interviews (SCS1 and CS5) that the Thatcher government was also learning about the environment as a policy area (see Section 5.2.1). In Thatcher's memoirs there is no mention of renewable energy. However, she strongly advocated the need for nuclear power for both environmental and energy security reasons (Thatcher, 1993). (This explains somewhat why nuclear remained on the agenda as an energy option despite opposition and information that suggested it was uneconomical.) In 1988, Thatcher became the first British prime minister to publicly recognise climate change (Hulme and Turnpenny, 2004). However, it is questionable whether this was a case of conceptual or political learning, or both. Carvalho (2005) argued that it was a political strategy to promote nuclear energy and dismantle the coal industry. Furthermore, Giddens (2009) proposed that it was Thatcher's determination to reduce the power of the miners that drove the switch from coal to gas (the 'dash for gas') and that it was this and privatisation (which increased energy efficiency) that led to a reduction in carbon emissions. This highlights the difficulties of classifying learning in the context of the multiple motivations that can drive complimentary policy changes.

5.2.2 Politicians' Learning – NFFO (1990-98)

The spread of privatisation stimulated a rapid and fundamental change in patterns of policy instrument usage (Howlett and Ramesh, 1993). The design of the NFFO can be attributed to the process of privatisation being pursued by the Conservative government (see Chapter 4). However, the decision to support renewable energy was also driven by other political motivations (Helm, 2003; Mitchell, 2008). A policy to subsidise nuclear power needed to be sanctioned by the European Commission and it was clear that such a policy would be better packaged as a non-fossil-fuel policy (Helm, 2003). Therefore, the government was pursuing a strategy to avoid resistance and gain support by seeming to align UK policy goals with those of the EU. This is considered a form of political learning, defined here as 'advocacy coercion'. Interestingly, there is evidence to suggest that political learning by ministers, about how to legitimise support for nuclear power, was stimulated by political learning by civil servants on how to achieve support for renewable energy. CS5 commented that, "ministers were convinced during the privatisation process that there was merit in giving renewable energy a small share of the action. So what was originally conceived as an obligation to retain operation of the existing 8 GW of nuclear capacity, a little corner of that was allocated to renewable energy, to enable renewables to be moved into market deployment in a small way". This indicates that there was ministerial support for renewable energy because ministers had been 'convinced'. Mitchell (2008) acknowledged the role of one civil servant who realised that renewable sources were also 'non-fossil fuel' and argued that they should be eligible for support. This demonstrates a link between civil-servant and ministerial learning, though it was very much in the context of the fixed objectives of privatisation and markets, suggesting that civil servants were not affecting conceptual learning.

In 1992 the Conservative executive decided to disband the DoEn and some policy responsibility was absorbed into other departments, mainly the DTI. This was primarily because the provision of energy was to be left to the private sector (Helm, 2003). This structural change demonstrates conceptual learning, as it was stimulated by a change in policy goals and ideology regarding the role of the state in energy provision. Policy areas that are represented by Cabinet ministers reflect those with current importance. Energy was not represented at Cabinet level after 1992 until 2008, demonstrating a low level of interest from the executive. Thus, the ability for lessons about energy policy to be expressed at Cabinet level was reduced. This highlights how the government's chosen structural arrangements, in terms of its ministers and departments, can channel learning.

5.2.3 Politicians' Learning – Policy Replacement (1998-2002)

In 1997 the Labour party won the general election. Section 4.3.3 reported that the new Labour executive continued with the privatisation agenda and aspirations of competition, but also made commitments to sustainable energy and a new approach to policy development. Neither renewable energy nor energy was a vote winner at this time, so its inclusion in Labour's manifesto was due to other factors, such as the personal interest of Tony Blair. Blair showed considerable enthusiasm for tackling climate change and became a global policy entrepreneur for actions in this area. However, Mitchell (2008) noted that it was not an issue on which he was willing to risk his power. She also described the difficulties of moving policy forward, involving departmental bargaining and political negotiation, suggesting that policy entrepreneurs are necessary for policies to succeed, thus linking individual learning to wider party and organisational learning (Mitchell, 2008).

Newman (2001) argued that Labour tried to transform the whole policy process through social engagement. Labour's approach to policy development presented an opportunity for policy learning as it brought new types of knowledge into the policy development process. The Labour party website suggests that Labour, in its model of policy development, was actively engaging in social learning through a process called Partnership in Power (PiP), "which is designed to involve all party stakeholders (including members, local parties, trade unions, socialist societies and Labour representatives) as well as the wider community in shaping party policy and support the relationship between the party in the country and the party in government" (Labour Party, 2010). The site also stated that PiP "has led to the production of two general election winning manifestos" (Labour Party, 2010). These statements suggest that, for Labour, policy development agendas were strongly influenced by its manifesto, which reflects societal preferences and pressures (its voters mainly consist of the working class). Interview data further exemplified how Labour's approach to policy development was markedly different from that of the Conservatives. For example, one interviewee commented, "there was a changing nature in the consultation from the Labour Government. Up until then we had had a lot of consultation, but it was mostly quiet, face to face, in a room and we talked to

them. By that time, we had engineering where consultations and documents were produced” (CS5). This suggests that political parties and their policy-making approach can directly influence the sources of information and numbers of ideas within a system, and correspondingly the types of learning taking place.

Even though Labour had committed to support renewable energy, the last NFFO round was in 1998 (Connor, 2004) because of the conditions the EU had placed on nuclear support (see Section 4.3.1). Mitchell (2000) argued that had the government genuinely wanted to support renewable energy, they could have exempted it from the end date, with support from the EU; however, they chose not to. Chapter 4 highlighted the internal and external conditions that contributed to end the NFFO rounds. These included: timetabling for the European SEM, which required new legislation and trading arrangements (Mitchell, 2000; see Section 4.4.1); a change in governing party from Conservative to Labour (1997), which brought new political support for renewable energy (see Section 4.3.3) (Mitchell, 2000); pending European legislation in the form of the Directive on Electricity Production from Renewable Energy Sources (European Commission, 2001), which meant that the UK needed to be seen to be policy making; the end of EU-sanctioned subsidies by the UK government to nuclear; and increased information and media attention on climate change. Sabatier and Weible (2007:198) proposed that major policy change requires perturbations external to the policy subsystem, “significant perturbations include: changes in socio-economic conditions, regime change, outputs from other subsystems, or disaster”. Thus, the events that led to the replacement of the NFFO were characterised by power shifts from regime change and outputs from other subsystems. It is arguable that conceptual learning about the goals of energy policy had taken place in other policy subsystems, particularly the EU, and had resulted in policy spill-over. The EU had increased the importance given to environmental policy goals in the light of new information regarding climate change, and had legally embedded these through its ratification of the Kyoto protocol (Grubb et al., 1999).

Interestingly, data from the interviews provide a slightly different, more internal, perspective from the academic literature and policy documents. Several interviewees believed that the NFFO came to an end simply because it was not performing (I7 and I9). Interviewee CS5 proposed that many review bodies at the time criticised aspects of the policy for its inconsistent nature, poor rate of deployment, and favouring of certain technologies. However, government documents suggest that the NFFO was perceived to be successful, primarily due to its promotion of price convergence for certain technologies (DTI, 1999a; or see Appendix 4). CS5 highlighted that its unpopularity was clear to the government from evidence in parliamentary reports. Thus, it revealed an imbalance in the government’s policy objectives, that cost and economics were most important, and therefore that the NFFO was effective. Interviewee I9 suggested that the NFFO was perceived to be a poor instrument compared with the German FIT, which is corroborated by the analysis for the first renewable energy

consultation (see Appendix 4 Table 3). However, government documents from the period suggest that little attention was given to renewable energy policies in other countries (DTI, 1999a:49; or see Appendix 4), suggesting limited learning from others' experiences (Jordan, 2005). Evidence suggests that lesson drawing, as proposed by Rose (1993), was not taking place between jurisdictions. However, it is arguable that policy transfer was prevented by the policy context of privatisation and Britain's role as a privatisation pioneer.

5.2.4 Politicians' Learning – the RO (2002 onwards)

The RO has been widely criticised by Ofgem (interviewees Ofgem1, 2 & 3), NGOs (World Future Council), academics (Connor, 2004; Helm, 2002; Lipp, 2007; Mitchell and Connor, 2004; Mitchell, 2008) and certain sectors of industry for being inefficient and expensive compared with other countries' policies. Despite the criticisms of the RO and a policy review in 2005, it was retained by the Labour government with some minor changes. In 2006 Labour proposed to band rather than replace the RO. This move to improve the efficiency of the instrument suggests that the Labour government was engaging in technical learning (Nilsson, 2005). However, several interviewees argued that the RO was held in place by a strong lobby group that included the big six (Ofgem2, I13), implying that politicians were being influenced by powerful industrial actors to not replace the instrument, and indicating blocked learning. Recent changes to the banding levels for offshore wind seem to substantiate their influence (I6) (see Section 6.5). Carter (2004) proposed that in a pluralist²⁴ political system, businesses may exercise a disproportionate amount of power due to the resources at their disposal. Politicians such as Stephen Byers have openly stated they are a "cab for hire" by big business (Booth, 2010; Youtube, 2010). (Coincidentally, Stephen Byers was the Minister for Trade and Industry who launched the Renewables Obligation Preliminary Consultation.) Oliver and Pemberton (2004) argued that vested interests are sufficient to resist change in the absence of an external policy shock, suggesting that commercial power can act as a barrier to change and certain types of learning. In addition to the observable influence of power, Bachrach and Baratz (1962) identified a second dimension of power, which refers to the ability of powerful groups to keep issues from the agenda (known as 'non-decision-making'). A review of the policy documents highlights that replacing the RO was not a point of consultation. Thus, keeping the replacement of the RO from the agenda, it could be argued, demonstrates this second dimension of power.

In one of the last delegations of his premiership, Tony Blair negotiated the British portion of the EU 2020 targets. Empirical research revealed that Blair went against civil service advice in accepting these targets (see Section 5.3 for interviewee statements), indicating that the decision was not driven

²⁴ Pluralism regards public policy as the outcome of competition between different groups. However, not every group is equal (Carter, 2004).

by ‘bottom up’ departmental technical learning. It is difficult to determine whether the motivations for accepting the targets were politically or conceptually driven, but it is arguable that it showed individual (disaggregated) learning, rather than organisational (aggregated) learning. This provides evidence of the gap between technical learning and large-scale policy change, and further evidence of the compartmentalisation of learning types. It also suggests that individual learning becomes more influential as one ascends the power hierarchy, as fewer advocates need to be coerced to embed ideas. This is demonstrated somewhat by Tony Blair’s acceptance of the 2020 targets, as he knew it would be extremely difficult for the UK to overturn the EU’s decision.

In 2008, the Labour executive created DECC and appointed Ed Miliband as Secretary of State. This highlights how the government priorities had re-focused around issues of energy and climate change. Realignment of priorities is an indicator of conceptual learning (Nilsson, 2005). Restructuring could therefore represent conceptual learning regarding the importance of climate change. However, as energy policy goals did not change it is more likely to demonstrate technical learning, whereby the new structure better facilitated the achievement of established policy goals. The launch of the GB FIT suggests there was experimentation with new policy instruments, although the Labour government initially fought against it (see Section 7.3), but the reluctance to replace the main policy instrument, the RO, suggests little change in the Cabinet’s thinking. This supports Rose’s (1993) assertion that changes in institutional arrangements do not necessarily lead to a change in programme outputs.

Mitchell (2008) proposed that the underlying political-economic paradigm, the RSP, operates by the government providing a regulatory framework and general direction then leaving the market to select the means to reach that end (with some regulatory limitations). She argued that the current paradigm is not capable of responding to the challenges of climate change because it is inflexible and unable to produce conceptual learning (Mitchell, 2008). She also warns of the danger of ideological ‘lock in’, whereby the “paradigm establishes its own institutions and those institutions initiate policies based on the principles of the paradigm – currently reliance on markets as the main arbiter of value” (Mitchell, 2008:1). Fiorino (2001) contended that efforts to integrate conceptual and social learning in the USA had mixed success because institutional and legal frameworks were founded on technical learning. Oliver and Pemberton (2004), in contrast to Hall’s model of paradigm shift (where change occurs from the build-up of policy anomalies that destabilises the dominant paradigm), proposed that paradigms can defend themselves and evolve to absorb anomalies. This suggests that institutional structures and paradigms can stifle conceptual learning, which supports empirical findings that the learning taking place around renewable energy is largely technical while energy goals and strategies remain the same.

It is also possible that the 2008 Labour structural reform was linked to political learning. The timing of the restructuring suggests political expedience in the face of the EU 2020 targets. Interviewees

generally perceived the consultations that preceded the establishment of DECC to have been of little worth (with the exception of the FIT). One respondent commented:

“I remember reading the Renewable Energy Strategy and feeding into it or whatever but I remember it was just a rather gentle amble through policy – it didn’t really tell you, it was just told to you, it was just a reflection of what was going on. It wasn’t really trying to do anything much to change anything. The areas they asked a lot of questions about were actually not the areas that there were issues with – so they asked the questions around the bits that were working reasonably well already” (I12).

This suggests a political exercise undertaken so that government would be perceived to be doing something about the EU targets (political learning) but in reality, even though the institution itself had changed, the policies were imported from the old institution established under the DTI’s assumptions and principles, so exhibited a high degree of path dependency. Radaelli (2009) terms this form of policy learning ‘symbolic’, as it was about sending the message that the Labour government was committed to EU policy and a respectable member of the international community. ‘Symbolic’ learning presents another motivation of political learning, ‘to send a signal’. Thus, symbolic motivations may be based on emulation rather than learning and policy commitments may be weak, for example by altering targets but not the policy means of achieving them.

5.3 Civil Servants

The aim of this section is to evaluate the extent and nature of policy learning being undertaken by civil servants at different stages over the past 20 years. The civil service provides the administrative staff that advise ministers and design, develop, and implement the policies produced by parliament under the guidance of the governing executive. They are permanent, unlike members of the governing executive and parliament, and are assumed to be apolitical. However, empirical research indicates that they do perform as political actors. Structurally, the civil service can be broken down into various components²⁵. It operates hierarchically at national, regional and local levels. As discussed in Section 3.3.1, this study is situated at the national level and therefore focuses on central government.

5.3.1 Civil Servants’ Learning – pre-NFFO (pre-1990)

Pre-NFFO, under a Conservative government and a nationalised energy sector, civil servants for renewable energy were focused on research and development policies, i.e. the technical feasibility of different technologies and their costs.

²⁵ For example: departments, regional councils and the Cabinet office. In addition to these, with privatisation the government created a regulator for each industry or sector: Ofgem regulates energy. Ofgem is made up of civil servants, but will be addressed separately in Section 5.3.

“The Cabinet office set up a series of studies, most of which were conducted by or for the Chief Scientist division of the Department of Energy, which were meant to identify the potential costs for the kind of things that would be expected to contribute in the energy sector in the coming decades. [...] That led a few years later to an R&D programme” (CS5).

Thus, civil servants were learning about the policies to stimulate innovation. CS5 went on to say:

“By the late 1980s [...] we had got to the point where in principle you could have built the pre-commercial pilot in any of the renewable technologies (excluding wave). The costs were all probably too high and there was very limited confidence in the market. We had to some extent got involved in the UK manufacturing industry and tried to get them involved in manufacturing the technology. But it was not evident that there was a route from the point of demonstration of technology to market uptake or market stimulation on any kind of scale” (CS5).

This demonstrates that the civil servants’ attempts to develop a market were unsuccessful because of the economics of renewable energy, rather than because of the learning process. It could be argued that the only way to have created a market for renewable energy, given the features of the nationalised energy system, was for the government to have created one, which they did not. This again supports the idea that there was little real interest in renewable energy at a higher level of government. Helm (2003) proposed that the context for energy policy at this time was cheap and secure supplies. This would have created little policy demand for renewable energy at Cabinet level, as it was seen as a response to a then non-existent energy security problem.

Section 5.2.1 suggested that, at the departmental level in the DoEn, the key interest and focus of learning of civil servants was exploiting the UK continental shelf and privatising the electricity industry. Thus, they were learning about instruments such as markets, a feature of technical learning (Nilsson, 2005). However, interview data suggest that they were also engaged in conceptual learning. One ex-civil servant described the ideas surrounding the move to privatisation as a “philosophy” (CS5). Adapting to make policy within this new context demonstrates conceptual learning in that civil servants were learning about new policy goals. The driver of conceptual learning was the Cabinet, again suggesting that it was a ‘top-down’ process (see Section 5.2). This supports Hall’s (1993) theory of policy spill-over from one sector to another, a characteristic of paradigm shift.

Interview data suggest that several umbrella policy goals were established during Thatcher’s time as Prime Minister. One civil servant commented:

“Policy then had three legs – environment & climate change, energy security, diversity and energy competitiveness. It’s very difficult to be very precise about which of those was most important. They were all in the papers, although different people had different levels of interest in those areas and different Government departments had different levels of interest” (CS5).

In this statement, the ‘legs’, which set the context for most policy documents, are perceived as policy goals set by the government. The extract indicates that interest in, and the interpretation of, these goals was not uniform across departments and was mediated by the interests of the departments themselves. This implies a degree of departmental independence and an ability to reject new goals (evolving policy goals are a feature of conceptual learning), which suggests that the strategic goals and objectives created when a department is formed are difficult to change. This supports Fiorino’s (2001) contention that institutional and legal frameworks can restrict conceptual and social learning.

Interestingly, since the establishment of these energy policy goals in the early 1980s, they have remained largely unchanged, except for the addition of a goal for social equity or rather fuel poverty. The instruments used to achieve the goals have also been similar, market-based mechanisms indicative of a neoliberal ideology. It is arguable that these goals do not always act in cohesion and at times conflict, which means progress in one direction can hinder progress in another. For example, efforts to reduce carbon emissions increase the financial burdens on industry, which in the case of energy are passed on to consumers, moving more people into the fuel poverty bracket. Cohen et al. (1972) proposed that decision making under goal ambiguity is common in complex organisations. They linked this to organisational behaviour whereby “problems are resolved without recourse to explicit bargaining or to an explicit price system market – two common processes for decision-making in the absence of consensus” (Cohen et al., 1972:1). Fiorino (2001) proposed that one of the contributory factors in conceptual learning for US environmental policy was a change in attitude towards the relationship between environmental goals and economic goals, whereby they were perceived as complementary and not conflicting. This uniting of goals is also a feature of ecological modernisation, whereby “capitalism is made more environmentally friendly by reform (rather than the overthrow) of existing economic models” (Carter, 2004:211). However, it is arguable that reconciling four goals is more difficult than two.

5.3.2 Civil Servants’ Learning – NFFO (1990-98)

Section 5.2.1 highlighted that civil servants were engaged in political learning and becoming “more sophisticated in advancing problems and ideas by learning how to enhance the political feasibility of policy proposals” (May, 1992:332). Interview data suggest that the NFFO design reflected this. One civil servant commented:

“That really was the single biggest advantage of the NFFO. It was do-able within the political framework of privatisation. All the conceptually, potentially more efficient options, were not acceptable under the government [...] But what do you do? Do you go for a re-fit scheme that isn’t going to be acceptable in the context, or do you go for what you can get? And the UK decided to go for what it could get and re-visit later on as we did a decade later when the obligation was reviewed” (CS5).

This suggests that the civil servants were learning how to create policies that were politically acceptable by adapting the features of the policy instrument to suit the preferences of the Conservative government and dominant policy paradigm. In doing so, the civil servants prioritised certain ideas over others. This supports May's (1992) argument that ideas are constrained by knowledge hierarchies that reflect political circumstances. Nilsson (2005) proposed that such strategic use of knowledge constrains learning.

During the development of the NFFO, civil servants were also engaging in technical learning about the design and settings of market-based instruments. This was achieved through a process of 'learning by doing' since there was no policy precedent.

"It was fairly hard to mouth to be honest. There was not about 10 years worth of study ... put into this. And had we not had some years of having run our R&D demonstration projects we really wouldn't have had much of a clue as to how to design it. But, you know, design it we did! And for good or ill it ran for a decade. Its main advantage was that the political system accepted it and implemented it" (CS5).

The UK was a pioneer for privatisation, so very few other countries had experience of the privatisation process. Other countries did have experience with FITs (see Appendix 4), but interview data and policy documents revealed that the government would not accept anything that was not competitive. This supports Campbell's (1998) argument that national institutional arrangements act as a filter for policy adoption by limiting the range of possible solutions considered by policy makers when resolving policy problems. Thus, the civil servants designed the NFFO by drawing on past experience with research and development policies rather than other countries' experiences. Furthermore, the extract underlines that time constraints placed on policy development limit the alternatives that policy-makers can consider (Zahariadis, 2007). All of these factors meant that technical learning (about instruments) by civil servants was strongly constrained in the policy-development process for the NFFO.

During the operation of the NFFO, civil servants were experimenting with different instrument settings in each round of tendering (see Section 4.3.1). "Trial-and-error learning (refining solutions based on better understandings of resources and objectives) is a more common basis for learning than systematic policy evaluation or experimentation" (May, 1992:333). Hall proposed that processes whereby "instrument settings are changed in the light of experience and knowledge, while the overall goals and instruments of policy remain the same" are symptomatic of first-order change (Hall, 1993:278). First-order change is seen as normal policy making by Hall (1993), as policy adjusts without challenging the dominant paradigm. Interview data suggested that during the operation of the NFFO, civil servants were mainly engaged in technical learning about the settings of instruments via a

‘learning-by-doing’ process. The dominance of ‘learning by doing’ or ‘trial and error’ during the policy operation stage and of political learning during the development stage might suggest that different types of learning prevail at different stages in the policy development cycle.

In 1993, the DoEn was relegated to an energy team within the DTI. Its impact in bringing renewable energy policy in line with the goals and objectives of the DTI is discussed in Section 4.3.2, which also highlights the negative impact this restructuring had on information flows and policy outputs for renewable energy (SPRU, 1999). This suggests that institutional change can disrupt technical learning. Rose (1993) proposed that institutions (taken here to mean departments) represent political interests and values that might mobilise opposition to lesson-drawing. The restructuring represented reduced power for the energy team, which could also explain its failure to overcome issues such as planning and grid integration for renewable energy. This again suggests that power is an important precursor to embedding learning. Rose (1993) proposed that power is a primary condition for applying a lesson in government. In the long term, structural change has the potential to stimulate new ideas and ways of thinking about problems, but Section 4.3.2 indicates that in this situation the opportunity for technical learning, for example through policy amalgamation, was lost. This highlights the existence of policy windows or opportunities, as proposed by Kingdon (1984), and a temporal dimension to technical learning.

5.3.3 Civil Servants’ Learning – Policy Replacement (1998-2002)

From 1998 to 2002, the replacement of the NFFO with the RO provided an opportunity for policy learning from the past and from experiences of others (Jordan, 2005). Learning from others could include other states; however, government documents showed that again little attention was given to renewable energy policies in other countries (DTI, 1999a; and see Appendix 4). Section 4.4 highlights that numerous consultations surrounding the replacement of the NFFO acted as a mechanism for feedback and potential policy learning (see Table 4.2 and Chapter 7 for a discussion on consultations as learning mechanisms). However, certain lessons and ideas were carried forward, whereas others were not. These differences provide insights into policy learning processes and the movement of ideas.

Experiences garnered in the operation of the NFFO provided an opportunity for lesson drawing by civil servants. Rose (1993) proposed that everyone concerned with public policy subconsciously draws lessons. When asked about the lessons learned from NFFO, CS5 commented:

“It was cheap and banding with prices was reasonably, perhaps not perfectly, but reasonably attuned to the needs of the different technologies. The fact there were bands applicable to technology at every stage; everybody could come in at a price that would in theory enable them to develop their technology, because in my view and indeed now, banding was critical” (CS5).

The cost of the mechanism was clearly important to policy makers and encouraged them to assume that market-based mechanisms were cost effective as they provided price convergence (DTI, 1999a). Banding and technology differentiation was also important to this interviewee. The market-based aspect of the policy was carried forward to the RO, which demonstrates the institutionalisation of neoliberal ideas and, arguably, constraints on policy learning and evolution (Garrett and Weingast, 1993). However, banding was not carried forward. CS5 went on to say:

“When [NFFO] was originally conceived, the idea was that we would do it rigorously, perhaps one a year. So it would be ongoing and regular, and people would understand it. But in practice lots of political things interceded [...] It became irregular and that was undesirable from the point of view of the industry looking for consistency” (CS5).

In other words, the inconsistency of the mechanism was an unintended effect created by the political process, with civil servants engaging in learning by doing, about not just the mechanism but how the political process influenced it. Learning about instrument inconsistency is also documented in the consultation documents of the time (see Appendix 4). The issues of inconsistency were addressed in the RO by providing support per mega-watt of renewable electricity produced, combined with a guaranteed timeframe of 25 years (DTI, 2000b). Addressing past policy problems signifies deliberate learning by policy makers (Murrall and Bailey, 2008). Furthermore, the extract demonstrates that policy consistency and maintaining investor confidence had been issues for many years (see Section 6.3.1).

Interview data indicate another lesson was learnt from the operation of NFFO about the duration of instrument support:

“NFFO had an in-built exit strategy in that you could stop supporting it [...] the obligation was less clear. There was no exit strategy for all the original format of the feed-in tariffs. It was only later when they started to gradually reduce the price that there was an exit strategy. The broader characteristics you would want from a support scheme – it was consistent over a long period, so people understand it. It offers the right level of support to the individual technologies at different stages of development to ensure that they all are brought forward and have an exit strategy. These are the three characteristics that are necessary for a good support scheme. All of the performances were gradually moving into that direction, indeed the REA actually published in a report last year saying that, which I found really gratifying since we’ve been on about that for the previous 15 years” (CS5).

This illustrates that the civil servant was engaged in technical learning, demonstrating improved understanding and the ability to draw lessons about policy problems, objectives and interventions (May, 1992). The design of the RO embedded lessons about consistency and exit strategy, but not lessons regarding the importance of banding. Interestingly, this discussion is absent from the consultation documents, with the exception that the government stated that a banded Obligation had

been considered but would have undesired effects on the market (see Section 4.4.2). In hindsight, given that the RO was banded in 2009, it would seem that lessons on technology differentiation were significant for renewable energy development. This is testimony to the existence of the ‘enlightenment function’, the ability of policy analysis to gradually alter the concepts and assumptions of policy makers over time (Sabatier and Jenkins-Smith, 1993).

Interview data suggest that learning from the NFFO was not embedded for several reasons. “There were different groups of people involved. There was one set of people who had probably borne the pain of NFFO and understood it. There was another new set of people, under a new set of influences, who were really quite against the idea of the government determining which technologies got developed and to some degree the NFFO did that” (CS5). This highlights the difficulty of implementing individual learning in response to new ideas, particularly when the ideas are contrary to mainstream thinking (and perhaps that of other civil servants) about a differentiated technology approach versus roll-back of the government and market-based approach. It also suggests that personnel turnover, which brings new civil servants with different ideas or lack of experience into the policy process, can be a barrier to embedding learning. The idea that embedding ideas require consensus amongst large groups of actors resonates with Sabatier and Jenkins-Smith’s (2007) ideas about advocacy coalitions and suggests that advocacy coalitions accumulate within areas of the civil service.

Farnham et al. (2003) proposed that Labour’s impact upon the civil service was significant in terms of structure and management practices. The change in government meant that the civil service began learning about Labour’s values, ideology, wishes, and how politicians wanted them delivered. Labour changed the way policy was developed and brought forward values of social inclusion and creating a more formalised and open consultation process, particularly through the use of formal written consultations (See Section 7.2.1). Fiorino (2001) stated that part of the evolution from technical to conceptual learning is marked by a changing relationship with stakeholders, whereby adversarial and legalistic policy making is replaced by a more consensus-based process. However, interview data indicate that the UK process is less pluralistic and still strongly shaped by business interests, particularly in the case of the RO (see Section 6.5).

5.3.4 Civil Servants’ Learning – the RO (2002 onwards)

Section 4.4 highlighted that since the RO’s inception there have been numerous consultations, followed by numerous policy adjustments. This indicates that technical learning is taking place more or less continuously. Arguably, the decision to band the RO has been the most significant of these changes. One civil servant expanded on the motivations behind the change:

“[firstly] to bring on a greater variety of electricity and secondly to avoid over-compensation of some of the technologies that are more established. The problem without banding is you pay the same price to all. This means that you have a number of technologies that you are paying too much for and then some other ones, which are slightly further to market, where you are not paying enough. So, on the one hand, it is not very efficient because you are paying big rents and at the other it is not very effective because it is not bringing on the new technologies. Banding is to address that” (SCS3).

This suggests that civil servants were learning not only about the financial efficiency of the RO, but also how effective it is in the light of current goals. Thus, learning is taking place in the context of fixed policy goals and objectives, two features of technical learning (Nilsson, 2005). All major and minor changes have been stimulated by annual reviews to evaluate performance, which can be categorised as learning by doing. Hall (1993) describes this as normal policy making. The volume of minor and major policy adjustments indicates that the current policy framework and review process is attuned to delivering technical change driven by technical learning. In contrast, the yearly review process was perceived as unwelcome interference by industry stakeholders (see Section 6.3.1).

Empirical data suggest that the civil servants operating the RO were also learning about non-financial constraints on renewable energy. One civil servant commented:

“The familiar [barriers] in particular for electricity are planning, grid connection and supply chain. They are not ones with a simple answer. On planning you could say, just parcel build all wind turbines in one place, but clearly for wider political reasons that would not be something that you would want to do. And there are other issues to balance and that is what the planning system is all about, is ensuring the best coherence between a number of potentially competing goals. We are working hard to help the planning system deliver effectively. But that doesn’t mean making the planning system say yes to every wind turbine” (SCS3).

This quote indicates that civil servants were gaining greater understanding of the various issues surrounding renewable energy. However, this did not mean that the government was necessarily any closer to removing the barriers resulting from overlapping policy sectors and complexity. There is evidence to show that the government was trying to become more strategic in its approach to renewable energy deployment through cross-sector policy engagement. Several government interviewees commented that this is reflected in the RES: “the Renewable Energy Strategy highlights that government want to be more strategic” (CS6). However, contrary to this, several non-government interviewees argued that the government’s approach is still far from holistic (see Section 6.2). Furthermore, CS6 recognised that there is need for “a suite of incentive mechanisms, not just the RO”. He argued that this has been demonstrated in the move to create policies to stimulate heat and small-scale renewable energy. Research by Fiorino (2001) proposed that a search for integrated strategies and attention to novel policy instruments signifies a transition from technical learning to conceptual

learning. However, it is arguable that in this instance, strategic manoeuvring has taken place without disturbing fixed goals and objectives, which should still be classified as technical learning (Glasbergen, 1996).

Several civil servants also brought up issues associated with public engagement with renewable energy, suggesting it represents a policy challenge and an area for potential learning. One commented:

“The whole question of engagement: how do you get individuals and business to actually accept renewable deployment and actually do it themselves? If we are going to hit our renewable heat goals, we are talking about literally millions of households adopting renewable technologies, and actually getting individuals to want to do that, and feel that they are able to do that. That is a huge challenge and one where we are starting much further back” (SCS3).

Engaging the general public would dramatically increase the number of stakeholders involved in energy production. Historically, policy for renewable energy in the UK has been directed through the major electricity companies. For example, the RO required the major suppliers to contract a fixed percentage of renewable electricity to provide the market with a stimulus. Surprisingly, interviewee SCS3 revealed that although future policy will engage with more individuals, it will not come directly from the department, but will continue to be directed through the major suppliers. Interestingly, research by Chatterton presented in ‘DECC – a view from the inside’ (Chatterton, 2010) revealed that DECC employs very few social scientists compared with other government departments. DECC is populated by natural scientists such as climate scientists and economists (Chatterton, 2010) who do not necessarily have expertise in fostering public engagement. DECC, in association with the Economics and Social Research Council have organised a fellowship scheme for academics to work within DECC to develop the department’s social science capabilities and provide succinct advice to policy makers (Chatterton, 2010). This indicates that DECC is actively seeking to improve the policy development process and engage in technical learning in this area.

All civil servants interviewed over the course of this research commented on the use of markets. Interestingly, the debate within the civil service seems to have come full circle. One civil servant, whose experience of renewable energy policy is the most contemporary, divulged that he had recently been in a meeting to discuss energy-market reform. He commented that:

“The Renewable Energy Strategy highlights that government wants to be more strategic. Now that’s not a return to the central planning of the 70s and before that, but it recognises that the market can’t correct or provide the solution fast enough to solve the climate change and energy issues and there needs to be more intervention from government around grid issues and development and maybe there’ll be more developments on the tail of that” (CS6).

This demonstrates the adjustment of strategies to achieve goals, a form of conceptual learning as classified by Fiorino (2001). The need for greater intervention by government to correct perceived market failure is a lesson learned by civil servants but embedding this may have been prevented by the incoming Conservative-led government, which is ideologically less interventionist. However, the coalition government is currently consulting on energy-market reform suggesting that there is consistency and that the election cycle has not disrupted conceptual learning or conceptual orientation.

5.4 The Regulator – Ofgem

This section analyses the role of the regulator in policy development and learning. The Office for Gas and Electricity Markets (Ofgem) regulates the UK's gas and electricity networks and markets. It also administers the RO, the Carbon Emission Reduction Target (CERT) and the GB FIT. Ofgem influences the development of renewable energy in various ways: (1) through policy to stimulate network innovation, (2) network development, (3) access connections and (4) trading arrangements. The 1989 Electricity Act legally established the role of the regulator, with the principle objective to “protect the interests of consumers in relation to electricity conveyed by distribution systems, wherever appropriate by promoting effective competition” (Great Britain, Electricity Act, 1989:3A). One civil servant commented:

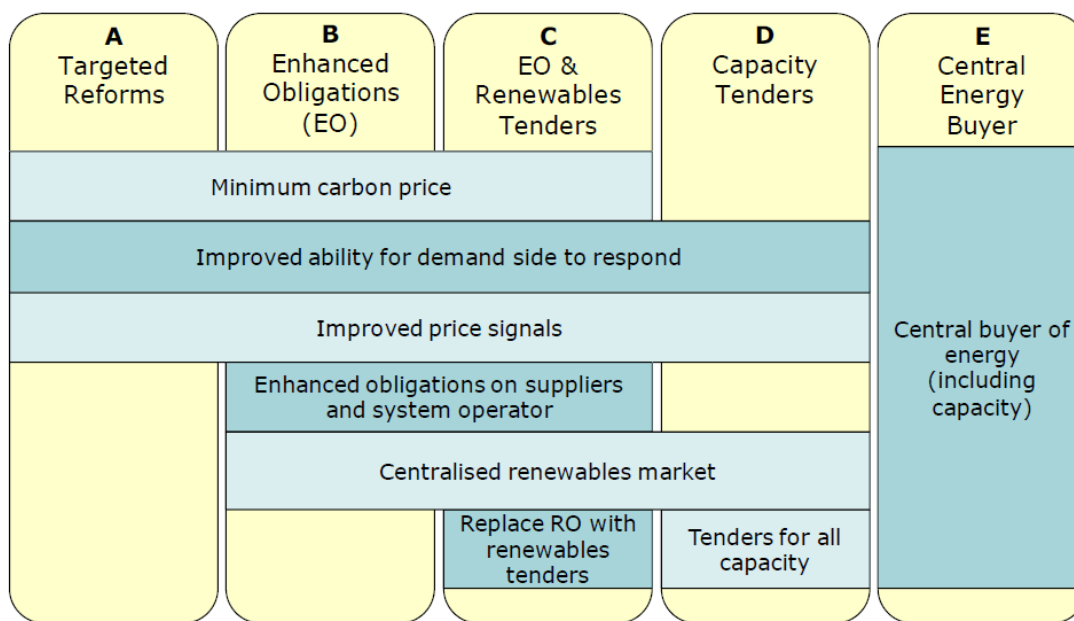
“Ofgem was invented essentially to promote competitiveness and reduce fuel prices. There was very little in the Ofgem legislation that referred to social policy and not enough about security, although it was there at some stage. So there was a mis-match between the unspoken government policies or the policies that become more evident over a period of time which related to environment, energy and social policy” (CS5).

Thus, there are significant differences between Ofgem's historically established policy objectives and those of government, i.e. Ofgem only deals with part of the energy agenda. Current Ofgem policies have been widely criticised for impeding the development of a low-carbon energy system (HoL EUC, 2008). Many stakeholders, including the European Union Committee but most notably the Sustainable Development Commission, have called for a change in Ofgem's objectives to include promoting sustainability (SDC, 2007). Such a re-framing would signify technical learning because it involves adjustment to better achieve established goals (Nilsson, 2005). However, there have been no legal moves by government to unite DECC's and Ofgem's policy objectives.

Internally, Ofgem has demonstrated that sustainability issues are starting to be considered both through organisational restructuring and policy development. It has recently undertaken a review of its framework for network regulation, the RPI-X@20, that strives to deliver price controls to allow companies to deliver the networks required for a sustainable and low-carbon energy system (Ofgem,

2010). It has also launched Project Discovery to review whether the current arrangements in the UK are adequate for delivering secure and sustainable electricity and gas supplies over the next 10-15 years (Ofgem, 2010). This generated five scenarios or ‘policy packages’ that represent a spectrum of policy approaches (see Figure 5.1), starting with those involving the least reform and intervention on the left (although even this involves significant changes) and moving to the most radical change from competitive markets on the right (Ofgem, 2010). This project has the potential to deliver a different approach to energy policy. As previously argued, institutional arrangements can limit the scope of potential policy solutions (Campbell, 1998). However, Project Discovery appears to be examining the whole range of options, suggesting the consultation process by design has the potential to maximise policy learning. This is perhaps because Ofgem’s position is independent and impartial, and thus less influenced by vested interests (Ofgem, 2009).

Figure 5.1 Project Discovery Possibility Packages (options for delivering secure and sustainable energy supplies)



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(Ofgem, 2010:3)

Ofgem has also recently undertaken a transmission access review, which looked at the way renewable energy connects to the network and how the network is governed. Transmission access is recognised as one of the main barriers to renewable energy development (HM Government, 2009) and is therefore an area for potential learning. Interestingly, Ofgem passed this project over to DECC.

Interviewee Ofgem1 explained the reason for this:

“Essentially the industry blocked some of our preferred proposals. They refused to look at them and bring them forward through the modification process, which was obviously very disappointing for us,

and we felt that they were being rejected too early essentially. [...] So we ended up handing that over to DECC and saying the industry self-government arrangements have shown that they can't really deal with this fundamental reform. The Secretary of State took powers, last year, to do this kind of work, so it's been handed over to DECC to deal with that" (Ofgem1).

The statement indicates that the relationship between industry and Ofgem is often adversarial. Fiorino (2001) believed this to be characteristic of a problem-solving environment that stimulates technical learning. The relationship of adversarial legalism was deliberately sought by government when it established the regulator as a way of avoiding regulatory capture (Fiorino, 2001). Fiorino (2001) nevertheless argued that relationships must evolve from adversarial towards consensual to build a capacity for conceptual learning, which requires consensus-based processes. The statement also suggests that Ofgem's current mode of policy development does have the potential to be manipulated by big business interests that impede the development of renewable energy. Ofgem recognised this and is taking steps to rectify it. However, it demonstrates how commercial power and interests can act to block new ideas and as a filter for learning.

Interviewee Ofgem1 suggested that Ofgem recognises that the 'interests of the consumer' can no longer be easily defined in economic terms and that it must now consider climate change and future generations. This suggests that the attitude of individuals in Ofgem has changed. However, there are other instances where Ofgem continues to operate as before in prioritising competition. For example, competition was prioritised in the advice Ofgem gave to the government and EU on the EU green package and the inclusion of priority access. Interviewee Ofgem3 commented:

"Everyone should have equal access to the market, but creating priority access, [...] could be problematic [...] as a renewables generator, you would jump the queue essentially. [...] This would then cause problems for certain other electricity generators getting on the system, so you could see other generation projects being delayed for several years and with associated uncertainties for their financing structure and so on, if a renewable generator could just jump in ahead of them at a similar location. So what we were concerned for was equity in the system rather than priority as such. I think we felt a lot more comfortable that the wording in the directive achieved its desired objective, in that renewable generators could get on to the system and at the same time also ensure that the market couldn't be skewed as a result" (Ofgem3).

This highlights a conflict between different policy-making approaches, i.e. competitive markets, where all generators are treated equally, versus strict regulation, where certain forms of generation are prioritised. In its resistance to priority access, Ofgem is striving for equity amongst generators, something that would reinforce the competitive-markets approach and strengthen the dominant paradigm. Fiorino (2001) proposed that institutional and legal frameworks can constrain policy learning. Similarly, Garrett and Weingast (1993) argued that once ideas become institutionalised they

constrain the possibilities of action. This supports the idea that institutional and legal frameworks must evolve to facilitate conceptual learning and embed sustainable development.

Ofgem has considerable expertise in the area of markets and regulation and provides a valuable resource for the government. Interviewee Ofgem1 commented that:

“We have a lot of tacit knowledge and general knowledge about the way companies are complying with their obligations, so when the government comes to do its reviews on the Renewables Obligation [...] we have been at the table, so we feed in at that level. At a working level, we sit on their programme boards, their high-level programme boards, and also their working groups to pry open how the programme is designed, and there are two reasons for that: one is so they can pick up on any experience we have from administering and two is to make sure the lessons learned from administering the programme are taken forward into the programme, making the system more efficient moving forward” (Ofgem1).

This suggests that Ofgem is acting as a learning agent for government, feeding back key lessons on the efficacy of policies. Three representatives from Ofgem were interviewed and asked about the key lessons Ofgem has learned in relation to renewable energy. All interviewees concurred that the RO was inefficient and an expensive way for delivering renewable energy. One said, “ever since the RO was started, we were saying to government this is a massively expensive programme” (Ofgem2) and another commented “we have stated on several occasions we don’t think it’s a terribly efficient mechanism so we don’t think it’s providing particularly good value, and we’ve made several suggestions of ways it could either be changed altogether or adapted so it could be more efficient as a mechanism” (Ofgem3). The government has recently made changes to the RO by creating banding, fixed headroom and potentially revenue stabilisation, to improve the efficiency of the mechanism. However, despite Ofgem’s criticisms, the government remains committed to the RO. Fiorino postulated that “organisations may have effective mechanisms for collecting intelligence about shortcomings in existing policies, but it may not have mechanisms for translating this intelligence into new forms of behaviour or structures that allow for changes in behaviour” (2001:323). One interviewee asked “Why didn’t they listen to our ideas? I think the government had made its commitment that this is the policy and they were going to stick to their guns” (Ofgem3). This demonstrates that Ofgem’s ideas are subject to the same scrutiny as other ideas conveyed to government. This may be because Ofgem and DECC have different strategic objectives so ideas are not directly transferable. This provides another argument for developing Ofgem’s remit.

The relationship between Ofgem and DECC is important for the transfer of information and policy lessons about the efficiency of the RO and other policies. Interviewee Ofgem1 commented:

“In 2006 we put forward an idea of scrapping the RO and replacing it with ‘contracts for difference’ and arguments around that were that it would be cheaper for customers and cheaper to deliver for the same amount of energy ... at the time that was not anywhere on the agenda ... its response to that was they said thank you very much Ofgem ... but we are not doing it ... But, subsequently to that, at the time when the low-carbon transition plan was being published, DECC did do a specific bit of consultancy work around what could be done that would address the issues that we wanted to see addressed through the contracts for different. So the conclusion of that is now being proposed in the most recent RES but for further development. I am often of the view that it takes several years for ideas to get embedded, and I think that is a classic example, when we first raised that it was certainly not on government’s agenda. It certainly wasn’t on any of the renewables industry agenda ... to limit the amount of money they get” (Ofgem1).

This suggests that there is a time lag between information and ideas being forwarded to DECC and its response time. This gives credence to the idea that there are barriers to lesson transfer, which might be explained by Ofgem’s and DECC’s differing objectives. Harriss-White and White (2006) argued that conflicting goals can slow the policy process. However, Sabatier and Weible (2007) proposed that policy-orientated learning takes long time periods, of a decade or more, to influence beliefs, which suggests that the pace of uptake may simply reflect normal policy making.

In summary, Ofgem has multiple roles so there are still areas where competition dominates policy choices, particularly in the European arena, despite structural changes within Ofgem to engage with sustainability. The lessons that Ofgem is learning are not directly transferable to DECC, and it is treated as a knowledgeable stakeholder rather than a sister organisation. Aligning the objectives of DECC and Ofgem so that both consider energy security, competition, the environment and present and future generations would remove barriers to lesson transfer and would directly facilitate technical learning. However, broadening Ofgem’s objectives might reduce its role in representing consumers. Currently, with the exception of Ofgem, the consumer is an under-represented stakeholder in energy policy. Furthermore, broadening objectives may complicate policy development within Ofgem as it struggles to reconcile multiple competing objectives. Changes to Ofgem’s remit would have to be made through amendments to several pieces of legislation and passed through parliament. This process would be complex and require concerted effort on the part of the government. Therefore, it seems unlikely that any government would undertake such a task in the run up to an election, as election politics take priority, and indeed, the Labour government did not. This is an example of how election cycles can influence learning as politicians are only keen to focus on policies that win votes, meaning that certain policy areas are neglected.

5.5 Conclusions

The aim of this chapter was to analyse the concept of policy learning from the perspective and experiences of government actors, examining what they learn, the effects of learning, the processes and means by which learning takes place and how learning becomes embedded. The chapter highlighted that the three key bodies for renewable energy policy development (the executive, DECC and Ofgem) currently have different capacities for policy learning and also that a compartmentalisation of learning exists between these bodies. Ofgem is the primary provider of information on the operation and efficiency of the RO and other markets, and possesses high levels of expertise to process such information. Thus, it has a high capacity for technical learning in respect of policy settings and the representation of consumer interests. DECC is the main executor of policy and receives information from Ofgem on the operation of renewable energy policy, but does not have Ofgem's expertise on the operation of electricity markets. There is also a considerable time lag for lesson transfer from Ofgem to DECC, while DECC experiences regular losses of expertise due to a civil service culture in which civil servants tend to remain in their posts for short time periods (see Section 6.7). As a consequence, DECC's capacity even for technical learning is constrained by departmental structures and cultures. However, the chapter has shown that DECC has some capacity for conceptual learning, though this is generally bound by the ideologies and power relations of the Cabinet executive.

Section 5.3 highlighted that civil servants are primarily engaged in technical learning on the design and settings of market-based instruments. However, they are also engaged in political learning about how to enhance the political feasibility of policy proposals. During policy development and operation, civil servants mainly engage in 'trial and error' learning by doing, where they refine solutions based on better understanding of policy functioning and outcomes. However, the dominance of political learning during the development stages of the NFFO might suggest that different types of learning prevail at different stages in the policy development cycle. Interview data suggest that, individually, civil servants may engage in conceptual learning but have limited capacity to embed it. The locus of conceptual learning is thus located predominantly in the Cabinet and particularly with the Prime Minister and a few select advisors. The executive was identified as the main driver and shaper of learning agendas, but is the least well-equipped actor in terms of technical expertise or experience.

This chapter has also provided insights into the relationships between the different learning types. The learning processes surrounding privatisation indicate that learning types are linked. For example, technical learning about instruments and their ability to solve problems led to conceptual learning in fiscal policy, which 'spilled over' to stimulate conceptual learning in other policy areas. The conceptual learning that took place in other areas, such as energy policy, led policy makers in those areas to experiment with new instruments, leading to technical learning, which led to social learning,

for example as a result of share offers during the privatisation process. This could be considered to be a cycle of learning. Fiorino (2001) also proposed that learning types are linked, but suggested that a system's capacity for different types of learning evolves from technical learning, to conceptual learning and then finally to social learning. He does not describe it as a multi-directional process. However, in the context of renewable energy, the chapter provided limited evidence of technical learning by civil servants leading to conceptual or technical learning by politicians, or vice versa. For example, politicians, in accepting the EU 2020 targets, acted against civil service advice that was grounded in the technical capabilities of the current system, suggesting that conceptual learning was mainly informed by factors other than technical learning. This further suggests that learning is compartmentalised in UK energy policy, or that there are barriers to interaction between learning processes. Alternatively, fiscal policy may present a unique policy area in terms of the relationships of the policy learning types, in that technical learning in other policy areas, such as energy policy, may not be sufficient to stimulate conceptual learning.

Political learning was shown to operate alongside and influence all other learning types to produce both positive and negative effects on other forms of learning. Chapter 5 identified several different forms of political learning based on political motivations. First, political learning can be used to increase the popularity of a policy and overcome stakeholder resistance. For example, the Thatcher government used share offers to increase the popularity of neoliberalism. This also had the complementary effect of increasing the popularity of the Conservative party more generally. This highlights a second motivation for political learning: to increase the popularity of a person or political party. A third motivation of political learning was also identified, symbolic learning, which involves sending signals, for example to the EU regarding the UK's commitment to renewable energy. This type of motivation has the potential to produce weak policy commitments, for instance by adjusting a target without making the changes in instruments necessary to achieve it. Political actions and policy decisions therefore have the potential to have multiple complementary motivations, which will increase the appeal of a policy decision.

Chapter 5 also explored relationships between policy learning and the other drivers of policy change discussed in the literature review. Section 5.2.2 demonstrated a link between policy learning and institutional arrangements, whereby changing institutional arrangements influenced learning and the embedding of learning led to, and was expressed in the form of, changing institutional arrangements. For example, conceptual learning surrounding privatisation about the role of government in energy provision led to the relegation of the DoEn to a subsection of the DTI. However, restructuring does not necessarily indicate conceptual learning and the achievement of new policy goals. It can also express technical learning and the enhanced achievement of established policy goals, such as in the creation of DECC. Nonetheless, Section 5.3.2 indicated that restructuring is not without problems, as

it has the potential to disrupt technical learning when new policy goals and objectives are created. This primarily affects technical learning by civil servants. Furthermore, departments themselves were observed to mediate learning through the selective interpretation of goals that in turn channel learning.

Sections 5.2.1 and 5.2.2 highlighted the importance of Margaret Thatcher as an entrepreneur of conceptual learning around the idea of privatisation. Policy entrepreneurs provide a crucial link between individual learning, wider organisational learning and, ultimately, major policy change. Policy entrepreneurs need to be sufficiently powerful to be able to enact learning in this way. For example, Tony Blair acted against civil service advice in accepting the EU 2020 target. This suggests that certain policy decisions are more reflective of individual (disaggregated) learning than others, and that policy selection and learning do not always and necessarily relate to organisational (aggregated) learning. Lower down the hierarchy, greater consensus is needed to embed ideas. For example, learning by individual civil servants is likely to have minimal policy impact unless it gains widespread support within the unit and government department in question and further support from key politicians. Section 5.3.3 highlighted that embedding ideas can be made more challenging by personnel turnover, when new civil servants with different ideas or a lack of experience join departments and act as a barrier to the embedding of learning.

The chapter has also highlighted the influence of political parties on policy learning and how parties influence not only what civil servants learn about policy focus but how they learn. For example, the Labour party introduced new policy-development processes and learning mechanisms that brought forward values of social inclusion and creating a more formalised and open consultation process, particularly through the use of formal written consultations (see Section 7.2.1). The change in government also meant that the civil service began learning about Labour's values, ideology, wishes, and how politicians wanted them delivered. Having analysed policy learning in the development of UK renewable energy policy from the perspective and experiences of government actors, the following chapter will examine policy learning from the perspective and experiences of non-government actors.

Chapter 6 – Analysing Policy Learning: Non-Government Actors

6.1 Introduction

Section 5.1 introduced the discussion chapters and their aim of analysing the role of policy learning in the development of UK renewable energy policy. Chapter 5 specifically addressed the learning experiences of government actors. Chapter 6 examines learning by non-government actors. During interviews, however, there was a tendency for non-government actors to comment on government and government learning: this could be because asking non-government actors to comment on policy encourages them to comment on government as the creator of that policy. Hence, it is recognised that learning about policy also fundamentally involves learning about government. Therefore, this chapter also assesses what governments do or do not learn from the perspective of non-government actors. Sections 6.2 to 6.8 examine what non-government actors are learning, but retain a strong focus on government learning. The main themes were: lack of policy holism; use of markets; production and use of information by government; the influence of interests on policy; how to project ideas and communicate with government; ministerial and civil-servant turnover; and learning from other countries.

A range of non-government actors was interviewed, including senior representatives from industry (the big six, other energy companies, technology developers, project developers, consultants, distribution operators, trade associations), NGOs, think-tanks, academia and the media. Interview data revealed symmetry between policy experiences across different non-government actor groups and recurring themes were evident. Therefore, to avoid repetition, non-government actor groups are not addressed separately, but key themes are presented together. However, when there were marked differences between different actor groups' opinions, experiences or the types of policy learning taking place, these differences are highlighted and explored.

6.2 Lack of Policy Holism

A holistic policy-making approach is characteristic of a policy style in which policy solutions are integrated rather than fragmented (Fiorino, 2001). Interview data showed that many non-government interviewees perceived the UK government to have a non-holistic approach, particularly in the areas of energy and renewable energy. For example, an industry representative commented that “the problem [with the RO] was that the government had introduced that incentive mechanism, but hadn't done the necessary supportive work in planning or in grid. So what you had was lots of generation projects which couldn't get planning permission or couldn't get access to the grid, so therefore

weren't being built despite the fact that the developers wanted to develop them" (I5). Large queues for grid connection (HoL EUC, 2008) and reduced rates of planning approval (BWEA, 2007) are testament to this statement. Administrative responsibilities for planning and grid management have been separate from energy since privatisation. Furthermore, an NGO representative observed that, "[civil servants] work on single issues, they don't look at the interconnections with other things because 'oh that's someone else's department', 'oh, that's somebody else's job'. And that's probably what's at the heart of the problems with policy making in general, is that the holistic view isn't taken. I think the long-term view is ignored as well" (NGO1). This suggests that government structures tend to segment administrative responsibilities, leading to fragmented policy making. Weber (1974) proposed that such forms of bureaucratic organisation in some ways represent a rational approach to solving complex social and environment problems by breaking them down into more manageable subsets. However, Dryzek (2005) contended that this problem-solving discourse of administrative rationalism is unable to provide policy solutions to more systemic problems, since its hierarchical and disaggregated structure provides no way to aggregate pieces of information in an intelligent fashion. In addition, he argued that "for truly complex problems, those with a variety of elements and interactions facing a decisions system, no intelligent disaggregation may be possible" (Dryzek, 2005:94). Owing to their structure, bureaucracies and governments would appear to have a natural affinity for technical learning that focuses on existing instruments and their efficacy within discrete policy areas. This tends to encourage under-integration with other policy areas and discourage holism.

The effects of hierarchical structures on horizontal knowledge flows and communication are illustrated by the adverse interactions of several energy policy instruments including the RO. One industry representative commented:

"I think there's a real problem with civil servants being responsible for different volumes of carbon saving accounted for by different policies and a siloing of those different policies. So sometimes the interaction between them is just stupid and farcical, and they don't really address that because they're thinking about their policy and a new policy comes along and it overlays with the existing stuff and there are tricky interactions and they're botched a little bit, and another thing comes on. It's constantly a mounting-up picture of complexity and there's never any sweeping away of this stuff, so there are so many different levies and bits" (I7).

This multiplicity of policies to cut carbon emissions, many of which are interacting yet coordinated by different agencies with different objectives, makes for a complex and disjointed policy landscape. Several interviewees argued that the existence of so many carbon-saving policies is fundamentally flawed because each policy creates a different price for carbon, which distorts market signals. For example, one industry interviewee commented:

“An ideal world would have a strong carbon price forecasting forward and everybody’s economics could be worked out against what was a pretty reasonable view of the carbon price going forward. But because of the uncertainty and lack of trust in a carbon price you end up with subsidies, and the minute you do one subsidy, you’ve distorted how one market relates to another. If you wanted a proper economic solution you would have a strong carbon price going forward” (I3).

A similar point was made by Helm et al. (2003): that competing government objectives and the potential for the government to renege on its commitments has created a credibility problem with UK carbon policy, which has affected investor confidence (see Section 6.3). Another interviewee called for a carbon tax, as “the simplest way of replacing what is becoming a Byzantine clutter of conflicting regulations and incentives” (L1). A carbon tax would arguably be a way of rationalising the current policy mix to provide a more holistic policy approach, but the idea was vociferously resisted by the 1997-2010 Labour government, as highlighted by the Marshall Report (1998). The political reasons for this are discussed further in Section 4.4.1. However, Helm (2010) argued that a tax on carbon is becoming more politically acceptable under the Conservative party as voter resistance becomes outweighed by the government’s need to raise more revenue (Helm, 2010). This suggests that political acceptability and political learning about how to maintain the finances of government could lead to a change in strategy and inadvertently to more joined-up policy making.

6.3 Markets

Several themes in the non-government interview data concerned the government’s design and operation of renewable-energy markets. For example, one participant said, “the area they are least capable of understanding is what happens when they put a market framework in place that has certain bits to it and how players respond to that framework” (I12). Gilson et al. (2008:12) argued that “however much information governments seek to collect about the operations of society they will always lack knowledge that is essential to the success of many reform schemes – detailed practical knowledge of how social and economic processes can be made to work, formed from actors’ own experience and responding to their adaptive capacities, and ability to work around difficulties”. Gilson et al. (2008) further argued that government policies are founded on an over-simplified view of societies’ relations and thus lack the practical knowledge needed to get complex processes to work well. Interview data revealed many examples of civil servants and politicians being perceived to have inadequate understanding of different aspects of markets, including intervention and investor confidence; trading arrangements; and the consequences of mixing targets with market mechanisms. These areas will now be discussed.

6.3.1 Market Intervention and Investor Confidence

The successful deployment of renewable technologies hinges on the ability of the government to develop policies that overcome economic and financial barriers (Dinica, 2001). One interviewee proposed that investor confidence is a “very important area that the government hasn’t always put sufficient weighting on” (I13). The RO was established as a long-term policy instrument set to run until 2027 with the aim of providing policy stability (DTI, 1999a). It was a deliberate attempt to correct a policy failure of the NFFO, which was made inconsistent by unpredictable bidding rounds and led to low investor confidence (see Section 4.3.1). This detection and correction of an error arguably demonstrates technical learning (Argyris, 1976; Murrall and Bailey, 2008). However, several interviewees argued that annual government interventions in the workings of the mechanism were counterproductive. One industry interviewee explained:

“We were involved in all of the reviews of the RO, which is one of the problems. It was set up as a long-term policy instrument [...] but the government has intervened significantly in the RO almost annually since its inception and has each time undermined investor confidence in it as a long-term mechanism. Most recently the introduction of two ROCs and a re-banding²⁶ within three weeks of the introduction of banding sent out all the wrong signals: (a) it was another intervention, (b) it was penalising companies who had invested early and was overly supportive of companies who had waited, who had worse projects and who had complained in the press loud enough ... about it” (I5).

In other words, continued intervention in the RO reduces investor confidence because the government is changing the rules and, therefore, the relative cost and profitability of investments. Thus, the government’s approach appears to be reliant on a narrow form of technical learning, whereby it regularly tweaks and adjusts the instrument. Yet investment depends on the government being able to be taken at its word (Helm et al., 2003). Interestingly, the banded form of the RO requires greater government intervention to set the ROC levels for different technology bands. The extract argues that this also has the potential to damage investor confidence and fails to reward innovation. The government’s continual struggle to establish a mechanism that ensures investor confidence perhaps suggests an area of ‘non-learning’.

In addition to banding, the government is now consulting on a price-stabilisation mechanism. This aims to protect generators from the risks of volatility in the wholesale electricity market, which result in revenue uncertainty and potentially harm investment (HM Government, 2009). One interviewee proposed that this was another attempt to improve investor confidence: “I think we’ve tended to systematically underestimate those external factors, which I think is one of the reasons why the government is now looking at revenue stabilisation, which looks like a very radical shift but which are

²⁶ Re-banding refers to the adjustment of the number of ROCs awarded to technology bands.

all to do with these issues” (I13). However, other interviewees believed that this was misguided and represented more government interference:

“The latest consultation document really, I don’t know if you’ve seen it, the thing that’s proposing levelisation in terms of prices for electricity. I mean they really are trying to move towards something which delivers a stable tariff, but without calling it a feed-in tariff. Which is all very well in one way, but on the other hand it’s really appalling policy making and legislation, because it’s so complicated, no one really understands it and if you have a certain objective in mind you ought to design policy to get you to that end point in a clear, logical and efficient way. And we’ve got far from that with the RO. We’ve now got to forecast what the expected number of ROCs is going to be so we can fix headroom. There are a number of levers you can pull to try to influence what’s going on but they’re all tangled up with each other and it’s really hard to actually get the thing going in the direction you want” (I7).

Industry wants to make a profit, and so do investors. If fixed revenue is a desired goal for renewable energy policy it is unclear why the government does not just remove the RO and replace it with a feed-in tariff. This inertia can perhaps be explained by vested interests and government inertia holding the RO in place. Thus, the banding and revenue stabilisation could be seen as technical learning by trial and error. This is a common basis for learning, grounded in new understanding of resources and objectives. As May (1992:333) argued, “ad-hoc, trial-and-error learning is central to Lindblom’s (1959) depiction of policy evolution by muddling through”. Thus, the trial-and-error approach to policy development and technical learning, while convenient for governments in terms of avoiding the risks associated with major policy changes, struggles to stimulate investment in renewable energy.

6.3.2 Trading Arrangements

Legal arrangements are contextual factors that inhibit the deployment of renewable energy (Dinica, 2001) and so a crucial area for learning. During the consultations that preceded the establishment of the RO, there were concerns that NETA was prejudiced towards renewable energy (see Appendix 4). Interview data suggested this to still be the case:

“I just don’t think that the market we’ve got is fit for purpose [...] it penalises intermittent generation, it creates a premium for flexibility, and to effectively rationalise those properties, it presupposes that very large players have to optimise very large portfolios – so independent generation in developing renewables doesn’t fit very well in that structure” (I13).

This suggests that governments have gathered information regarding the shortcomings of legislation, but that this has not resulted in changes to legislation²⁷. Argyris (1976) proposed that learning

²⁷ The Utilities Act 2000 established the New Electricity Trading Arrangements (NETA).

involves both the detection and correction of error and that a failure to do either (or both) inhibits learning or results in non-learning. This suggests that inflexible legal arrangements may inhibit learning (see Zito and Schout, 2009, on bounded learning). Similarly, Fiorino (2001) contented that legal arrangements that evolve under systems of technical learning can constrain conceptual learning. However, for a policy system to be successful it must generate all forms of learning: this presents a challenge if legislation is inflexible (Fiorino, 2001). However, if legislation was encouraged to evolve at a faster pace, this might add further uncertainty and conflict with industry interests that demand consistency.

The neoliberal principle of competition is enshrined in UK legislation and trading arrangements. However, several academics have argued that the current paradigm and its principles are at odds with the objective of stimulating sustainable energy (Mitchell, 2008; Scrace and MacKerron, 2009). One interviewee commented (in reference to the current trading arrangements), “it’s a bit of a lottery and the rules can be vague – there are technical issues. They’re not that technical but our market structures were developed for a lot of base-load stations, without an applied merit order and that has changed completely” (I13). This again highlights how legal arrangements can constrain learning. The EU, in an attempt to boost production of renewable energy, has proposed new legislation to give renewable energy precedence over other forms of energy. Giving precedence to any one source is perceived by many, particularly Ofgem, as anticompetitive (Ofgem3), and for this to happen in the UK, the policy system would have to change to embody new principles. This would mean fundamental changes to the ideology that informs energy policy, which would require conceptual learning at Cabinet level and as a consequence technical learning, as instruments are forced to change, not just symbolic learning to maintain international environmental credibility (Radaelli, 2009). Symbolic learning, although it emulates conceptual learning, is actually a form of political learning (Radaelli, 2009).

6.3.3 Targets and Markets

Chapter 4 demonstrated that the UK’s neoliberal approach to renewable energy policy reflects a belief that markets will provide efficient solutions to problems such as resource allocation (Dryzek, 1997). In addition, the UK has set explicit policy objectives/goals in the form of targets (Connor, 2004). One interviewee commented:

“One of the big challenges is, if you are a market-based economy, and the markets are good, the market drives the efficient and effective solution, but we’ve set a target date. Markets aren’t very good at target dates and so we’ve created a contradiction. [...] By setting a deadline we don’t have the time to go through the market process to get that best efficient and economic solution. So I think the government, in agreeing target dates but based on market philosophy, have set themselves a dilemma because, in order to achieve the target date, they have to be interventionist in some form or other. And I think that’s

where the difficulty lies. In an ideal world they wouldn't have set the target date, but they would have set the framework and allowed the market to work through its solution" (I3).

Other interviewees commented that the use of markets, targets and timeframes may restrict innovation and create technical lock-in, for example through the government's inadvertent preference for offshore wind to meet the 2020 targets; this, therefore, could have a channelling effect on learning. The UK's record for achieving targets is poor, indicating that the current approach does not work (Connor, 2004). This perhaps demonstrates the difficulties of overlaying new ideas (about targets) onto an established policy framework. Paradigms, such as that of neoliberalism, are able to defend themselves by evolving to incorporate new ideas; thus, policy failures do not result in paradigm replacement (Oliver and Pemberton, 2004). In the case of renewable energy, targets have been grafted on to the policy framework and the neoliberal paradigm is still in place.

The government's motivations for setting targets are diverse; they can be both self-imposed and in response to international legislation, so may relate to different forms of learning. The targets within the NFFO and RO reflect nationally set targets, though it is arguable that the RO target was influenced by the EU's renewables directive (2001/77/EC) which established the same policy goal²⁸. For NFFO, data suggested that "the original figure, worked up during the final stages of the passage of the Privatisation Bill, was 1000 MW and proposed to ministers at the first discussion. I led the process with ministers and had to invent the figures" (CS5 email communication). In contrast, Mitchell (2000) proposed that a target for NFFO was not set until renewable energy was separated from nuclear (see Section 4.3.1). De Lovinfosse and Varone (2004:22) proposed that "the more concrete the values of objectives formulated, the easier it is to establish whether they have been effectively achieved (or not) during the *ex-post* evaluation of the public policy". This suggests that the UK government, in setting renewable energy targets, was establishing a learning mechanism. However, the establishment of the target seems to have been independent of the mechanism's capabilities, showing that targets are political by nature. Interviewee J2 argued, "they aren't scientific: they're a good political solution in the sense that they're nice round numbers that people can get their heads round, and politicians can repeat". International targets include the (2001) EU renewable energy directive targets and the EU 2020 targets. Although these targets may appear 'top down', suggesting the locus of policy learning and change is the EU, the legislation is developed in conjunction with member states so reflects a two-way learning process.

²⁸ Directive [2001/77/EC](#) of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market set national targets: the UK's was 10% of renewable electricity by 2010.

The development of the 2020 targets provides further insight into policy learning processes. The 2020 targets were personally negotiated and accepted by then Prime Minister Tony Blair. Prior to their establishment, the UK's target for renewable energy was 10% renewable electricity by 2010. The 2020 targets extended this to 15% renewable energy (total energy) by 2020. Several interviewees speculated about Blair's personal motivations for accepting the targets. These ranged from him misunderstanding the targets (thinking the target was 20% of electricity rather than total energy), to him thinking it would be a nice challenge to leave Gordon Brown (I5 and Ofgem3). Another explanation could be that it was a political move to symbolise Blair's commitment to the EU in the light of the discussions around electing an EU president. The subsequent back-tracking by Brown after Blair's resignation gives credence to these suspicions. This back-tracking or short-term commitment to the target by the Labour party suggests political learning, where commitments are symbolic and do not last (Nilsson, 2005). The process of establishing the targets and subsequent negotiation provides further insights into the locus of learning. Section 4.5.3 pointed out that the targets were accepted and negotiated by Tony Blair without the support of the civil service.

“It was a bit of a surprise. Two months before we produced the Energy White Paper, 5% renewable electricity and then very shortly before it was published it was oh – our target is, we have suddenly got this 2020 20%. And so that was an example of changes coming from the political angle, suddenly an agreement that hadn't been factored into our thinking to date” (SCS3).

“Some of the earlier discussion, before even the consultation came out, was that we were going to get 30-40% of our electricity from renewable sources and we disagreed with that assumption. We looked at all the renewable technologies that were capable of delivering the target for 2020 and predominantly the only technology that could make a contribution between now and 2020 is wind. [...] So we were saying, look, if you set these very high targets up-front the overall cost to the consumer is going to be quite significant and you'll be forced to meet it by even more subsidy, which will be even more expensive” (Ofgem1).

Targets were not developed in conjunction with the civil service or Ofgem, the organisations with greatest expertise in the capabilities of renewable energy policies. This suggests that the process did not build on technical knowledge or current understandings. The fact that the ministers accepted the targets against the advice of the civil service suggests motivations were again political. This raises interesting questions about the use of targets to stimulate learning and about the compartmentalisation of ministerial and civil-service learning.

The adjustment of targets is generally considered to be symptomatic of technical learning (Nilsson, 2005) or first-order change (Hall, 1993). However, it is arguable that achievement of the 2020 targets would create changes of such magnitude that they would equate to conceptual learning or third-order change. As previously mentioned in Chapter 2, Varone and de Lovinfosse (2004) argued that Hall's

(1993) distinctions may not fit well with the actual importance of those changes in the renewable energy context. They cited the example of the change of remuneration for PV solar technology in Germany which changed from 8 cents to seven times that amount, producing a PV boom and establishing Germany as a market leader (Varone and de Lovinfosse, 2004). This suggests that the boundaries between technical and conceptual learning can become blurred. Varone and de Lovinfosse (2004) used this finding to contest the applicability of Hall's concept of policy learning outside fiscal policy. The impact of the 2020 targets remains to be seen, so it is not possible to reject, support or evaluate their impact in the context of Hall's model.

A House of Lords report recommended accepting the EU's policy goals to provide political momentum (HoL EUC, 2008), a point supported in some interviews. For example, one industry representative said, "these are very ambitious targets and I'm sure that we will, as a nation, trend up towards meeting them, but I think it will be very difficult to find anyone within the industry who thinks we're getting to get even close to them" (I4). In addition, a civil servant commented, "actually the amount of effort that has gone into pushing renewables since having that target has increased dramatically. It has been a really significant agent for behaviour change" (SCS3). These extracts suggest that the targets are used to stimulate policy buy-in and are, therefore, strategies for gaining political support, i.e. a form of political learning (Nilsson, 2005). This form of political learning, about advancing policy goals, is more positive than other forms that are more self-serving and that seek to advance one's, or one's party's, position. Notwithstanding this, the targets in the new EU renewable energy directive are the first to be binding, which may be another factor increasing the importance attributed to achieving them.

Interestingly, the new coalition government has recently consulted with the CCC with regard to increasing the 2020 targets. Chris Huhne, Secretary of State for Energy and Climate Change, asked the CCC to "consider the level of ambition for renewables for 2020 and beyond, and whether there is scope to increase the current target, taking into account: cost (including those on the consumer), technical potential, environmental impact (based on available evidence) and practical delivery" (Huhne, 2010). This suggests that it would be politically attractive to increase the current renewable energy target. By increasing the target or extending its time horizon, the government risks creating a scenario whereby the target is so far in the future it creates no real political pressure. The CCC has responded, saying:

"Analysis published in our previous advice to Government and Parliament suggests that the current renewable energy target is broadly desirable but has significant delivery risks. It should neither be reduced (which would increase risks for meeting future carbon budgets) nor increased (which could involve rapidly escalating costs or go beyond the limits of what is likely to be feasible)" (CCC, 2010).

Increasing the target would have reinforced the coalition government's environmental credentials within the EU. This might be characterised as 'symbolic' political learning (Radaelli, 2009). It would also give the coalition government the opportunity to put a Conservative stamp on a Labour policy. Thus, this scenario implies that politics is driving targets for renewable energy, but perhaps not as a result of conceptual learning about the increasing importance of carbon reduction. Thus, a changing target does not represent technical learning about the capacity of the instruments, but rather symbolic political learning intended to increase the government's popularity (Radaelli, 2009). This again shows the methodological difficulty of using changing targets as an indicator of technical or conceptual learning.

6.4 The Production and Use of Information by Government

Valid information is a key variable in decision making and the feedback processes that stimulate learning (Argyris, 1976). Interview data generated several themes around the Labour government's production of figures:

"The analysis took some fairly broad assumptions, which were helpful to the conclusion that they [DECC] should keep the RO. They can say the time lag would have been difficult, but the value they put on the time lag was fairly generous, shall we say. There were other plausible scenarios they could have put into that analysis that they didn't include. I would say it was a fair-ish analysis rather than a fair analysis, is probably the best way of putting it" (Ofgem3).

"They tend to assume, for instance, an \$80 oil price over medium to longer term. That will skew the results in a particular way, but they would have other sensitivities and there will be other supporting work, but one of the observations that I've made on the most recent White Paper is that this is the first time you can get a handle on those costs and begin to debate the assumptions and by implication previous exercises have been too shallow" (I13).

"There seems to be a determination to suppress information which is not convenient" (L1).

"Some of the analysis supporting the RES is not very good and also on the generation side – the Government is not terribly good at doing market sizing. It tends to just arrive at numbers and we sometimes have a different feel. On smart metering where DECC simply got all its numbers wrong, but that's an exception" (I13).

The idea that the government struggles with market sizing is surprising; as one interviewee put it, "there are a lot of economists". However, "sometimes certain stakeholders find it to their advantage not to reveal certain bits of information" (Ofgem1), due to confidentiality agreements or simply to protect their competitive advantage. This means that perfect information might not be available to civil servants, leading to bounded decision making (Simons, 1957). Another explanation for market

sizing problems is again structural, in that the hierarchical structure of government creates ‘siloeing’ of knowledge and expertise. For example, Ofgem, rather than DECC, is the expert on markets. Nevertheless, these extracts suggest that the production of information by government embodies assumptions that work in the government’s favour by justifying policies (Jasanoff, 2005). Radaelli (2009) characterised this type of political learning as ‘substantiating’, where knowledge is used to support a specific policy decision. Learning involves the accumulation of knowledge, but knowledge is produced through the processing of information, so is subjective (Kemp and Weehuizen, 2005). Jasanoff (2005) proposed that scientific knowledge has become closely aligned with economic and political power. This demonstrates how political interests and political learning about how to advance or maintain one’s, or one’s party’s, position or to overcome stakeholder resistance can distort other forms of learning about policy problems.

6.5 The Influence of Interests on Policy Design and Development

The process of policy design and development is crucial for embedding lessons and policy learning. However, policy design does not occur in a vacuum: instead, it is hemmed in by many competing factors including interests, ideology and past policy (Zito, 2000). The interview data highlighted the influence of interests in the design and development of several policies, such as the RO bands and GB FIT. Banding was introduced to improve the efficacy of the RO mechanism because certain technologies, such as onshore wind and landfill gas, were being overpaid (see Chapter 4). Shortly after banding was introduced, the government announced plans to re-band offshore wind from 1.5 ROCs to 2 ROCs. This announcement came after Shell pulled out its investments in the London Array offshore wind farm, issuing a statement that it intended to focus on the US market because it offered more competitive returns (BBC, 2010). Interview data suggested that the re-banding was politically motivated rather than economically derived. One interviewee questioned, “What’s going to happen next? When’s the next ad-hoc band review going to take place and who is going to benefit from it? Who are the people who are benefiting from the RO?” (I6). A former civil servant disclosed:

“There were actually some individuals big enough to be able to pay for direct access to ministers. They are the kind of people who will have dinner with ministers, rather than being invited in to come and have a conversation during the working day with the ministers. They were the people who met ministers on a regular basis. Once you start talking about potential for hundreds of thousands of megawatts in off-shore wind, then you start to get the Shells and BPs, these sorts of people. The big institutions of the industry became involved. Some of them came in as big new players and you know big new players and the chairman of Shell tend to know the ministers quite well” (CS5).

This suggests that business interests hold a significant amount of power behind the scenes of policy making. This unseen dimension of power is described by Lukes (1974) as a barrier to policy development (learning how to project power to advance one’s own position or interests is a form of

political learning). Incumbents act as a filter for ideas, seeking to embed their own policy preferences and resisting those that do not align with their economic interests. Thus, vested interests can present barriers to technical and conceptual learning.

The original intention of the GB FIT was to have a cut-off at 50 kW, but this was changed to 5 MW in the legislative debate of the Bill. Several interviewees believed that the voice of industry was deliberately ignored and that the 5 MW level was a result of “political pressure from the green parties and from Friends of the Earth and from the Renewable Energy Association and from Greenpeace who wished to see a rather more ambitious programme for FIT” (Co-op1). Carter (2004) explained that pluralist explanations of policy outcomes acknowledge that business may exercise a disproportionate influence compared with environmental groups, with more resources at their disposal. However, when environmental groups are able to mobilise sufficient resources, then they should win better access to government and a matching influence over policy outcomes (Carter, 2004). This appears to have been the case in the FIT: environmental groups were able to pool resources in pursuit of a joint belief (see Section 6.6 for further explanation). Tentatively, this suggests that interests other than those of industry are shaping policy, but it is arguable that this tends to occur at the margins given that the RO remains the main policy instrument for renewable energy.

Several interviewees argued that the FIT instrument is having an impact on the functioning of the RO market because the levels of eligibility for the FIT are too high (i.e. 5 MW). For example:

“Where the transition between the feed-in tariff to the ROC mechanism occurs you start to think about sizing plants slightly differently. I’ve seen this where some wind energy plants are starting to undersize wind projects because of the banding within the feed-in tariff which suddenly drops from 9p to 4.5p for different sizes of turbines and they’re under-sizing their schemes so that they get 9p rather than putting in what might be a more optimal scheme for a wind turbine point of view, which is slightly larger but would only attract 4.5p per kW per hour. So you’re starting to get economic behaviour which is not necessarily the best thing to do in terms of optimising the capture of energy from another location” (Co-op1).

“If you examine the feed-in tariff, you could say that’s examined a policy failure previously and brought through something new. But the trouble is what they’ve done is then brought a whole new other issue with it because they’ve extended it beyond where it needed to be. That’s quite subjective because if you talk to other people they then might disagree with me but if you pushed most of the industry, most of the micro-generation industry on whether they needed FIT to go up to 5 MW they wouldn’t say yes [...] we’ve already seen a potential 20% drop in the ROC market as a result of the feed-in tariff. So when governments start introducing things they’ve really got to think about the reaction between other markets” (I12).

This argument from industry could be protectionist, as a reduction in the size of the market might have a negative effect on profits; however, the first extract above is from a cooperative developer. Nonetheless, the extracts all represent large developers who are established in the ROC market and have established interests. They suggest that, in developing the GB FIT, the government engaged in policy learning as it corrected a previous policy failure, or rather the failure to stimulate the domestic market. However, the design of the new policy instrument created another policy problem, negative interaction between two markets. Learning is defined as the detection and correction of errors (Argyris, 1976), but corrective action may have its own unforeseen consequences. This point was made in Section 3.6.2, but qualified with the argument that the evaluation of outcomes is subjective and may change over time.

6.6 Projecting and Communicating Ideas

Section 6.5 illustrated that non-government actors try to influence government in order to advance their own ideas and positions. This is a facet of political learning (Nilsson, 2005). All non-government actors are implicitly learning about the implications of current (and planned) policies for their interests. In interviews, many non-state actors described their strategies for communicating with government and how they had improved them over time. It was evident that written consultations were perceived as unsuccessful and that many pursued other, indirect, means (see Section 7.2 for discussion on consultations as learning mechanisms). Different communication strategies ranged from uniting with other actors to form industry bodies and trade associations, to using other means of communication such as the media. For example, an interviewee from the marine technology sector described how, as a sector, they had become more sophisticated in their communication with government by creating a technology group with a clear message. She said, “I think taking some of the top technology developers in the world and the UK and bringing them together and giving them a voice tends to carry quite significant leverage” (I1). Similarly, interviewee R11 also recognised the power and importance of conveying a single message from a large group of stakeholders when communicating with the government. Other interviewees suggested that the media is used to convey ideas to government. For example:

“You are more likely to get somewhere in energy by getting things into the press and working indirectly on government than you are by talking directly to them. One of my colleagues said to me that you can talk until you are blue in the face with the Secretary of State and you won’t get anywhere but one good article in the Sunday Times and things will begin to move” (L1).

This suggests that certain actors are using the media to influence government. The success of such a method is difficult to evaluate, but several civil servants referred to the media as a source of information, particularly in relation to current executive thinking (SCS2, CS4). These examples

demonstrate that non-government actors from all stakeholder groups are actively engaged in political learning.

Many interviewees, including those from NGOs and industry, disclosed how they attempt to influence policy through lobbying. Data suggest that even government departments engage in lobbying and all actors, including academics (A1, A2), appreciate that they operate in a political landscape. One lobby group that has been particularly successful recently is the coalition of NGOs and industry trade organisations that lobbied for the UK's first feed-in tariff. Their success has been related to a new lobbying strategy, one interviewee explained:

“We didn't get ministers on board. We basically got loads of organisations and we went to MPs who would be debating it in the House of Lords and the House of Commons, but not particularly the ministers. We made them, I suppose a bit frightened of us, one of the first times that there was a vote on the energy bill about our stuff, it was the biggest back-bench rebellion that Gordon Brown had had since he'd been in office at that time. So we did flex our muscles a bit. [...] It was new! We'd never done anything like it before” (I7).

The success of the lobby group was due to a large number of organisations uniting behind a single issue. To have any chance of success in translating beliefs into policy, actors must “seek allies, share resources and develop complementary strategies” (Sabatier and Weible, 2007:196). Carter (2004) argued that if NGOs are able to mobilise sufficient resources they should win better access to government. This is perhaps because their ideas are perceived to represent the public interest better than business self-interest. It could be argued, then, that political learning by NGOs is more likely to positively affect technical learning by civil servants, by broadening policy parameters, than is political learning by industry. Generally, all actors become incrementally more practiced at advancing their ideas as, over time, they learn how to enhance the political feasibility of proposals (May, 1992).

Bomberg (2007) proposed that the role of ENGOS in the spread of ideas and the adoption of NEPIs across Europe is increasing. Their involvement has been enhanced by the doubling in size of the EU and the need to bring the policies of accession states in line with those of the EU in cost-effective and flexible ways (Zito and Schout, 2009). She described NGOs as becoming ‘teachers of policy lessons’ (Bomberg, 2007:248). Interview data support this idea:

“X is an NGO type of organisation which looks at identifying best policies and then working on their spread globally. So feed-in tariffs was the first one we began with and I've worked in the UK, US and Japan, and had connections with campaigns in South Africa, New Zealand and various other countries” (NGO1).

The same interviewee went on to say:

“X have hearings all over the world, co-funded with the World Futures Council and some other people, where we get policy makers together after big gatherings like the COPs and we put them in some paradise place where they will want to go, and we lock them in a room for 8 hours a day with policy experts and just fill their ears with policy ideas. And we would have pre-selected these people because we know they [care] about the issues. They’re educated, so aware. They are into the issues, so that you know it is fertile ground. [...] I did one of these on feed-in tariffs in Kenya in ’06 and it led to a feed-in tariff coming in in South Africa” (NGO1).

Bomberg (2007) distinguished two types of learning process at work: (1) NGOs are engaging in political learning by organising and sponsoring workshops and training sessions and providing information on how to lobby effectively; (2) they are engaging in technical learning, whereby they lobby governments directly, organising conferences and working groups on specific instruments. Bomberg (2007) focused on the spread of NEPI in accession states. However, the extract suggests that NGOs are attempting to ‘teach’ policy lessons to a much broader range of policy actors, from EU leader states to developing African states. In reference to the EU, Zito and Schout (2009) described a shift towards network-based government in which policy learning is an important driver of policy change.

6.7 Ministerial and Civil-Servant Turnover

Frequent turnover of ministers and civil servants is perceived as a barrier to learning and this appears to be true for UK renewable energy policy. All policy learning concepts focus on the policy maker as an agent for changing beliefs and learning (see Hecló, 1974; Hall, 1993; Glassbergen, 1996; Jordan, 2005; Nilsson, 2005). Thus, ministers and civil servants are key actors in policy learning as they play an important part in recording not only how decisions were made but also why. Ministers also have the power to implement lessons learnt. Since the Labour Party took power in 1997 there have been twelve energy ministers²⁹. Furthermore, all civil servants interviewed had been in their position for less than 18 months³⁰. Many non-government interviewees perceived this as having a negative impact on learning.

“If you paint it very cynically, within a year or 2 years of taking up post and just about at the point where people are getting to understand what is going on and know the people that are involved, civil servants get moved on and ministers even more frequently. You then need some new consultations for the new people to inform themselves about what is going on” (I5).

²⁹ John Battle 1997-99; Helen Liddell 1999-2001; Peter Hain 2001; Brian Wilson 2001-02; Stephen Timms 2002-04; Mike O’Brien 2004-05; Malcolm Wicks 2005-06; Alistair Darling with Lord Truscott 2006-07; Malcolm Wicks 2007-08; Lord Hunt 2009- May 2010.

³⁰ This refers to all current civil servants.

“It all rotates around way too quickly for anyone to be in post long enough to really get to grips with the issues. I think the rapid changeover in personnel makes it really hard to learn policy lessons” (I7).

“It can actually be quite embarrassing interviewing [ministers], because quite often when they’re new in office, they don’t know how to answer your questions. And you have to explain what your question means before they can have a stab at it, and that is a key problem, the lack of continuity” (J2).

This suggests that frequent actor turnover results in loss of information, knowledge and relationships with stakeholders, as experienced actors are replaced by those with limited knowledge. Short tenures mean that feedback on policy choices made has little opportunity to reach officials, meaning that policy lessons are difficult to draw and enact. Argyris (1976) theorised about the vital role of feedback in enhancing governmental learning capacity. Learning operates in cycles with single- and double-loop learning relating to technical and conceptual learning respectively (Kemp and Weehuizen, 2005; Argyris and Schön, 1978). Short-term tenures mean that single-loop learning is more likely to occur regarding the efficiency of instruments: this relates to technical learning. Double-loop learning involves deep understanding of policy problems, requires reflection and the questioning of policy goals and values, and can lead to a change in strategies, all of which requires time. For organisational learning or indeed policy learning to occur, the discoveries and evaluations of ‘learning agents’ must be embedded in the organisational memory (Argyris and Schön, 1978:19). Argyris (1976; 1990) argued that double-loop learning is necessary if policy makers and organisations are to make informed decisions in rapidly changing and often uncertain contexts. Interestingly, the first extract also proposed that consultations are used as mechanisms for new civil servants to gather information about the policy area, rather than their intended purpose of improving policy. This perception could have detrimental effects for the consultation process if non-government actors perceive consultations as time-wasting exercises.

In response to the problems caused by rapid turnover, one industry interviewee quoted a Public Administration Select Committee recommendation that:

“politicians are left in post much longer than they currently are in order for them to be able to (a) develop the knowledge base that they need and (b) build up the relationships with the stakeholders in the area they are responsible for that are needed in order to make good decisions” (I5).

This indicates that the government is aware of the issues associated with frequent staff turnover. It also suggests that select committee reports are mechanisms for industry to learn about government. Reports produced by select committees are accorded a high level of credibility as they incorporate the opinions of experts from a range of fields and political opinions. Dryzek (2005) proposed that, in the UK, there is a long tradition of deference to scientific expertise and expert advisory committees. This conforms to the environmental problem-solving discourse of administrative rationalism or ‘leaving it

to the experts' (Dryzek, 2005:75), which focuses on the role of the expert rather than the citizen in social problem solving.

High rates of ministerial turnover are, nevertheless, part of the UK's political culture. According to a HoC Public Accounts Committee (PAC) report (HoC PAC, 2007), appointment to ministerial office is a reward for politicians, including for political loyalty, as opposed to being on the basis of their ability to fulfil particular requirements of government. This leads to rapid turnover whereby ministers move up the ministerial/departmental scale. This style of ministerial appointment and tenure brings ministerial expertise into question: some posts require experience and skills (HoC PAC, 2008). In the report 'Good Governance', Lord Jones suggested that it would make more sense for people who have relevant expertise to be appointed to manage ministries, even if that meant bringing in people from outside (HoC PAC, 2008). The HoC PAC concluded that "the system for making ministerial appointments can work to undermine good government by encouraging behaviour that is focused on short-term political advantage rather than the long-term interests of stable, effective government" (HoC PAC, 2008:11). It suggests that such types of political learning are being favoured over conceptual learning, in that policies are developed to achieve short-term political goals, such as capturing voters and managing public opinion, rather than to address changing policy problems and definitions. This implies that the style of ministerial appointment that rewards ministers for their capacities for political learning also inhibits their abilities for technical or conceptual learning.

This style of ministerial appointment appears to be specific to the UK. An industry interviewee commented,

"I was quite struck by comparison meeting the Energy Minister in Germany. He has a very solid knowledge of the industry, how it works, how it operates, its history and in that sense it's very engaging at a detailed level in a way that our politicians could never do. In thinking about that, you work your way up through the federal politics as politicians in Germany – so you grab a specialist area very early on in your career and you stick with it. So, in a way, you're an industry professional by the time you're representing. In that sense, you can see a lot of continuity in learning and history comes through the minister whereas we change them too quickly" (I3).

This indicates that experience is valued more highly in some other European countries, although it is accepted that there are many differences between the British and German political systems. Select committee reports suggest that conceptual learning about the evolution of cultural practices is taking place in parliament through select committees, but not at government level, where political learning tends to dominate. The policy core, the Prime Minister and his or her key advisors, seem to be strongly implicated in facilitating change (in this case of culture of practices) as it is they who choose the ministers. This supports the assumptions made in Figure 3.2, which stated that policy-making power lies with the Prime Minister and a few key advisors, and that policy ideas must penetrate this

policy core. This links back to Kingdon's (2003) arguments on the importance of policy entrepreneurs. Interestingly, Mitchell and Connor (2004) proposed that renewable energy policy entrepreneurs have been largely absent from the UK.

6.8 Learning from Other Countries

Learning from others is another widely recognised mechanism for policy learning, particularly with respect to policy instrument selection (Jordan, 2005). Bomberg (2007) noted that policy learning is broader than policy transfer, which focuses on institutional conditions and the context of transfer, as it emphasises the process by which actors use knowledge in decisions regarding the adoption and development of policy and principles. Several interviewees referred to policy examples in other countries, particularly the German FIT. One interviewee commented:

[In reference to Germany] "they had very generous feed-in tariffs put in place particularly for solar. But what was interesting was the Germans had put it in place as part of their industrial and economic strategy and they had empowered the development of it so that when people wanted to do it they could" (I5).

This suggests that non-government actors are learning about the motivations for policy in other countries and the policy and financial support needed to promote particular technologies. Similarly, politicians P1 and P2 described information-gathering visits to other European countries, suggesting lessons learnt about factors that contributed to the success or failure of renewable initiatives. In contrast, the civil-servant interviews contained little evidence, apart from verbal assurances, to suggest policies in other countries were regularly examined. Section 5.3.2 suggested that lessons from other countries were of limited interest to civil servants due to differences between the European and British neoliberal contexts. This suggests that there are differences between the types of learning mechanisms policy actors utilise and, therefore, the types of knowledge they generate. Overall, it appeared that politicians are engaged in lesson drawing from other countries but the civil servants designing policies generally are not. Non-government actors are also clearly drawing lessons from other countries but generally lack the potential to influence policy directly.

Interestingly, one interviewee described how attempts to lobby the Conservative Party (pre-2010 election) had stimulated them to investigate experiences in other countries in a search for ideas:

"[...] we are going to copy the Danish model of community ownership because that obviously seems to work really well in Denmark. The Conservatives would like to be able to show more direct benefits to communities and they see that as quite a good way of doing it. So we would build a project and sell it through share offerings to the community, or maybe just one or two turbines could be owned by the community. It is more of a direct benefit because the wind farms that we offer are a bit intangible and

people don't really relate to them. Whereas if people can say 'this is my wind farm and I have got shares in it', it might get a bit more support" (I10).

In this instance, political learning about how to overcome local stakeholders' objections and improve the social feasibility of wind power was used to realise the policy goals of social equity and environmental protection consecutively, enhancing technical learning. Thus, it can be counted as a positive effect of political learning. These experiences also highlight a trans-national dimension to policy learning whereby knowledge about policy instruments and their social context in one country is being used to inform policy operation in another (Bomberg, 2007). This is arguably different from policy transfer as the instrument under consideration is already in operation.

6.9 Conclusions

The aim of this chapter has been to examine policy learning by non-government actors and their perceptions of government learning in UK renewable energy policy. A number of key themes have emerged. The first is the importance of organisational structure in shaping policy learning. Section 6.2 argued that hierarchical structures fractionalise administrative responsibilities and narrow policy focuses (a phenomenon known as siloing): this acts as a barrier to policy holism and joined-up thinking. These are seen to be contributory factors in building capacity for conceptual learning. Thus, hierarchical structures predominantly encourage technical learning by compartmentalising knowledge and learning. For example, for UK renewable energy policy, the lack of joined-up objectives and horizontal links between the DCLG and DECC acts as a barrier to development: further holism is needed between subsidies and planning. Furthermore, the compartmentalisation of knowledge in different areas of government leads to bounded understanding and bounded learning, both of which affect policy development: for example, the separation of policy formulation in DECC from the market expertise of Ofgem. The consequences of this were demonstrated in Section 6.3, for instance in the creation of policies that negatively interact with other policies and markets.

The second theme is the relationship between commercial and political interests and policy learning. Section 6.5 showed that certain policy decisions have been driven by these interests rather than rational economic behaviour as espoused by government. For example, the adjustment of the RO band for offshore wind was driven by the politically set 2020 targets combined with pressure from industry interests to increase subsidies and therefore profitability. Similarly, the eligibility settings of the FIT were a result of NGO pressure. The section also showed that business interests (a handful of elites representing incumbent energy producers) have a significant amount of power, which is often wielded behind the scenes of policy making, potentially acting as a barrier to learning (Lukes, 1974). Incumbents seek to extend their market share or profit margin by embedding their own policy preferences. They resist ideas that do not align with their economic interests and their close

relationships with government enable them to act as a filter. Thus, vested interests can present barriers to technical and conceptual learning.

The third theme was that all non-government actors were engaged in lesson-drawing about instrument feasibility, efficiency and the effects of policy change in relation to their interests. A distinction is made between lesson-drawing and technical learning, as technical learning requires lessons to be embedded in policy. Many non-government actors felt that their ideas were not being heard by government. Thus, they were also engaged in political learning in order to advance their ideas, interests and policy preferences. All non-government actors were engaged in political learning to a greater or lesser degree, depending on their resources. NGOs have been particularly successful at political learning and have strongly influenced the development and design of the FIT. This was achieved by pursuing new ways of influencing the policy process, through early day motions, backbench MPs and a coalition of supporters. They are forging new policy learning mechanisms, which initially bypassed the government departments that were previously closed to ideas. There is strong evidence that international NGOs were involved in the seeding of ideas and the skills transfer that led to the FIT. This suggests that international NGOs are stimulating the diffusion of policy instruments.

Finally, there were indications of elements of conceptual learning. This was most evident in calls by non-government actors for a more holistic policy approach that would integrate incentives with planning and grid connection. This might be considered conceptual learning on the part of non-government actors, as it involves a different way of examining renewable energy policy. However, there were few indications that underlying policy goals were being questioned. For instance, there was no questioning of the ability of markets to provide energy security, stimulate renewable energy capacity or reduce carbon dioxide emissions. Instead, issues were with the way government manages markets and approaches economic, financial and legal barriers. In conclusion then, although there is evidence of the cognitive change and learning that accompanies technical, political and conceptual learning, non-government actors are generally unable to influence policy directly due to restricted policy access, thus are not directly engaged in 'policy learning'.

Chapter 7 will now explore policy learning mechanisms in more detail.

Chapter 7 – Learning Mechanisms

7.1 Introduction

The previous chapters have analysed ‘what’ government and non-government actors have learned about policies to promote renewable energy. This chapter now evaluates ‘how’ they learned, by examining the different learning mechanisms observed in UK renewable energy policy and the types of policy learning so generated. Although examination of such learning mechanisms is helpful in highlighting how individual and organisational learning influence policy change, it is acknowledged that the existence of learning mechanisms does not guarantee that individual learning will influence organisational viewpoints or lead to policy change, since learning is just one of several factors affecting policy development. The literature review explained the concept of ‘blocked learning’, which acknowledges that individual learning is not enough (Zito and Schout, 2009). This describes the situation when cognition takes place at individual or group level, but structures, interests and current world views block behavioural change, so that learning is not embedded into organisational structures or network routines (Zito and Schout, 2009). The difficulty of embedding individual learning has arisen as a theme in this research and is discussed in Section 5.3.3.

A wide variety of policy learning mechanisms were highlighted during the interviews, including: formal and informal consultation, independent report commissioning, past experience, international experience, internal and external government reviews and evaluations, targets and new scientific information. Furthermore, the NAO report ‘Helping Government Learn’ identified several sources of learning for departments. These are shown in Table 7.1.

Table 7.1 Sources of Learning for Government Departments

Sources of learning	Examples
Internal resources and experience	<ul style="list-style-type: none"> • Staff experience of doing their job and dealing with customers on the front line • Training • Knowledge of past projects and policies
Citizens and consumers	<ul style="list-style-type: none"> • Customer insight, including research and feedback from service users • Complaints • Piloting of projects
Partners, rivals and comparators	<ul style="list-style-type: none"> • Use of contractors • Secondments • Cross-organisational knowledge sharing through professional and other networks • Benchmarking and other comparisons with similar organisations
Top-down direction, control and support	<ul style="list-style-type: none"> • Cabinet Office and Treasury advice and guidance • Centrally set rules for property, human resources and organisational management • Disseminating knowledge of what works (e.g. Prime Minister's Delivery Unit performance monitoring and feedback, and problem solving within departments)
Critiques, advice and media	<ul style="list-style-type: none"> • Parliamentary oversight, especially select committees • Stakeholder consultations • Media scrutiny • Academic review and comment
Testing interactions, crisis and review	<ul style="list-style-type: none"> • Systematic learning from mistakes and successes • Evaluation • Departmental crisis management • After action reviews • Capability reviews • Audits

(Source: NAO, 2009a:13).

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A broad distinction can be made between formal and informal mechanisms. For example, formal mechanisms represent the explicit and official means through which government learns about policy issues. These include consultations, policy reviews and evaluations. In contrast, informal mechanisms are less prescribed and less formalised. These include relationships with stakeholders and ad-hoc meetings. However, distinctions between these two categories can be blurred. For example, consultants are used for a range of tasks, some of which are formal and some informal. Therefore, these types of learning mechanism are described as 'hybrid'. The number of different learning mechanisms means that they cannot all be addressed in this chapter, though most have been touched

upon in previous chapters. Many of the current learning mechanisms stimulate predominantly technical or single-loop learning (Gilson et al., 2008; see Section 2.4.3). Single-loop learning is efficiency orientated and entails, for example, achieving value for money, eliminating waste, and examining alternative methods and approaches for the same objectives (Gilson et al., 2008). It does not question fundamental policy design, goals or organisational activities. In contrast, double-loop learning parallels conceptual learning in that it involves the modification of the organisation's objectives, goals and norms (Argyris, 1976). Examples of single-loop learning mechanisms are policy reviews, audits and evaluations. Examples of double-loop learning mechanisms are socially participative forms of consultation. Thus, the mechanisms selected for discussion in this chapter exemplify informal, formal and hybrid categories and provide the opportunity to enact different types of learning and/or are those which were discussed most frequently in the interviews. Therefore, this chapter is divided as follows: Section 7.2 analyses formal learning mechanisms, specifically consultations and select committees; Section 7.3 analyses informal mechanisms, specifically stakeholder relationships; Section 7.4 analyses the hybrid category of external consultants and advisory boards. In addition to this, 'knowledge management' and 'organisational memory' are discussed in Section 7.5; while Section 7.6 concludes the chapter. Organisational memory refers to the means by which organisations (including institutions such as governments or departments) retain and transmit information from past to future members (Stein, 1995). Although knowledge management is outside the field of organisational and policy learning, it is critical for its operation, as it concerns the "complex of process by which knowledge is first recognised as such (rather than as 'noise' or ephemerally relevant or unreliable information)" (Gilson et al., 2008:10).

7.2 Formal Learning Mechanisms

7.2.1 Consultations

Formal consultation relates to a spectrum of activities, which at one end are highly inclusive and relate to social learning, and at the other are closed, narrow and relate to technical learning. The basic consultation process involves the government inviting views on key issues through various means e.g. focus groups or written documents; this has implications for the types of learning generated. They then analyse the stakeholders' responses and issue a government response in the light of the evidence. Sources suggest that there were differences in the style of consultation between higher, or rather sector-level, energy policy and renewable energy policy. At the sector level, there has been a shift in the style of consultation over the past decade. During the period 2000-2003, after the acceptance of climate change, there was a move away from traditional technocratic approaches to energy policy towards greater public and stakeholder engagement (MacKerron, 2009). This is evidenced by the establishment of the Energy Review Project by Tony Blair in his Cabinet office and the heavily

consultative approach that informed the 2000 Energy Review³¹ and 2003 EWP (MacKerron, 2009). This was characterised by intensive engagement with a wide range of stakeholders far beyond the usual experts, including the general public, through focus groups, deliberative workshops, outreach programmes to school children and a web-based questionnaire (MacKerron, 2009).

The inclusion of a broad range of stakeholders in the policy-making process implies different types of knowledge and information were taken into consideration (Fiorino, 2001). Increasing the number of stakeholders also had the benefit of increasing the legitimacy of policy decisions (MacKerron, 2009). The process of deliberation between stakeholders with diverse and conflicting perspectives promotes learning through dialogue (Lehtonen and Kern, 2009). Thus, a rich and inclusive form of consultation can stimulate several forms of policy learning, including social learning among a variety of actors (Fiorino, 2001). Systems with the capacity for social learning often exhibit a high degree of structural openness, communicative and open patterns of governance, which consists of a more-or-less continuous process of interaction between societal actors and institutions (Fiorino, 2001). However, in the case of UK energy policy, dialogue and relationships were not extended beyond the 2003 EWP, so did not represent a lasting shift towards communicative or socio-political governance.

MacKerron (2009) argued that the style of consultation in the UK has changed since 2005. Government characteristically “suggests policy directions, asks questions (often narrowly framed and pre-judging major issues) and then passively waits for written responses” (2009:81). This style of consultation allows the government to set the parameters for the consultation, limiting the range of options under consideration and ruling out those that the government does not want to discuss, stimulating single-loop or technical learning but restricting conceptual learning. The change from a highly participative style of consultation to a document-based approach suggests that the participative style did not represent deep changes in government structures. Fiorino (2001) proposed that although an organisation might have effective mechanisms for collecting intelligence, it may lack the ability to translate it into new forms of behaviour or structures. At the time, one of the major criticisms of the 2003 EWP was that it failed to propose “any change in the machinery of policy-making to underpin the major change in policy direction” (MacKerron, 2009:83).

Chapter 4 highlighted that, before the first renewable energy consultation in 1999, renewable energy policy was developed informally by a small number of government and industry actors, after which formal consultations took the form of a written document that issued a set of narrow technical questions, similar to the white paper format (see Section 4.4.2). Again, this style of consultation

³¹ The Energy Review engaged with stakeholders from the “nuclear industry to environmentalists, and from city financiers to trade union representatives, though it stopped short of active public engagement” (MacKerron, 2009:80).

allows the government to set the parameters of the consultation, limiting the range of options under consideration and ruling out those that the government does not want to discuss. For example, the first renewable energy consultation ostensibly considered alternative forms of support, but only price-based mechanisms were forwarded for discussion (see Section 4.4.2). One interviewee commented, “it did consult, but only in the sense that there was going to be a renewable energy obligation, so it didn’t really consult. It didn’t really consult on the most effective way of meeting the target if all options were open” (Ofgem3). Fiorino (2001) stressed the importance of relationships and dialogues between government and stakeholders in conceptual learning. The use of consensus-based processes was a feature of the shift towards conceptual learning in US environmental policy (Fiorino, 2001). The current UK consultation style shows little capacity for conceptual learning, as written consultation leads to a one-way flow of information with limited dialogue between government and stakeholders. Interestingly, one interviewee commented “the consultation was about ‘do we think we have a problem’, so in establishing that you have a problem you’re almost setting the foundations for the next consultation which is ‘what do we do about it’. So it isn’t necessarily a clear cut-off with pre- and post-consultation, it’s about an on-going dialogue” (I6). This suggests that consultations are continuous, so in one respect do represent a form of dialogue. However, it also illustrates that the assumptions that feed into each consultation are predetermined, in that they build on the results of the previous one and so exhibit a high degree of path dependency. Limited exploration and information provides stability, but also inhibits learning about policy fundamentals (Argyris, 1976). It is accepted that, for policy to move forward, a certain number of assumptions must be made. However, this style of consultation further channels towards technical learning and the current style of consultation for renewable energy policy development has little capacity for conceptual or social learning. Gilson et al. (2008) speculated that double-loop learning, which concerns the effectiveness of policies to solve problems, is restricted in departments because they are constrained to operate within government objectives and problem definitions.

Consultations can be used for multiple purposes other than learning. Kalitowski (2008) proposed that the consultation exercise that preceded the Legislative and Regulatory Reform Act 2006 was little more than a publicity exercise to provide supportive quotes from business. Interview data suggested that consultations are used as a way of rubber stamping policy or fine tuning policy instruments (I12). It is arguable that the current form of consultation is largely used by government to give legitimacy to predetermined policy decisions and, thus, relates to political learning whereby stakeholder resistance is pacified by consultation and a promise to consider alternative policy options, but the parameters of the debate are restricted. The 2006 energy review consultation is one example of this. MacKerron (2009) considered that it was hastily put together and insufficient time was allocated to considering the responses before a definitive draft report was published. The controversial outcome resulted in nuclear re-emerging on the energy agenda. Greenpeace subsequently took the government to court for

an inadequate consultation process, and won (MacKerron, 2009). This suggests that the consultation was primarily used to give legitimacy to the decision to support nuclear energy (MacKerron, 2009).

Interview data also suggested that consultations are used to delay decision making. In this way, the use of consultations can be linked to political learning, where government is engaging in political risk management to limit the impact of policy decisions to government, or alternatively to pacify stakeholders by giving the impression that the government is addressing a problem. For example:

“I think sometimes the mechanisms can be used to prolong a consultation just to avoid making a decision” (I8).

“I don’t think they [government] are capable of making a decision. I think that’s the issue. Coming back to the fact that I’m fairly neutral as to what the decision is in a lot of cases, I just find it intensely frustrating that we just get endless consultations. I mean how many energy acts are we on, and how many white papers have we had, and I think somebody just needs to make a decision rather than dressing it all up in consultation and more consultation” (I8).

It is acknowledged that the government is genuinely puzzled about how to deal with some complex problems. Interestingly, Fiorino (2001) proposed that, as part of social learning, society recognises the uncertainty of knowledge about problems and capacities for solving them. However, interviewees felt that the current nature of the consultation process provides no recognition of the complexities of problems to stakeholder groups and risks alienating participants. One interviewee commented, “I think the general feeling is that we are all consulted to death and ignored” (L1). Another interviewee said:

“I think generally with all the consultations around you feel that a lot of it is already made up before you go, before the consultation comes out. You actually feel that the paper consultation is completely pointless unless everybody comes back negatively against something – if it’s already in a consultation the likelihood is it will go ahead. So you know that you’ve got to get involved beforehand if you want to impact on things” (I8).

This suggests that the best time to influence the policy process is in the pre-consultation stage, which is also significant for ideas and learning as only the most powerful actors have access to the process prior to consultation. This is discussed further in Section 7.3.

A strong overall theme in the interview data was dissatisfaction with the consultation process. Several interviewees commented on the issue of over-consultation, describing ‘interview fatigue’ (I9) and ‘death by consultation’ (I5). One interviewee commented, “it is a full-time occupation because of the never-ending stream of the things. I think there were 43 issued or announced as part of the July announcements around the renewable energy policies alone. The papers and the other things you are

supposed to read and comment on have been growing exponentially over the last few years” (I5). This suggests that, over the last few years of the Labour administration, a culture of over-consultation emerged. One explanation is linked to the short tenure of civil servant posts and the constant need for civil servants to familiarise themselves with the policy area and current thinking. Thus, they serve as information-gathering exercises (see Section 6.7). However, the interviewee went on to propose:

“As I mentioned earlier on this sort of death by consultation and, to an extent, I think the aftermath of the Greenpeace victory on the lack of consultation on the nuclear decision, has pushed the government either willingly or unwillingly into the awful mode of consultation and re-consultation and we will do another one just to be absolutely sure, but not actually changing the underlying views often of what it is they are trying to achieve” (I5).

This implies that over-consultation is an unintended side effect of the Greenpeace challenge and reinforces the idea that government uses consultations as a political strategy to increase legitimacy and overcome stakeholder resistance. Lehtonen and Kern proposed “that participants should be guaranteed in advance that their inputs will be taken seriously, and that the initiators of the consultation should be explicit about how the outputs of consultation will be used in policymaking. This is essential, in particular to ensure the motivation of people to participate, as sometimes people reject participation simply because they do not believe this would have an effect on decisions” (2009:113).

The sheer number of consultations being released also places a considerable strain on government and stakeholder resources. This is arguably having a detrimental effect on the production of knowledge and information. One interviewee commented “I work 20%, maybe 20-30% of my time on regulation and policy making. I’ve got two full-time people on it as well, one is a senior manager and for a company that’s got 60 people in it that’s quite a lot” (I12). In contrast, another said “there’s no doubt we could probably employ someone full time to do nothing but reply to all the consultation documents. Unfortunately we’re not in the luxury of having that resource” (I4). This suggests that only large organisations can afford to respond to all consultations, which has implications for the ideas that are fed to government. This effect may be exaggerated further, as interview data revealed that it is common practice for companies to contribute several responses, both individually and through other organisations such as trade associations and lobby groups. Sabatier and Jenkins-Smith (1999) argued that resources play an important role in a coalition’s ability to learn. Slack resources free up organisations so that they have more room for innovation, whereas tight times lead people to be conservative and avoid big changes (Kingdon, 2003). Several studies of learning emphasised the importance of time for individual reflection and learning (Kingdon, 2003; NAO, 2009a; Gilson et al., 2008) and that insufficient time limits learning.

Fiorino (2001) proposed that increasing government's capacities for conceptual and social learning faces two main challenges: firstly, current government structures control and limit actors' abilities to change behaviours based on what they have learned; and, secondly, how to improve the quality of dialogue. There is considerable scope to improve current consultation processes to foster better dialogue and broaden the range of ideas or policy options under consideration. One interviewee proposed:

“There could be a really early stage consultation which would be like a blue sky consultation where you wouldn't have to answer a load of questions which is what they [Labour 1997-2010] tend to do. They write a massive great policy essay outline and then they ask you very specific questions related to what they think and that completely disempowers everybody because it's like that's what you think but I don't necessarily agree with you. So you feel that you have no possibility for putting in a blue sky policy idea – there is no way to do that and what I think would be great is if they [government] decide that they want to do some work around things and either do a set of interviews, which I think they do with the Big Six, but with smaller companies they don't or they request a mini essay or mini ideas paper or what they could be doing and that's a formal consultation but on a blue skies basis and see what concepts they get from that” (I12).

MacKerron (2009) highlighted that the consultation process that informed the 2003 EWP showed potential for social and conceptual learning, in that the parameters of the consultation enabled a full range of potential options to be considered and debated through the inclusion of a broad range of stakeholders; this could be used as an exemplar for future policy development. Lehtonen and Kern (2009) warned that increased participation must be correctly managed to allow the perspectives of minority groups to be heard. They suggested criteria for a good deliberation process, including: neutrality, breadth, transparency, precaution, openness, diversity, inclusion and commitment. This criteria could be used to strengthen consultation processes to foster policy decisions that are socially and scientifically more robust, moving the UK towards a policy-making system with a greater capacity for conceptual and social learning.

7.2.2 Select Committees

Select committees operate in both Houses of Parliament and consist of cross-party members (Parliament, 2010b)³². House of Commons select committees examine three key areas of department operations: spending, policies and administration (Parliament, 2010b). Select committees investigate issues by holding public hearings that take evidence from key witnesses, then produce reports for government that require a government response by law. To an extent they reinforce the role of expert

³² “HoC select committees are largely concerned with examining the work of government departments.

Committees in the House of Lords concentrate on four main areas: Europe, science, economics, and the UK constitution” (parliament website, accessed 14/02/11).

knowledge (Dryzek, 2005). This is more true for some policy areas than others, but is particularly true in the energy policy sector. The process of responding to reports and questions forces the government to defend policy choices and to examine policy problems and solutions in broader terms. These can bring new ideas into the policy arena, acting as a formalised learning mechanism although the executive is under no obligation to implement these ideas. However, Nilsson (2005) contends that there is a considerable length of time between the publication of select committee reports and the ideas that they contain becoming embedded in policy. Attempts to evaluate the impacts of select committees, such as their influence on policy change or actor behaviour, also face methodological and technical problems (Nixon, 1986). However, Kalitowski (2008) proposed that parliamentary scrutiny (including select committee recommendations and reviews) does make a measurable difference to legislative proposals providing a direct link to policy learning.

Interviewees from industry, NGOs and academia believed select committees to provide a genuine search for information and ideas, in contrast to consultations, which were predetermined. For example:

“I have zero faith in this government [Labour 2008] when it comes to consultations. It seems to me that they know what they want to do and they have to go through these consultations. However, when talking we were invited to a meeting with civil servants from the Environmental Audit Committee, now this was a different flavour altogether. [...] They didn't have a plan that was already signed off and they just had to go through this thing, pull out whatever they liked and ignore what they didn't like. [...] My sense was that here were people that really wanted information. They wanted to increase their knowledge base. They wanted to increase the number of sources, improve the quality of the sources, sending into the contributions, the consultations, and here was something that might actually be worth participating in. So I have to say it restored a bit of faith” (NGO1).

In comparison, several civil servants interviewed were sceptical about the ability of select committee hearings to act as mechanisms for learning. One civil servant stated that “select committees feel to an official like a whole load of work and you're preparing the memorandum and then there's the random set of questions that you've got to brief your minister on in case they get asked. It doesn't feel like a process for learning” (SCS2). Another said, “if you have too many of those things they can end up being disruptive and all you're doing is feeding ministers or senior managers information which is effectively defensive stuff, which diverts from the pressing day job, so again a double-sided pros and cons to those sorts of things” (CS6). However, he went on to acknowledge that “challenges are an important part of the democratic process” (CS6). The extracts highlight the negative impact of time constraints on policy development and democracy. Lack of time for learning was forwarded by the NAO (2009a) as one of four main barriers to learning in government. Gilson et al. (2008) argued that

organisations that have eliminated 'slack time'³³ are depriving themselves of a source of potential learning. This appears to be true of civil servants in government departments. The role of time in learning processes resurfaces on several occasions in Chapters 8 and 9.

The select committee reports analysed often display innovative thinking and the reframing of policy problems that demonstrates conceptual learning (Nilsson, 2005). For example, a House of Lords (HoL, 2008) report considered the broader energy policy framework in which renewable energy is situated and questioned whether any goals can be achieved in a setting of conflicting policy goals: “on the one hand, the first and second objectives essentially cost money and mean higher prices, and on the other fourth objective, the reduction of fuel poverty, which depends in part on maintaining low energy prices [...] to pretend that all four goals can be achieved simultaneously is a cop-out [...] and risks that none of the goals will be achieved” (HoL, 2008:11). Comparison of select committee reports and government action shows that there is a lengthy time lag before ideas become embedded and, therefore, before learning takes place. Nilsson (2005) proposed that this can be attributed to differences in policy-making rules. He argued that committees (and agencies) are “able to exchange information in a relatively neutral problem solving setting, whereas central government is based on a bargaining model of decision-making in which each ministry is looking out for certain core interests in a departmental negotiation process” (Nilsson, 2005:220). He believed that this constrains learning because of “positional wars and strategic uses of knowledge” (Nilsson, 2005:220). Information from the interviews supports this idea. Several interviewees recounted instances when government had deliberately suppressed information or provided spurious figures to support decisions (see Section 6.4). This demonstrates the political nature of knowledge production.

7.3 Informal Learning Mechanisms – Stakeholder Relationships

The relationships between stakeholders and government are reflective of different learning processes (Fiorino, 2001). At one end of the spectrum, social learning is characterised by open patterns of governance, which consist of continuous interaction between large numbers of stakeholders including the general public. At the other end, technical learning is characterised by closed networks with a small number of stakeholders, and legalistic and/or adversarial relationships between industry and regulators (see Section 5.4; Fiorino, 2001). Interview data suggest that several large industry stakeholders enjoy a “strong relationship” (I6) with the civil service, have access to ministers and are consulted on a regular basis, prior to official consultation documents being released (I5). One interviewee proposed, “I think we have reached a position now both as a company and certainly the

³³ Slack time provides staff with time to reflect on what they are doing and experiment with different modes of doing things (Gilson et al., 2008).

BCSE (UK Business Council for Sustainable Energy³⁴) that we try our ideas out on them and they try their ideas out on us. So we get an earlier involvement in the development” (I15). This places large companies in a strong position to influence policy ideas. It is acknowledged that the expertise of these companies is valuable to government given their analytical and financial resources. However, such companies are likely to act to promote their own interests, forwarding ideas that promote only incremental policy change. Mitchell (2008) argued that the regulatory state paradigm supports the status quo and the current energy system through its creation of several large companies that dominate markets. She also proposed that the literature on momentum points to the fact that incumbents are resistant to change (Mitchell, 2008). Similarly, Lehtonen and Kern (2009) proposed that the dominance of regime incumbents is likely to exclude the viewpoints of less prominent actors, which may in turn limit learning and innovation. This suggests that power is a filter for ideas and learning. It also indicates that technical learning will dominate policy learning processes, and that conceptual learning (which may create a shift in power) will be stifled unless more less-powerful actors are heard. This interplay may explain the narrow terms of reference of many consultations, alluded to by MacKerron (2009).

Interview data revealed that small independent companies, advisory boards and NGOs predominantly perceived that they are not listened to by government. In reference to the RO, one interviewee said “From our point of view I don’t feel very well listened to, to be honest” (I12). A representative from the RAB commented “[in reference to the RAB] my feeling and some people would disagree and some people would agree, but I don’t think they are listened to at all. This is one of the reasons why I haven’t attended is because I really felt that we weren’t making a difference at that point. But my sense particularly with Miliband (Minister for Energy and Climate Change, 2008-10), I think he’s slightly written it off” (I12). This decision resonates with Lehtonen and Kern’s (2009) argument that commitment is an important part of policy deliberation. Government action that does not reflect the influence of stakeholders disenfranchises them, making them less likely to contribute in the future. This in turn reduces the range of ideas being fed to government, reducing the potential for learning. Argyris (1976) argued that learning is contingent on the receptivity of the decision-making unit, in this case the individual, to feedback. The interviewee went on to suggest that Ed Miliband was not interested in the RAB or the RO because they were inherited from his predecessor (I12). Kingdon (1993) highlighted the role of the policy entrepreneur in progressing certain ideas. However, this indicates that key actors also have the potential to block ideas.

³⁴ The UK BCSE brings together the Chief Executives of Centrica, EDF Energy, E.ON UK, National Grid, RWE npower, Scottish Power and Scottish and Southern Energy as well as Senior Executives from Air Products, International Power, Renewable Energy Systems and Shell.

NGO groups also claimed to be ignored by government, so they have explored alternative means to get their ideas into the policy arena. For example, in the case of the GB FIT they used an early day motion, forming a coalition with backbench MPs and the Renewable Energy Association (REA). One representative said:

“Civil servant X was absolutely emphatic that the UK wouldn’t have feed in tariffs and when we first started doing supportive actions to Malcolm Wicks we were getting replies from the Department saying that the feed in tariff was not appropriate for the UK’s liberalised energy market. When it first came into the Energy Bill the speeches by Malcolm Wicks were absolutely dead set against it. The Government in the end did the decent thing. We had a very good campaign so it was a very strong coalition; we were lucky enough, or clever enough, to come up with the right demand. There was a massive evidence base and there had already been a select committee recommendation, so there was already considerable support among Parliamentarians and especially the Labour backbenchers” (NGO2).

This extract suggests that the government was forced into accepting the FIT not by choice but because of an established parliamentary process and a strong supporting coalition. Therefore, early day motions are a formal learning mechanism that can operate independently from the civil service and the governing executive. However, the government still has power to alter the impact of any policy, for instance by reviewing the tariff levels of the FIT to reduce its costs, which will accordingly reduce the efficacy of the mechanism (DECC, 2011c). As was noted in Section 6.6, Bomberg (2007) proposed that international NGOs are teachers for many types of policy learning: (1) political learning, whereby they provide training and capacity building covering broad themes such as how to lobby more effectively; (2) instrument learning, whereby they increase the understanding of policy elites with respect to instrument design; and (3) social learning, whereby they indirectly shape the climate in which policy makers make decisions by disseminating knowledge to change perceptions. This suggests that NGOs are agents of learning in their own right as they generate multiple types of policy learning.

7.4 Hybrid Learning Mechanisms: Consultants and Advisory Boards

7.4.1 Consultants

Consultants are widely used across government in both formal and informal capacities. They collect, process and contextualise information, which informs and supports decision making for policy³⁵. The HoC Committee of Public Accounts proposed that “organisations use consultants for the following three reasons: 1) people: for additional resources or specialist skills; 2) process: for knowledge on

³⁵ In 2005-6, central government spent £1.8 billion on consultants (HoC, 2007).

how to approach a task; 3) perspective: to provide an objective or independent review or new and innovative thinking” (2007:9). For example, Black and Veatch were used to collect information to inform the setting of RO bands for wave energy. Consultants are also used to process responses from consultations, which are then fed back to government. Perl and White (2002) observed a trend in the Canadian government towards outsourcing policy analysis and advisory services during the 1980s and 90s, which they concluded was driven by a combination of public management values and knowledge expansion. A similar trend in the UK highlights a revolution in public administration from the ‘Weberian’ model³⁶ of bureaucracy to ‘new managerialism’³⁷ (St Martin, 1998:319). St Martin (1998) suggested that because of their knowledge of business administration, consultancies are seen as a way of bridging ideas and values from the private to the public sector.

The process of using consultants implies that significant knowledge is generated externally to government. It is necessary that knowledge, in terms of content and process, is transferred to government in order to enable government learning. The NAO highlighted that the “government needs to find ways of capturing the learning gained from external suppliers so that it is not lost to government” (2009a:9). The HoC Committee on Public Accounts suggested that “post project evaluations which capture the lessons learned and assess performance of suppliers should be routinely used” (2007:5). However, their report highlighted that this is not normal practice across government. This suggests that the government is not utilising consultants effectively as learning mechanisms. The NAO report ‘Helping Government Learn’ suggested that this was caused by insufficient time to evaluate (2009a), again indicating that time is a limiting factor for deliberative learning. Another issue with consultants is that second party involvement increases the chance of information becoming lost or misunderstood. One interviewee commented “they [in reference to DECC] continue to misunderstand the likely difficulties of grid balancing a very large intermittent power flow. This is partly because they do not ask the right questions of their consultants, partly because consultants don’t understand enough about the character of wind power flows and it is partly because government doesn’t read what is said carefully enough” (L1). This illustrates the difficulties of knowledge transfer in technical and complex policy areas.

The previous interview extract also highlighted that consultancies are used when governments do not have the knowledge capacity to do things themselves, in this case specialist technical evaluations. The

³⁶ Max Weber argued that bureaucratic form was the ideal way of organising government agencies. He noted several features: “a formal hierarchy of rank and officialdom, the application of rules according to the book, promotion by merit or seniority, strict control of the files and information” (Parkin, 2002:34).

³⁷ “New public management” (NPM) or “new managerialism” are terms describing the group of ideas imported from business management to reform the public sector in OECD (the Organisation for Economic Co-operation and Development) countries since the 1980s (St Martin, 1998).

HoC Committee on Public Accounts argued that capacity building is vital, for financial reasons and to ensure organisational learning. A key finding from the NAO report was that “departments were not regularly planning for, and carrying out, the transfer of skills from consultants to internal staff to build capabilities” (2009a:16). This suggests that departments are not evolving the capacity for different types of knowledge. The financial resourcing of DECC and ORED has led to the employment of new civil servants to look after renewable energy policy areas that did not exist previously, but their individual backgrounds suggest that they are not specialists in those areas, and that as a result the government is not capacity building in this area. This resistance to specialisation can be linked to a ‘management’ culture in government, in which civil servants are generalists to allow them to move between departments and policy areas. Specialists would be less mobile and require long job tenures. Such incremental capacity building would predominantly facilitate technical learning, as opposed to conceptual learning, by improving the background knowledge and understanding of policy areas or issues.

Another issue with the way in which the government uses external consultants for consultation analysis is that it has the potential to channel learning and neglect large amounts of information. Section 7.2 illustrated that, with some exceptions, written consultations with narrow parameters restrict the information provided in response (MacKerron, 2009). The process of outsourcing then creates another filtering effect where consultants select and summarise information (in response to government guidelines and questions) and feed it back to government. This means that large amounts of relevant information may be discarded. This learning mechanism suggests a very narrow form of technical learning, by enabling the government to channel the feedback it receives.

One use of consultants is to provide objective advice (NAO, 2009a). However, academic texts (MacKerron, 2009) and interview data suggest that consultants are being used for other purposes, such as whether or not their analysis will support government preferences. One interviewee commented:

“I think they’re all quite different – those consultancies. They have their own pricing models, their own models that forecast ROC values and, therefore, the impact on consumer prices and I think it’s meant that there’s almost a diversity of views coming into government and I think the government only asks the questions that it already knows the answers to. In setting Terms of Reference they’re almost seeking consultants to back their analysis to deliver a particular policy outcome, so I don’t think it matters too much what route they take but they will all have their different price forecasting and ROC forecasting models” (I13).

Jasanoff (2005) argued that the way knowledge is generated and used to underwrite collective decisions has implications for democracy. The HoC (2007) report on the use of ‘central government consultants’ proposed that, in some cases, departments were using consultants to deflect blame for

failure should a project underperform and to delay the implementation of policy. Deflecting blame from failure highlights a negative attitude to failure within the civil service. The Advanced Institute of Management Research reported that there are few examples of organisations learning from failure, as failures are dismissed for a variety of reasons such as unusual circumstances or external events (Baumard and Starbuck, 2010). However, it argued that learning only from success can become a straightjacket that prevents firms from adapting to social and technological change. Both reasons for using consultants, defecting blame and delaying policy implementation, might be regarded as mechanisms for political learning, where civil servants manage political risk either to themselves or to government. It is unlikely that the management of consultants for purposes other than learning will facilitate conceptual or social policy learning.

7.4.2 Advisory Boards

Advisory boards have been established in most policy areas to provide independent and expert advice to government. They provide a formal learning mechanism in that they produce expert recommendations in the form of reports, but they are also informal in that part of their role is discursive and involves meetings and relationships with civil servants and politicians. Dryzek (2005) observed that there is a long tradition of deference to advisory boards in the UK, as legitimacy is accorded to expertise. Nedergaard (2006) proposed that a basic condition of learning is that people are in contact with each other and that meetings have a certain frequency. He also suggested that the frequency of meetings could act as an indicator for learning (Nedergaard, 2006). Furthermore, Sabatier (1999) argued that a successful learning forum should meet at least six times per year.

For the renewable energy sector, the RAB³⁸ was “established to provide independent and authoritative advice to the Secretary of State on policies, programmes and measures” (DECC, 2007). The RAB’s efficacy as a learning mechanism depends on the extent to which their perspectives are considered by government (Argyris, 1976) and the validity of the ideas themselves, which relates to the ability of individual members to be impartial. Interview data suggested that the RAB³⁹ was not listened to by government (see Section 7.3). If the RAB is not being utilised, this suggests that policy development is being driven by other influences, such as the interests of powerful corporations. However, an alternative explanation may relate to time constraints. One civil servant commented:

³⁸ The RAB brought together government departments, the renewable energy industry, academia and the trade unions.

³⁹ In October 2010, the new coalition Conservative/Lib Dem government axed the RAB in the notorious ‘bonfire of the quangos’, which was driven by austerity measures. As yet no new advisory board has been established.

“We’ve got a group called the Renewables Advisory Board, which is an NDPB (Non-departmental public body), which provides advice to the Secretary of State on renewables issues. So that is a group that has lots of externals, people in technology companies and NGOs as well, but there is a wealth of knowledge and experience in there – those sorts of bodies, harnessed properly, can be very useful and powerful adjuncts to normal policy development and thinking. The question is whether you get the time to use them properly or whether you end up going through the motions. The question is, have you got the time to really have in-detail policy discussion about what could be possible rather than just manically doing things, which may be a bit short term and not being able to see the wood for the trees?” (CS6).

This extract suggests that, despite the existence of expert knowledge and information, time constraints can result in these resources being mismanaged. Time constraints restrict the number of opinions and options considered. Only the more obvious options come forward, which are likely to be those within current accepted policy parameters. Debates that do not examine policy options beyond established policy parameters will lead to technical learning rather than conceptual learning (Fiorino, 2001) and insufficient time for policy deliberation can act as a barrier to the effective use of advisory boards as learning mechanisms (Nedergaard, 2006). Therefore, Nedergaard (2006) suggested that to optimise the potential for learning, more time should be given for meetings with more loosely defined agendas.

The value of advisory boards as a learning mechanism is also a function of its members’ ability to be impartial and thorough in exploring possible policy options. Advisory bodies and experts are not untarnished by politics and can tailor their recommendations accordingly (Dryzek, 2005). Thus, impartiality requires that members’ personal or organisational interests are set aside. Lehtonen and Kern (2009) believed that the role of the expert is not to provide the best solution by becoming an advocate of any single solution but to clarify the situation by expanding the scope of available options and by illuminating the decision-making situation from multiple perspectives. One interviewee commented:

“I try and take two points of view both from a consumer point of view and what will be most effective for the consumer and from the renewables industry point of view. I definitely think there are people in DECC who don’t and on RAB who don’t. [...] probably the worst ones are the people who represent a group of organizations. So I would say that it’s interesting that the people who are from the Big Six, so there’s someone from Scottish and Southern who sits on it and somebody from Npower and I would say they are incredibly altruistic in terms of the way that they behave. The ones that I find really difficult are the ones that represent other organisations, particularly the renewables industry” (I12).

This statement gives credence to Dyzek’s (2005) argument that advisory boards have the potential to offer biased advice if members promote their organisations’ interests. In the case of the RAB it seems that there are differences between its members, as would be expected. The implication of this in terms

of learning is that advisory boards could become another vehicle for industry interests to influence policy. However, the fact that the RAB has fallen out of favour with the Secretary of State suggests that there is a conflict in ideas.

7.5 Knowledge Management and Organisational Memory

Knowledge management is way of retaining and storing knowledge, though it mainly concerns technical aspects such as knowledge processing and IT (Easterby-Smith, 2000). Gilson et al. (2008) proposed that knowledge management has three components, including: (1) knowledge recognition; (2) knowledge capture, collection and storage; and (3) institutional memory, i.e. knowledge re-accessing. If any component breaks down, the process becomes ineffective. Capturing knowledge presents considerable difficulties as the bulk of knowledge inside an organisation will be informal, “locked in the minds and practices of the workforce” (Gilson et al., 2008:10). The rapid turnover of civil servants and ministers has implications for knowledge retention and has been identified by several select committee reports as a barrier to government learning (NAO, 2009a). All the current civil servants interviewed had less than two years’ experience in their current position and most were new to the post. For example:

“I joined the DTI in 1998. I have been working on renewable issues since April 2007. Part of that time I was on secondment to the foreign office. [...] the first time I did anything to do with renewable energy was April 2007. All previous jobs have been in completely different areas, so when I joined the DTI in 1998 I was doing telecoms policy to start with, then competition policy, then coal, then all sorts of other things so I hadn’t really started renewables. But I did have some sense of when a renewable policy was coming out” (SCS3).

This indicates that individuals have little background knowledge of policy areas, which means it takes time for them to become acquainted with the details of policy, particularly in a technical area such as renewable energy. They are reliant on hand-over information, other colleagues (who may be in similar situations) and official documents to learn about past policy experiences and decisions. However, there is little detail in documents concerning motivations behind decisions. High rates of turnover thus mean that civil servants have little time to draw lessons or embed any lessons learned. It also suggests that expertise and experience are being regularly lost and replaced with inexperience, which may mean policy stalls instead of moving forward. However, an argument for high turnover rates is to prevent civil servant inertia, where they become too attached to policies and resist change. One civil servant, when questioned on the effects of high turnover rates, said:

“I think there are risks that you end up having to re-invent the wheel sometimes if there is too much turbulence, you know turnover of staff. You do need to get the balance right because if people stay in the same role for too long then they often – not often, but I’ve seen cases where I’ve seen people

defending old policies rather than looking at change if it's necessary. So that's something that needs to be guarded against and people say in the Civil Service everyone changes every 2 years but if someone has been in their post for 8 years and all they are doing is being defensive for the last 7, then that's a problem as much as turnover. Arguably there could be better ways of ensuring information doesn't get lost, particularly electronically where we should be able to store things and have an electronic library. A lot of the documentation, consultations and consultation summaries and responses will be stored online and are all archived in that sense. Files are archived although individual key documents may not be, so arguably you could do better with some of the background documentation from consultations and policy development" (SC6).

Another argument for short-term tenures is to avoid industry capture and to prevent too-strong relationships being built with any particular actor (Carter, 2004). This issue is also reflected in the design of other elements of government machinery. For example, sectors were created with regulators to police relationships (Carter, 2004). However, it has been suggested that the real reason for rapid turnover is to enable civil servants to be promoted, as this would rarely be possible within the same team (personal communication with Andrew Seedhouse, Civil Servant). Max Weber proposed that "bureaucratic organisation is founded on wage labour and on the career possibilities of the employees. These aspects of the organisation ensure that the employees, 'the bureaucrats', are not too interested in the content of their work and will prevent them from having a personal interest in what they are doing" (Ahrne, 1990:43). Addressing issues of turnover requires a cultural change driven by organisational leaders (NAO, 2009a). This highlights that enhancing learning processes to facilitate organisational and policy learning is a top-down process.

Enhancing knowledge transfer between employees during the replacement process is one way to prevent knowledge from being lost. There is currently a government process in place to facilitate knowledge transfer: it is heavily reliant on information technology and has its own challenges. Several civil servants commented on current practices of knowledge transfer between roles:

"In my experience knowledge transfer is very difficult in the Civil Service and various departments have tried to have fixes for that and gone for technology solutions which were trumpeted as great and from my experience they tend to die because people don't use them. Ever since I discovered that there was such a thing as knowledge management I have thought that this is the technology and leadership concept that I've never really identified with" (SCS2).

"In the old days when you came new to a policy area you were given a paper file to read, so your policy area is this and you must read the files and know what's in them. Now it's all electronic data and maybe the person who did all the filing protected it with a password and you can't get at it or they've reorganised and it's difficult to track down who knew what was there [...] talking to somebody who used to do the policy is now probably your best bet" (SCS2).

These extracts highlight the cultural and technical barriers to information management. Thus, the success of information management hinges on individuals using resources effectively, which may again be contingent on time. Gilson et al. (2008) contended that recognising, formalising and storing knowledge is only effective if it is linked to a capacity to recall that knowledge. Defra have explicitly linked the attainment of knowledge and learning to its departmental objectives (NAO, 2009a); see Text Box 7.1). However, this practice is not uniform across government. It is arguable that improving individual government learning processes throughout departments may enhance the quality of decision-making processes in terms of individuals being better versed in lessons from the past. However, this would be no guarantee that lessons from the past will influence policy as embedding ideas is a political process. Gilson et al. (2008) proposed that the civil service is predominantly engaged in single-loop learning and double-loop learning is restricted by government structures. This implies that improving knowledge management and organisational learning within departments will serve to improve single-loop learning (related to technical learning) but not necessarily double-loop learning (related to conceptual learning). Furthermore, better knowledge management and learning in departments may improve the efficacy of policy production within departments, but may not directly facilitate learning by any other stakeholder groups.

Text Box 7.1 Defra Knowledge and Learning Objectives

All staff are expected to:

Understand that knowledge is one of Defra's most important assets and that its key activity is the acquisition and use of the knowledge, skills and experience of its staff to make policy and deliver projects.

- Be able and motivated to exploit and improve that knowledge by:

Adding to the sum of Defra's knowledge and sharing what they know;

Learning others' knowledge to get up the learning curve faster;

Helping Defra retain knowledge when they move or leave; and

Taking opportunities to learn.

- Know:

How to do what they need to do, how the organisation got to where it is, what mistakes to avoid;

Who could be useful, needs to be involved; and

What is the evidence is, where it is located and how to evaluate it.

(Source: NAO, 2009a:39).

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7.6 Conclusions

This chapter has evaluated a number of the government's key formal and informal learning mechanisms and has examined how they operate and what types of learning they stimulate. Consultation is the key formal learning mechanism used by the government to gather stakeholder opinions and generate alternative policy options. However, it was argued that the current written style of consultation limits the options under consideration and enables the government to discount options it does not want to discuss. This has tended to lead to narrow forms of technical learning within accepted policy parameters, in contrast to conceptual learning, which requires fuller explorations of policy options beyond those currently accepted. The current consultation style also has side effects, including placing considerable strain on government and stakeholder resources and creating distrust amongst stakeholders, which have been detrimental to the learning process. Seemingly, the government's motivations for using consultations appear to relate more to political risk management than learning. The other formal learning mechanism analysed, select committees, generate a broad range of policy options beyond accepted policy parameters, and demonstrate some capacity for both

conceptual and technical learning. This was attributed to the relative impartiality of the process and cross-party inputs. However, the government is under no obligation to take up the ideas forwarded by select committees and their influence on policy is debatable given the negative attitude of many civil servants towards them. Time constraints were shown to be a major factor inhibiting civil servants' engagement with select committees.

In terms of informal mechanisms, relationships between government and stakeholders were analysed and were shown to be stronger between the government (civil servants and ministers) and large companies than other stakeholders (such as NGOs, academics and other industry groups). This has given the big six energy companies more opportunity to influence the policy process. This, coupled with the current style of consultation, has led to the ideas that inform policy development lying mainly within accepted policy parameters, leading to narrow forms of technical learning and limited conceptual learning. Thus, existing political and corporate power structures can act as barriers to conceptual learning by filtering out ideas that are considered to be outside accepted policy parameters. Such barriers have forced other stakeholders to pursue alternative methods of influencing policy, such as early day motions, which bypass conventional policy development processes.

Hybrid learning mechanisms, which combine formal and informal processes, include the use of consultants and advisory boards. This research has demonstrated that effective management of such mechanisms is vital to ensure they operate as learning mechanisms. Using consultants poses a challenge to government learning in terms of capturing second-hand learning experiences and there are currently insufficient knowledge transfer processes in place to do this. In addition, the use of consultants for political imperatives, to reduce risk to individuals or government, appears to be stimulating learning about political risk management rather than technical or conceptual learning. Furthermore, the tendency to overuse consultants instead of building capacity and expertise within the government and civil service impedes the government's capacity to learn. With respect to advisory boards, the research suggests that the RAB was not utilised fully by government due to time constraints, although there might also have been political motives. Broadly speaking, time was shown to be a key limiting factor for all learning mechanisms. Short timeframes are likely to hinder the consideration of alternative options and perspectives and to lead mainly to technical or political rather than conceptual learning.

Knowledge management practices are in place to assist knowledge transfer between civil servants. However, technical challenges and high turnover rates in the civil service have reduced their efficacy. High turnover rates impede policy learning by reducing the amount of time that civil servants (or ministers) have to draw or embed lessons. This implies that instead of policy building on experience, knowledge gaps impede policy development.

This chapter has demonstrated that, generally speaking, current formal and informal learning mechanisms do not challenge the parameters of current policy and lead mainly to technical and risk-management forms of political learning. If utilised differently, mechanisms such as consultations could provide a capacity for conceptual and social learning.

Chapter 8 – Understanding Policy Learning

8.1 Introduction

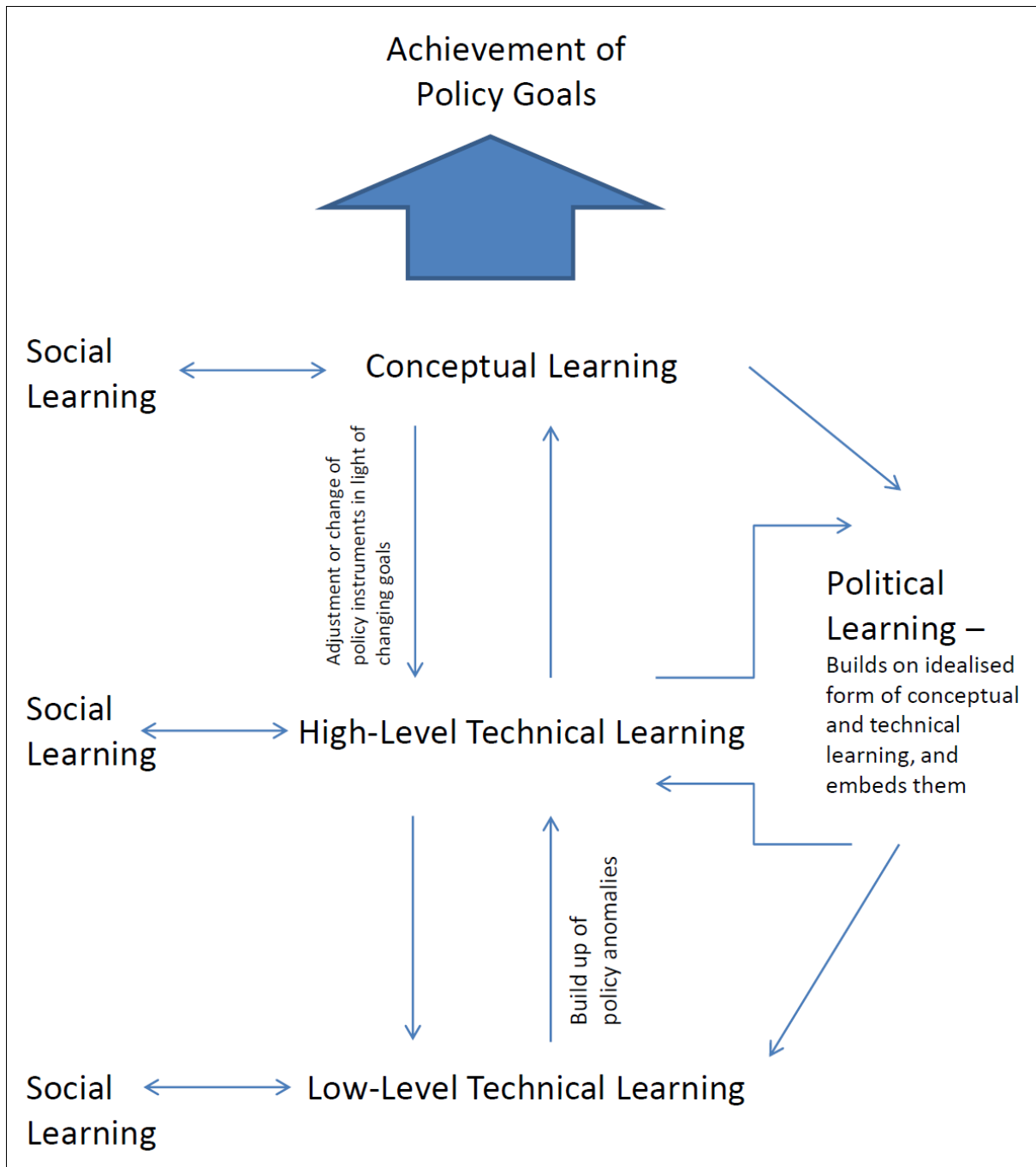
The aim of this chapter is to examine the broader understanding of policy learning derived from this study, and its implications for renewable energy policy and public policy more generally. This will be achieved by the comparison of two models of policy learning, one idealised and one derived from the empirical findings, to highlight the types of learning processes that are problematic for UK renewable energy. The chapter begins by exploring what an idealised government learning system might look like in order to understand the characteristics of the different types of learning, especially conceptual learning; how they interrelate; and how systems of government might facilitate a greater capacity for learning. An idealised government learning system is then synthesised in a model. The empirical findings described a variety of relationships and non-relationships between the learning types and other variables examined as they exist in practice in UK renewable energy policy. The chapter then examines how far these findings can be extrapolated to conceptualise learning processes more generally. This is achieved by considering the distinctive features and attributes of the UK energy system in terms of its structures, networks, stakeholders, policy-making context and style, and contrasting them with other European states. Finally, the relationships between the different learning types and other factors/barriers that stimulate or constrain learning are drawn out from the previous chapters and conceptualised in a model, which focuses on government learning processes. The chapter is structured as follows: Section 8.2 sets out what an idealised government learning system might look like, using ideas from other studies of policy learning; Section 8.3 determines the extent to which lessons from the case study can be extrapolated to other states or policy areas; Section 8.4 explores the relationships between different learning types and other factors that influence learning and uses them to conceptualise a model of policy learning in UK renewable energy policy; finally, Section 8.5 presents the conclusions.

8.2 What Would an Idealised Government Learning System Look Like?

Although an ‘idealised’ system of policy learning does not exist in reality, it is important to recognise that the form it might take will depend on the viewpoint taken. For instance, Fiorino (2001) places a strong emphasis on social learning, which suggests a more democratised learning system, whereas others might emphasise the importance of conceptual learning as a means of avoiding policy change being constrained by dominant ideologies and institutional procedures. The idealised system presented here seeks to reflect the specific characteristics of energy policy, the technical and centralised nature of which means that the pluralism associated with social learning may not be an appropriate way to arrive at informed decisions. High levels of technical learning are required to

ensure that conceptual learning is based on adequate understanding of how energy production and supply systems work. Consequently, significant emphasis is placed on the relationships between technical and conceptual learning, but less on social learning. The model also attempts to analyse how political learning, one of the more complicated and multi-faceted forms of learning, can contribute positively to processes of policy change (see Figure 8.1).

Figure 8.1 An Idealised Government Learning System



(Source: Author).

From the perspective presented here, an idealised government learning system would be evidence-based, driven by accurate information, and be one in which all forms of learning operate towards the definition and achievement of agreed policy goals. It would embody mechanisms for encouraging pluralism and for evidence-based evaluation of the plurality of views. It would have an integrated capacity for all types of learning (Fiorino, 2001), including desirable forms of political learning. It would maintain a strong capacity for technical learning, which according to Hall (1993) represents ‘normal’ policy making, but be able to learn conceptually when needed, in order to address quantitatively and qualitatively changing policy problems. The different types of policy learning and their idealised characteristics are now analysed.

8.2.1 Technical Learning

Technical learning in its broadest sense is learning that takes place within fixed policy parameters, goals and objectives. Its role is to increase the efficiency and effectiveness of existing policies or to promote incremental improvements in policy. Hall’s (1993) model distinguished between levels of policy change and learning: learning about instrument settings and calibrations is first-order learning; learning about different instruments, tools or techniques involves second-order learning (see Section 1.2). This equates broadly to higher and lower forms of technical learning. The disadvantage of low-level technical learning is that it only examines existing instruments, and fails to consider other policy options. However, it provides policy stability while promoting gradual reform. It also means that learning can become channelled and path dependent (see Chapter 7). Similarly, while high-level technical learning entails learning about different instruments, it too operates within existing parameters, goals and objectives that limit the range of policy options and ideas under consideration. In an idealised system, conceptual learning would respond to technical learning, where the build-up of anomalies or unexpected or undesired outcomes signals the need to re-examine policy problems beyond established parameters. Technical learning should also respond to conceptual learning, whereby changes in overarching policy goals should influence the settings of instruments or the choice of instruments or policy options under consideration. These relationships are presented in Figure 8.1. In an idealised government learning system, formal mechanisms would be in place to assess whether instruments should change in the light of new goals or if current instruments will effectively achieve those goals. Technical learning mechanisms would be in place to stimulate the top-down and bottom-up flow of ideas, and government structures and behaviours would have the capacity to adjust to them (Fiorino, 2001). However, this is true of all types of learning. Bottom-up processes are as important as top-down ones, as they gather feedback on the implementation of policy and information regarding its effectiveness (May, 1992). Stakeholder feedback is vital for single-loop learning in which policy makers evaluate the effectiveness of policies (Argyris, 1976).

8.2.2 Conceptual Learning

Conceptual learning involves a reflexive consideration of problems, redefining of policy goals and adjusting problem definitions and strategies. “Policy objectives are debated, perspectives on issues change, [and] strategies are reformulated” (Fiorino, 2001:324). In an idealised government learning system, conceptual learning responds to a build up of anomalies within the policy system and external events (see Figure 8.1). The search for policy options then extends beyond current policy parameters and other options are debated by a diversity of stakeholders. Ideas can be generated in both a top-down (from ministers) and bottom-up (from stakeholders) manner. Learning mechanisms involve two-way dialogue to allow debate, for example through consultations and meetings of advisory boards. Fiorino (2001) also contended that attention should be given to novel policy instruments, which links to the consideration of options beyond the accepted norm. The advantage of conceptual learning is that the integration of new ideas into the policy paradigm means that policy is adapting to the changing characteristics of problems. The disadvantage of conceptual learning, from the perspective of government, is that scoping all policy options is expensive and time consuming and can lead to multiple dead ends. In addition, there are fears that new strategies or policies might actually be less effective at solving policy problems, or create new problems. Chapter 6 highlighted that policy learning does not always result in a positive outcome and can create new policy problems. The implementation of radically new policies is also costly for government. In addition, the increased number of stakeholders and use of mechanisms to stimulate debate may not lead to overall support for any one option, so can provide limited clarity on policy direction. Stakeholders always act in their own interest, so decisions may not uphold the wider public interest. The process of debate is also exposed to the politics of interest, where those with power and financial resources try to skew the outcomes of debates in their favour (Dryzek, 2005).

In Hall’s (1993) three-level model (see Section 1.2), third-order learning represents changes in the overarching goals that guide policy makers. Jordan and Greenway (1997) interpreted this as signifying a paradigm shift, but this research has shown that changes in policy goals do not inevitably lead to this. For example, the addition of the 2003 environmental energy policy goal did not lead to significant changes in renewable energy instruments; neither have the EU 2020 targets (see Chapter 4). In the case of the 2003 energy policy goal, it could be argued that renewable energy policy was already working towards this new goal. Thus, new policy goals do not necessarily render an instrument dysfunctional. Evidence suggests that paradigms evolve when new ideas from outside the paradigm are accepted into the existing framework. This accords with Oliver and Pemberton’s (2004) model of ‘policy revolution and evolution’ (see Section 2.4), which acknowledges the role of networks, interests and institutions in ‘the battle for new ideas’. They proposed that the process of policy change is more often characterised by ‘punctuated evolution’, where paradigms adjust to

incorporate new ideas through many first- and second-order shifts occurring over an extended timeframe. They argued that even the classic case of the replacement of Keynesian economics by more neoliberal approaches took over a decade while a battle to institutionalise ideas took place within the government machine. A distinction can, therefore, be made between conceptual learning that leads to new ideas being brought into the existing paradigm, and conceptual learning that leads to paradigm shift. A hierarchical representation of these levels of change is shown in Table 8.1.

Table 8.1 Hierarchical Ordering of Learning Types

Learning Type	Description
Paradigm shift	<i>Fourth-order</i> learning about policy goals and objectives; all goals and objectives change. All policy parameters change.
Conceptual learning	<i>Third-order</i> learning about policy goals and objectives; some goals may change, but the dominant paradigm remains in place. Policy parameters (the policy boundary that divides what is acceptable from what is not) may move to some degree.
High-level technical learning	<i>Second-order</i> learning about other policies within fixed policy parameters. The characteristics of policy stay the same; for example, instruments continue to be market based.
Low-level technical learning	<i>First-order</i> learning about existing policy instruments. Policy parameters are fixed.

(Source: Author, after Hall, 1993).

However, it is accepted that the policy process is complex and messy and that attempts to classify policies into a hierarchical structure are always susceptible to criticism (Jordan and Greenway, 1997).

8.2.3 Social Learning

The literature review established that there is no widely accepted definition of social learning (Glasser, 2007). As Chapter 2 highlighted, Dyball et al. (2007) proposed five strands of social learning: (1) iterative reflection, involving sharing experiences and ideas with others; (2) systems thinking, which informs social learning to create a holistic understanding of change when broader human interactions with the environment are considered; (3) integration and synthesis, which requires frameworks to be created that link people in society, vertically and horizontally; (4) negotiation and collaboration, which bring together viewpoints and perspectives, reminding us that conflict is an important part of change by providing learning experiences; (5) participation and engagement, which require collaborative community learning partnerships. Social learning requires policy actors to learn about society's preferences and translate them into policy. Developing capacities for incorporating social ideas into policy involves a shift in the views held by policy makers regarding the facilitation of

policy-orientated learning (Glasbergen, 1996). It involves recognition that knowledge about solutions to problems is not exclusively held by experts, but lies within the wider society (Dryzek, 2005).

In considering the role of social learning in an idealised government learning system, other studies were reflected upon. For Fiorino (2001), social learning was forwarded as the pinnacle of policy learning. However, it has been demonstrated that social policy learning has limits in practice; furthermore, it is perhaps not appropriate for all sectors: for instance, those that are characterised by high levels of technical detail, like the UK energy sector. The UK's current energy system is highly technical and requires specialist knowledge to understand. Therefore, most people within society are not able to evaluate meso- and micro-level decisions on, for example, how to encourage investment in grid network capacity. However, society's preferences, for example regarding fuel choice, may inform the broad direction of policy at the macro level. Reflecting on the limits to social learning, particularly in the context of the UK energy sector, social learning may be viewed more as a complement to conceptual learning than an ultimate goal. To an extent, in an idealised system, it accompanies both technical and conceptual learning as shown in Figure 8.1. To enable social learning to operate to its proper potential, mechanisms need to be established to better integrate society's ideas, such as improved consultations, public enquiries and referendums. When the influence of such mechanisms is explicit, people are motivated to participate (Lehtonen and Kern, 2009). As previously mentioned, Lehtonen and Kern (2009) proposed eight criteria for good deliberation processes: neutrality, breadth, transparency, precaution, openness, diversity, inclusion and commitment, which could be used to strengthen mechanisms to promote social learning.

8.2.4 Political Learning

Political learning is learning about managing political situations, rather than learning about policies and problems *per se*. Chapter 5 identified several forms of political learning and their motivations. For example, it can be a political strategy to make a policy more acceptable, to overcome stakeholder resistance, or to gain political support (Bailey and Compston, 2010). This is termed 'advocacy coercion'. Political learning can be about 'increasing the popularity of a person or political party', which was termed 'power extending'. Symbolic learning was also identified, which is enacted to send signals, for example to the EU regarding the UK's commitment to renewable energy (see Chapter 5). However, policy decisions are usually driven by multiple motivations that make it difficult to classify political learning. By restricting the number of policy options under consideration, the use of knowledge, or ideas that are involved in policy development, political learning can have a negative effect. However, political learning can also enhance the number of options under consideration. For example, in the case of the EU Emissions Trading Scheme, policy makers accepted a suboptimal policy option in the knowledge that once powers and precedents were created, partial failure would

create political pressure for a reworking of the policy and lead ultimately to a stronger solution than previously would have been politically acceptable (Bailey et al., 2011).

The danger of political learning is that policy making may become about generating and maintaining political power, leading to the risk of neglecting ‘real’ policy problems and the long-term public interest. In an idealised government learning system, political learning would not constrain technical or conceptual learning, but enhance them by using political strategy to ensure they become embedded. This is portrayed in Figure 8.1, where the arrows denote the idealised forms of technical and conceptual learning driving political learning, and then political learning embedding technical learning. Thus, conceptual learning would drive political learning rather than the other way round. Once technical and conceptual learning (enhanced by social learning) operate in idealised forms and learning mechanisms are used to their potential, for example when consultation processes conform to Lehtonen and Kern’s (2009) criteria for good deliberation processes, this leads to improved government learning processes. Hence, employing political learning to embed such ideas by securing political support ensures a more constructive and evidence-based form of political learning on the part of government. However, it is not clear how to achieve this. Through greater reflection of the role of policy learning in the policy process and the deliberate encouragement of technical and conceptual learning and a diversity of ideas, negative aspects of political learning could be reduced. Political learning, unlike conceptual learning, appears to operate continuously, because political concerns are never ending. However, it increases in periods of heightened policy activity as adherents to sets of interests or beliefs battle to establish their ideas (Oliver and Pemberton, 2004).

8.3 Extrapolating Lessons from UK Renewable Energy Policy

It is debatable how far it is possible to extrapolate lessons from a particular policy area in a particular state to a more general framework of learning because each policy area is unique to its policy and geographical context. To explore the implications of this, for more general theorising from the study, the specific attributes of renewable energy policy in the UK are considered in terms of policy making structures and context.

UK renewable energy policy and energy policy more broadly are elite dominated and involve relatively closed policy networks, which consist mainly of government and incumbent energy producers. A large number of small businesses make up the wider actor network for renewable energy, but their preferences are more difficult to align given the diversity of technologies and the existence of two competing trade organisations, the REA and Renewables UK⁴⁰. This contrasts with the small number of major incumbents (the big six) who have a relatively closely aligned set of

⁴⁰ Renewables UK was previously called the British Wind Energy Association (BWEA).

interests. The energy sector in the UK is therefore oligopolistic and has tended towards this for several reasons. The economies of scale of energy production mean that bigger tends to be more efficient in terms of purchasing and production. The more fuel bought, the lower the cost; the more produced, the lower the unit costs of production; and the more contracted (in terms of grid capacity), the lower the transmission cost. During the shift from nationalisation to privatisation, the government created just one company from the gas industry, British Gas, and divided the electricity industry into two generators, PowerGen and National Power (Helm, 2003). Thus, it was a government imperative to break the national industry up into a handful of big companies rather than many small ones because it was more cost efficient and easier for the government to develop dialogue and agreements with just a few producers. Due to its small number of large stakeholders, energy policy has tended towards an elite policy network, which creates a concentration of power. There is no reason why the UK energy structure has to be an oligopoly, since countries like the Netherlands have policy networks that are more open and pluralistic. However, the specifics of the UK energy industry do restrict prescriptions for policy learning derived from this study. Yet, Marsh et al. (2001) argued that the broader social, political and economic system in the UK is characterised by ‘structured inequality’, reflected by the privileged access some interests have to government, though not necessarily to determine political outcomes. This implies that similar relationships might exist between governments and elites in multiple UK policy sectors and, therefore, that parts of this study’s model of learning could be applied to other UK sectors.

Secondly, UK policy is developed in a more neoliberal context than exists in many European countries. Generally speaking, the UK is characterised by a market-based approach to policy that seeks to promote free trade and open markets. This thesis has demonstrated how the neoliberal approach has channelled policy learning. France, in contrast, is characterised by *dirigisme* and a centrally planned and controlled state (Szarka, 2003), with strong relationships with large industrial groups. In the energy context, for example, the French government has a large stake in EDF. Young (2007) argued that the EU’s desire to complete an internal energy market has had limited success due to countries blocking proposals. The French, Spanish, Italian and German positions are not to directly oppose this market, but they propose that liberalisation should be matched by negotiated trade by producer states, taking into account the different state structures, relationships with firms and vested interests (Young, 2007). Germany has developed a more social market economy, which combines both “ordoliberal policies and state interventionist ideas” on social and environmental issues (Wurzel et al., 2003:119). Ordoliberalism is a form of liberalism in which the state intervenes in the market to ensure that it produces desired results and the effective allocation of resources. These examples suggest that variations in policy context restrict the application of theories of policy learning derived from this research to other states. Institutional theorists argue that each policy context is unique due to different institutional structures, despite the impacts of overarching bodies, such as the EU, in

stimulating policy convergence (Jordan et al., 2003). Thus, the processes of policy production, development and learning differ between countries. However, all governments have certain similarities. All governments are hierarchies and all policy-learning processes broadly involve: learning about instruments and their settings (technical learning); and learning about policy goals and their achievement (conceptual learning). The details of relationships might change, but the fundamentals remain the same and can be adapted. Therefore, despite the differences between states, the broader principles of policy learning developed in this thesis can be examined in specific contexts.

A third feature of UK renewable energy policy is that it is affected by several other policy sectors, particularly planning and grid. Arguably, all policy areas have overlaps and interact with other policy sectors. However, for each sector these interactions are different, so each sector is to a large extent unique. Equally, the same applies for countries in terms of their physical and political boundaries and relationships. An example of friction due to such overlaps was seen between the former BERR and Defra regarding energy and climate-change policies (Harriss-White and Harriss, 2006). The influences of other policy areas are particularly strong for renewable energy. This may be due to its relatively low status in terms of policy-making importance compared with conventional fossil fuels or nuclear energy. Thus, it is difficult to evaluate policy learning or learning mechanisms for renewable energy policies independently from learning mechanisms operating in other policy fields. For example, the efficiency of the RO as a mechanism for stimulating capacity growth cannot be evaluated without also considering the effects of other policy, for example planning. However, while planning is important for renewable energy, another sector might be influenced by social policy. There is no such thing as a closed policy system.

Overall, one would conclude that some of the concepts of policy learning developed in this thesis can be applied to other country states and policy sectors, as it has established general principles, types of relationship and other variables that must be considered. However, in all cases, it is necessary to work out how these components operate in specific contexts without assuming that they operate in a similar way.

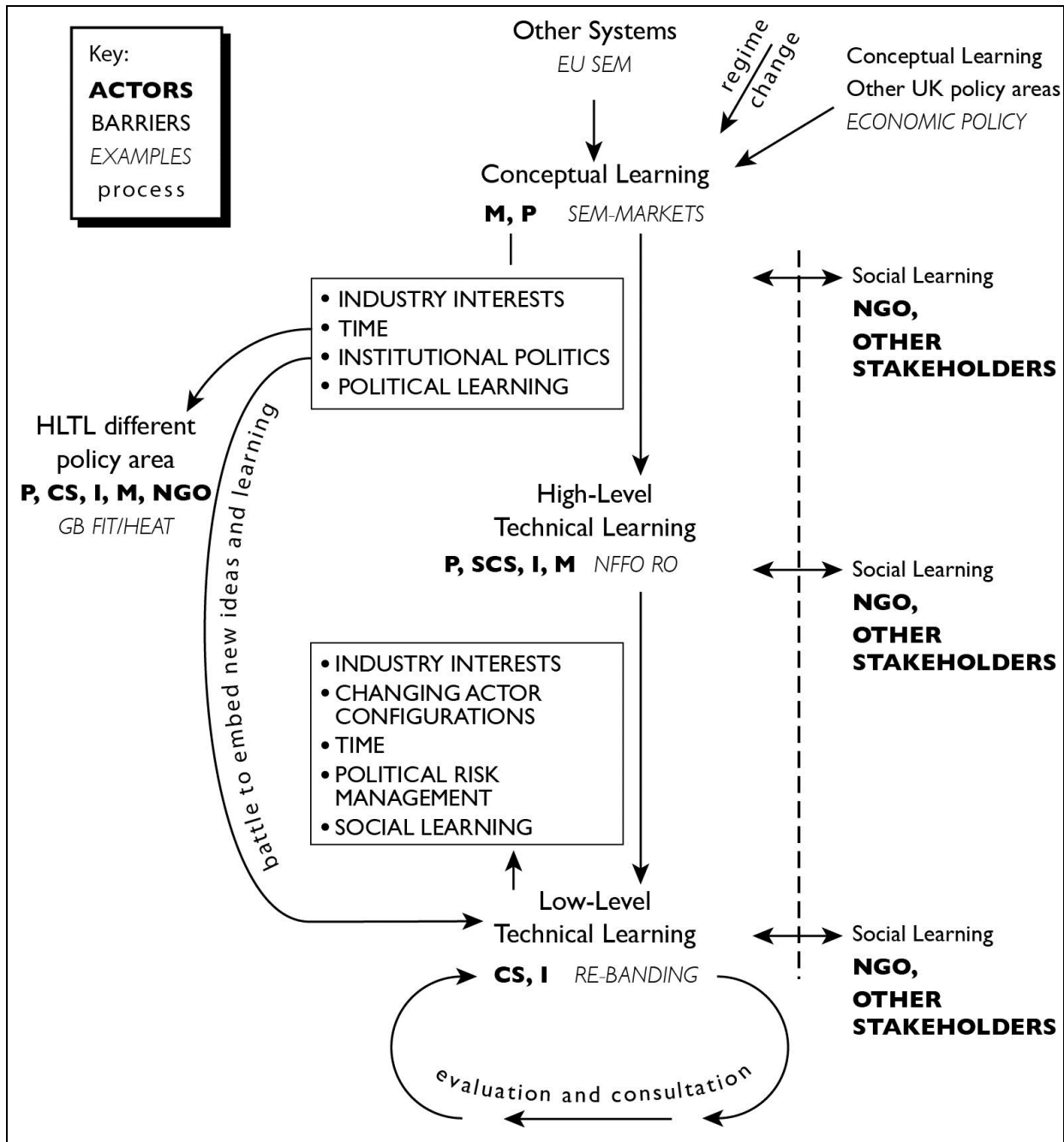
8.4 Relationships between Learning Types in UK Renewable Energy Policy

To develop a model of policy learning, it is necessary to unpack further the relationships between different learning types and other variables. Institutional structure has been demonstrated in the previous chapters to be a significant influence on learning for renewable energy policy. Institutions were predicted in the literature review to be influential in policy development, change and learning due to the formal structures and *modi operandi* they create (Oliver and Pemberton, 2004). The influence of institutional structures on learning can be seen through the government's approach to solving policy problems. Hierarchically structured governments tackle policy problems by

compartmentalising them and then later amalgamating solutions. However, some academics have argued that this is not possible for highly complex problems (Dryzek, 2005) because the aggregation of learning and information, and the communication of lessons upwards through multiple layers of government, are challenging. Owing to their structure, bureaucracies and governments have a natural affinity for technical learning (Fiorino, 2001), which occurs within a discrete policy area, is compartmentalised, and as a result tends to be under-integrated with other policy areas.

The three main government institutions involved in policy development for most policy areas are: the Cabinet or executive, the sectoral department and the sector regulator. Parliament is also involved, but its involvement is confined to ministers' questions, policy approval and select committee reports. This research indicates that, for energy policy, actors within different institutions are engaged in different types of learning. For example, the main actors involved in low-level technical learning are civil servants within specific departments and policy teams. Those most involved in conceptual learning tend to be a small team of elite actors within the Cabinet (several ministers, including the Prime Minister and close advisors). All actors are involved in political learning, since they all attempt to use political strategy to further their own objectives. The overall result is that learning processes tend to be fragmented between different institutions. The hierarchical separation of learning types and the actors involved is illustrated in Figure 8.2. As one moves further up the hierarchy, the number of actors involved in policy development and learning diminishes and, therefore, individual learning becomes more important. Broadly speaking, the key actors involved in policy learning for renewable energy development are politicians, civil servants and elite industry actors. Slightly beyond the inner process lie other stakeholders, including NGOs. This is denoted in Figure 8.2 by the broken black line.

Figure 8.2 A Model of Policy Learning in UK Renewable Energy Policy



(Source: Author).

Legend

SEM = Single Electricity Market, HLTL = High-Level Technical Learning, M = Ministers, P = Politicians, CS = Civil Servants, SCS = Senior Civil Servants, I = Industry, NGO = Non-Government Organisation

In an idealised government learning system, when a sufficient number of anomalies are detected from low-level technical learning, policy makers would search for alternative instruments, initially within the current policy paradigm (Rose, 1993). Ideally, this stimulates high-level technical learning (see Figure 8.1). In renewable energy policy, there have been multiple examples over the past 20 years of low-level technical learning, reflected by minor adjustments to the RO that have been stimulated by internal and external processes, evaluation and feedback, annual instrument-review processes, and consultations. However, there has been only one indisputable case of high-level technical learning resulting in instrument change, when the NFFO rounds ended and the RO was established as the new renewable energy policy instrument (see Chapter 4). Using this example, it is possible to explore the relationship between low- and high-level technical learning. The last round of the NFFO was in 1998 before it was replaced in 2002 by the RO. Government records attribute this replacement to EU legislation in the form of the SEM and corresponding UK legislation, the Utilities Act and NETA (DTI, 1998). Both were factors external to the renewable energy policy system. It also coincided with a newly elected Labour executive that was keen to replace a policy inherited from the Conservatives and put Labour's stamp on the policy area. These drivers can be categorised as power shifts from regime change and outputs from other subsystems (Sabatier and Jenkins-Smith, 2007; see Section 5.2.3). This example of high-level technical learning and its drivers are presented in Figure 8.2. In contrast, several industry actors proposed that replacement of the NFFO was due to a build-up of anomalies within the policy area. However, this is unlikely to have been a significant driver of change for several reasons. First, the civil service perceived the NFFO to be successful, based on its record of price convergence (evidenced by documents and interview data). Second, a relatively low level of priority was accorded to renewable energy by the government at the time (evidenced by civil servant interviews). Third, compared with the present, the industrial lobby in favour of renewable energy was relatively small, and wielded correspondingly low lobbying power. Fourth, the length of time it took to put the RO in place (approximately four years) reflected a low level of urgency. However, disentangling policy drivers presents a significant methodological challenge (Murrall and Bailey, 2008).

As has already been noted, Sabatier and Jenkins-Smith (1999) contended that major policy change is often driven by factors external to the policy system, suggesting that a build-up of anomalies is not always sufficient to drive policy change. Over the past 20 years of renewable energy policy there have been multiple negative policy outcomes, such as a slow rate of capacity development, which could be considered as a significant build-up of anomalies. However, these have not led to policy replacement and would support Sabatier and Jenkins-Smith's hypothesis that an external driver is necessary. Policy anomalies may not act as a driver for instrument replacement because their subjective importance changes over time. This suggests that, for UK renewable energy policy, there may be limited internal drivers from a low level to encourage high-level technical learning. Alternatively,

internal barriers might restrict the progression from low-level to high-level technical learning. For example, business interests might act to inhibit changes that may alter power relations or reduce their market share. Changes in key personnel were also shown to impede learning, as actors failed to embed lessons learned, for example in the design of the RO (see Section 5.3.3). Changes in institutional structures also create discontinuity in learning, as was the case with the absorption of the DoEn into the DTI in 1992, when lessons were lost rather than embedded (see Section 4.3.2). Time may also act as a barrier if insufficient is allowed to enable civil servants to reflect on anomalies and explore other policy instruments. Potentially, political or social learning may stifle high-level technical learning, if for instance admitting the weakness of a policy instrument could damage the government politically, or if a change to the policy instrument might be unacceptable to the public due to the high costs involved in a time of recession. The aforementioned factors are presented in Figure 8.2 as barriers to prevent low-level technical learning stimulating high-level technical learning.

If Sabatier and Jenkins-Smith's hypothesis is correct and instrument replacement is usually driven by external factors, it is puzzling why other major events have not provided the impetus for policy replacement. For example, European legislation in the form of the Renewables Directive (2008) (see Section 4.5.3), unlike the SEM, did not result in policy replacement. At the time, the government argued that replacing the RO would reduce investor confidence and that any replacement policy would take too long to design and implement in view of the 2020 targets (BERR, 2008c). However, it could be argued that economic policy is of primary importance to the government compared with renewable energy policy. Change in economic policy often marks the start of reforms across other sectors, as occurred with the SEM. Furthermore, the SEM required structural changes that the 2008 Renewables Directive did not. For example, the restructuring of electricity market trading arrangements provided an opportunity for embedding ideas and learning. This supports Oliver and Pemberton's (2004) argument that, for policy learning to take place, actors must learn and carry new ideas, which must then be embedded. This suggests that external drivers must be of a sufficient magnitude (as illustrated above), type or timing: for example during election periods when politicians have an appetite for change. Alternatively, instrument replacement may have been prevented by other barriers internal to the policy system, such as those described in the previous paragraph. The impact of competition between business interests was likely greater in 2008 than in 1990, as the renewable energy lobby grew in power over this period and gained greater influence. Moreover, several interviewees contended that the RO is being held in place by business interests (Ofgem1 and 2; see Section 5.2.4). The close relationship between incumbent energy companies and the government further supports this (see Section 7.3). Incumbent energy producers tend to resist change unless they see a clear individual benefit (Mitchell, 2008) and are likely to exclude the viewpoints of less prominent actors, channelling learning and innovation in certain directions and leading to incremental low-level technical learning. Thus, low-level technical learning will occur and high-level technical

and conceptual learning (which may create a shift in power) may be stifled unless a greater number of actors are heard.

Although the Renewables Directive did not result in the replacement of the main renewable energy instrument, it did stimulate policy adjustment (low-level technical learning) and experimentation with new policy areas, for example micro-renewables and renewable heat (see Figure 8.2). The GB FIT breaks the mould of UK policy instruments for renewable energy, as it is a price- rather than quantity-based mechanism, in that the government sets the price and the market sets the quantity. Fiorino (2001) contended that the use of novel policy instruments beyond the accepted norm is evidence of conceptual learning. However, it is arguable that, in this case, experimentation is within established policy goals and parameters because it is a small-scale niche policy, and, thus, is more representative of technical learning or at best, incremental conceptual learning. This highlights the difficulty of categorising learning types where in reality the boundaries between them are blurred (Murrall and Bailey, 2008). There is evidence that the EU can drive high-level technical learning through its directives, but in this case at the margins of policy in a new policy area. Experimenting in a new policy area is considerably easier than replacing a policy because there is less risk of upsetting established interests and incentives. Thus, this decision draws further attention to the power of established interests as a barrier to learning and a filter for ideas.

The Renewables Directive (2008) led to the adjustment of RO bands to provide more support for wind, providing more evidence of low-level technical learning. However, this learning was bounded because it was about diverting resources towards meeting a near-term target rather than the longer-term aim of stimulating a range of technologies. The directive nevertheless represents a sea change in the EU's ambitions for renewable energy as part of a broader shift in thinking on climate and energy. These ambitions were developed with UK participation in EU decisions, as a part of which the UK accepted the target to produce 15% total energy from renewable sources by 2020 (HM Government, 2009). This represents a challenging target and meeting it will require a transformation of the current energy system (HoL EUC, 2008). Therefore, at EU and at Cabinet level, these policy ambitions represent conceptual learning. However, it is questionable whether the instrument adjustments put in place align with the scale of this challenge. This deficit between ambitions and actions may again indicate the existence of barriers that restrict conceptual learning leading to technical learning, becoming further embedded. However, as previously argued, changing goals does not necessarily mean that instruments are rendered ineffective. Interview data highlighted that civil servants did not support the 2020 targets and had advised against accepting them (see Chapter 6). This implies that political barriers may exist between institutions. The divergence of opinions further suggests that, prior to the targets being established, Cabinet learning processes were poorly connected with learning

by civil servants within departments, suggesting a separation between technical and conceptual learning processes.

In an idealised government learning system, conceptual learning would lead to technical learning via top-down processes (see Figure 8.1). However, in the one notable instance of conceptual learning at national level, there was no corresponding adjustment of the renewable energy instrument. The 2003 EWP added an environmental energy policy goal, stating that, “the UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% from current levels by 2050” (DTI, 2003:8). However, it failed to set a new target for renewable energy or to lead to the introduction of a new policy instrument (see Section 4.5.1). Potentially, this suggests that conceptual learning at the national level is not a sufficient driver of technical learning, giving credence to Sabatier and Jenkins-Smith’s (1999) arguments that change requires a driver external to the policy subsystem, in this case the EU. However, it is difficult to substantiate this finding as the additional 2003 energy policy goals may have led to technical learning within other policy areas within the energy sector, for example in energy efficiency. Contrasting two policy areas within the same policy sector would allow further examination of the links between conceptual and technical learning.

Chapters 4-7 showed that political learning frequently operates alongside other learning types and takes place continuously at multiple levels within and beyond government. Government actors are constantly learning about strategy for gaining policy approval in a changing policy environment, and non-government actors are seeking better strategies to communicate with government and influence government processes. These range from creating lobbying associations to using the media. The frequency of political learning in the case study suggests that it is a persuasive and perhaps even dominant learning type. This concurs with the findings of Nilsson (2005), who also proposed that political learning dominated policy making for energy policy in Sweden. The occurrence of political learning alongside other learning types makes its distinctive features difficult to determine and disentangle. The effects of political learning are equally difficult to categorise in terms of positive or negative effects. For renewable energy, political learning led to the initiation of new forms of energy policy and the inclusion of renewable energy in the NFFO, driven by the need to support nuclear through the privatisation process and gain EU approval (see Section 4.3.1). This outcome can be perceived as positive in some respects. However, it also, arguably, blocked technical learning about the suitability of instruments to support renewable energy. Data revealed that civil servant learning about the design of the instrument was channelled by the nuclear policy (see Section 4.3.1). Nuclear was supported politically for multiple reasons: energy security and disputes with the miners, defence and the siphoning of plutonium, and, perhaps, environmental concerns. This highlights how political learning can bring together several policy areas, which is more reflective of multi-issue politics than other learning types that tend to operate within specific policy areas.

In an idealised government learning system, political learning would be used mainly to embed conceptual or technical learning rather than constrain it. However, in this case study, political learning appears to have predominately constrained or channelled all other forms of learning. For example, in the 2006 Energy Review, which supported development of new nuclear power stations, the public consultation was rushed, giving insufficient time to the consideration of responses before a definitive report was published (MacKerron, 2009). Thus, the consultation process was not about technical or conceptual learning, but rather focused on creating a device to legitimate predetermined policy decisions (see Section 7.2). Interview data revealed other occasions when consultations were used politically, for instance to delay decision-making processes and reduce political risk. For example, the Energy Review (2000) delayed the government's response to the Royal Commission on Pollution Control's report on climate change (Helm, 2003; see Section 4.5.1). It is difficult to isolate the features of political learning that produce negative effects except by examining the parameters of policy or the debate, and whether it enhances or constrains them. Political learning is by far the most obscure of the learning types and its transcendental characteristics present an opportunity for further research.

Key ideas from this section have been drawn together and are presented as propositions in Text Box 8.1. They are also expressed in Figure 8.2.

Text Box 8.1 Key Propositions for Model of Policy Learning in UK Renewable Energy Policy

- Conceptual and technical learning tend to be undertaken by actors in different institutions, with ministers being the main actors engaged in conceptual learning and civil servants predominantly focusing on technical learning. This is illustrated in the model by the separation of technical and conceptual learning processes and the acronyms that denote the different actor groups involved, e.g. SCS – senior civil service.
- Hierarchically structured institutions tend toward technical learning. This is illustrated by the multiplicity of arrows denoting processes that lead to low-level technical learning.
- There is a limited link between technical learning and conceptual learning, due to the subjective nature of policy anomalies or internal barriers such as interests. This is illustrated by the absence of an arrow from high-level technical learning to conceptual learning.
- Conceptual learning can lead to technical learning but this is often moderated by established interests that act as a barrier to change: both possibilities are illustrated on the diagram. The example of conceptual learning leading to high-level technical learning, i.e. learning about markets led to the replacement of the NFFO, is shown by a direct arrow. The impediment of high-level technical learning is illustrated by the arrow leading from conceptual learning to

high-level technical learning being obstructed by the text box and being diverted to low-level technical learning. The text box represents key barriers including interests.

- External factors such as the EU are a major driver of conceptual and political learning. For conceptual learning, this is shown by the arrow at the top of the diagram that flows from the text box entitled ‘other systems’ to ‘conceptual learning’, representing the flow of ideas and using the example of the EU’s SEM policy. The relationship with political learning is not pictorially represented as there is an implicit assumption that political learning is taking place continuously alongside all other types of learning.
- Dominant interests resist change and exclude the viewpoints of less-prominent actors. These limit learning and innovation and promote incremental low-level technical learning. Thus, technical learning occurs frequently, but conceptual learning (which may create a shift in power) is often stifled unless a greater number of less-powerful actors are heard. In the model, interests are presented as a barrier to low-level learning leading to high-level technical learning, where the text box obstructs the arrow and the arrow returns to low-level technical learning. Thus, low-level technical learning continues within fixed parameters, represented by the circular arrows.
- When industry interests resist high-level technical learning, this leads to low-level technical learning or new policies being developed, as ministers and civil servants (and industry groups) battle to institutionalise new ideas. This is illustrated in the model by the arrow from conceptual learning to high-level technical learning being obstructed by the text box. The arrows representing the flow of ideas then circumnavigates high-level technical learning and leads to technical learning or goes to high-level technical learning in a new policy area, for example heat policy.
- Political learning operates alongside all types of policy learning. Whilst potentially very positive, in reality the effects of political learning are predominantly negative, focusing on political risk management rather than political innovation, and narrowing the parameters of debate rather than extending them. Political learning is represented in the diagram as a barrier to ideas in both text boxes. Its complicated nature makes it difficult to represent further.

(Source: Author).

This broad framework seeks to provide a conceptual summary of the relationships between learning types and their influences that need to be considered when examining policy learning in UK renewable energy policy and that might be extended to other policy areas and other states. Of the propositions forwarded several are contentious, such as, ‘technical learning does not lead to conceptual learning’. An example that runs contrary to this is the economic reforms experienced under Margaret Thatcher, which were driven by anomalies in multiple policy areas (see Section 5.2.1). Technical learning within fiscal policy, and negative lessons regarding the use of command-

and-control policies and state ownership led to privatisation (Howlett and Ramesh, 1993). Cumulative lessons regarding instruments, involving all actors (including social actors), led to preferences for private instruments and stimulated a paradigm shift (Howlett and Ramesh, 1993). This suggests that some of the propositions presented are case-study specific. Marsh and Smith (2000) warned of the dangers of using one case study to develop a model. However, hypothesis testing examining how different types of learning interact in a specific domain and how each aids or inhibits policy change provides a starting point for further studies into the operation of policy learning within policy processes at a more general level.

Figure 8.2 also highlights the specific problem areas and barriers to policy learning for UK renewable energy policy. These are emphasised further by comparison with the idealised model (see Figure 8.1). Barriers prevent low-level technical learning from stimulating high-level technical learning and conceptual learning from stimulating high-level technical learning. From this we can conclude that high-level technical learning for UK renewable energy policy is generally constrained. The barriers to both processes are broadly similar. The barriers to conceptual learning stimulating high-level technical learning include industry interests, time, political learning and inter-institutional politics. Barriers preventing low-level technical learning from stimulating high-level technical learning include industry interests, changing actor configurations, institutional reform, time, political risk management and social learning. There are consequences of this 'blockage' of high-level technical learning for the effectiveness of the policy process. One possible outcome is that there is an increased amount of low-level technical learning and continuous minor changes and adjustments that lead to increasing instrument complexity and reduced coherence in policy instruments like the RO. Equally, it is not desirable to change instruments too often, as they need to be given sufficient time to work. However, there comes a point when instruments are so complex they become problematic and may lead to perverse or contradictory incentives. Learning is about the detection and correction of errors (Argyris, 1976): if barriers prevent policy change and the correction of policy problems then learning can be lost.

Several of the barriers to high-level learning can theoretically be alleviated by altering policy processes. For example, overcoming time constraints requires greater time to be accorded to policy makers and civil servants to evaluate and develop policy. The effects of changing actor configurations can be reduced by encouraging ministers and civil servants to stay in position for longer (HoC PAC, 2007). However, other barriers such as industry interests and political risk management are more difficult to overcome. Industry interests are a major barrier to both bottom-up and top-down drivers of high-level technical learning. Changing the structure of the energy industry from one of oligopoly to a more pluralistic structure by increasing the number of actors engaged in policy development could reduce the ability of a handful of industry interests to resist policy change. However, especially for

basic services like energy, industry interests can still create problems for government regardless of organisation, so there is not a simple relationship between industry organisation and its effects on policy learning and change. As for political risk, it is difficult to reduce the risk involved in setting energy policy because of the high investment costs involved in providing energy infrastructure and its strategic importance for the economy and social well-being. Political learning was identified by this study to be the most common learning type: for the most part it focused on political risk management rather than political innovation. Political ambitions and interests are an ever-present feature of politics and policy making, so in some respects irresolvable. However, further research, such as that conducted on political strategies for strengthening climate policy (Bailey and Compston, 2010), may assist in developing ways to promote more productive forms of political learning.

The role of interests is crucially important to policy learning and change. Industry's policy preferences are determined by its competitive interests and so it will always look for policy ideas to align with goals of increasing market share or providing increased economic benefits. Because of this, industry's backing of policy options tends to be clearly defined, whereas support for policy reform from ministers or politicians tends to be tempered by political risk management. Similarly, civil servants, while not political actors, may suffer from political inertia because changing instruments is not a guaranteed to solve a policy problem. Furthermore, changes in leadership every four to five years create uncertainty in terms of the popularity of ideas. Thus, high-level technical change is a last resort rather than a first option. This suggests that policy change will tend not to occur without industry support, making industry groups, especially in the energy sector, key policy and learning gatekeepers.

8.5 Conclusions

This chapter has presented a general understanding of policy learning developed from the case study of UK renewable energy policy. It has explored the characteristics of the four policy learning types and how institutional-departmental structures within government and the influence of highly resourced industry stakeholders have both stimulated and constrained different types of learning. It is suggested that political learning is the dominant type of learning influencing the outcomes of public policy because it relates directly to the interests of individual decision makers, their departments and their political parties, and operates in conjunction with other forms of learning. Whilst political learning can be regarded as both a catalytic and constraining force for policy change, the dominant form of political learning appears to be associated with political risk management, creating an uncertain relationship with policy change (i.e. promoting change mainly where it is politically advantageous rather than on the basis of evidence-led assessment) (Nilsson, 2005). In the context of UK renewable energy policy, it is argued that technical learning is also commonplace. However, this tends to be dominated by narrow forms of low-level technical learning as a result of multiple internal

barriers related to industry interests, changing actors, institutional reform, time, and political risk management. It thus tends strongly towards incrementalism, focusing on minor adjustments to policy instruments rather than higher levels of technical learning involving more radical instrument change and redesign (Fiorino, 2001). There is also significant evidence to suggest that there is a limited link between policy change and paradigm shift, somewhat contrary to Hall's (1993) seminal theory. This is because of the ability of paradigms to defend themselves by marginalising new arguments and methods or incorporating them into existing ideological frameworks, stabilising the paradigm and reducing the tensions between new ideas and existing customs and practices (Oliver and Pemberton, 2004). Thus, change takes place through 'punctuated evolution' occurring over extended timeframes (Oliver and Pemberton, 2004). This suggests that the transition to a low-carbon energy system and a new energy paradigm may take place only over a long timeframe through multiple minor adjustments and readjustments in the absence of major policy shocks.

Section 8.2 proposed a model to conceptualise how different forms of policy learning might interact in an idealised government learning system, again based on the UK energy system (Figure 8.1). The model focused in particular on the relationship between technical and conceptual learning, which is important in highly technical policy areas to ensure that conceptual learning is based on adequate understanding of how energy production and supply systems work. Less emphasis was given to social learning in this case, as the pluralism associated with social learning might not be an appropriate way of arriving at informed decisions for energy policy. This is not to say that social learning is not suitable in other policy contexts and even at the macro level in energy policy to set the overall goals and direction of energy policy. The argument is nevertheless made that pluralistic forms of social learning form part of overall learning processes but should not necessarily be considered as the superlative type of learning to which policy systems should aspire. The model also examined forms of political learning that focused on the use of political innovation to secure support for policy change, rather than political learning centred on political risk management.

By contrasting this model with a model based on observable processes in UK renewable energy policy, several barriers to policy learning were identified that offer insights into how to foster more effective policy learning systems. The model highlighted a number of barriers to high-level technical learning within UK renewable energy policy that might also apply to other policy areas. Neither conceptual learning from the EU nor the accumulation of policy anomalies has been a major factor contributing to policy replacement. Rather, low-level technical learning in the form of policy adjustments has tended to dominate, leading to increasing complexity and arguably reduced coherence in policy instruments like the RO. Although multiple barriers to high-level technical learning exist, the most common and difficult to overcome are the influence of powerful industry interests and a tendency for political learning to be dominated by political risk management rather than innovation to

support more radical and evidence-based reforms. Reducing the influence of vested industry interests in order to allow the wider goal of reducing the UK's greenhouse gas emissions to guide UK energy policy more fully requires major changes in the way policy is developed. One possibility is to move towards more pluralistic decision-making, although how far this is appropriate in a technical and capital-intensive sector such as energy policy is uncertain. The major challenge, perhaps, is for government to find ways to alter the preferences of major energy companies to make them more sympathetic to accelerating the expansion of the UK's renewable energy capacity. This is likely to be achieved only through the creation of financial incentives and legal requirements that reduce their ability to steer energy policy, in other words through innovative forms of political learning. Steering political learning away from a preoccupation with political risk management and towards more innovative forms of political learning represents a significant challenge, the understanding of which requires further research.

Figure 8.2 identified relationships between learning types, drivers and barriers, and provided a general framework with which to analyse policy learning processes in other sectors and states. The applicability of the model and the extent to which we can extrapolate lessons from the case study was debated in Section 8.3. It highlighted that although each state is unique in its learning processes, the model outlines certain principles and processes that might be adapted and applied to other areas where more active learning government systems are sought or required. The idiosyncrasies of each policy and political setting nevertheless mean that the relationships between learning types and barriers and drivers of learning will require empirical testing in each domain. Text Box 8.1 presented the key ideas for a model of policy learning in UK renewable energy policy as propositions, which may be used to guide further studies.

Chapter 9 – Conclusions

9.1 Introduction

This thesis has sought to contribute to conceptual and empirical understandings of policy learning by examining its role in UK renewable energy policy. In conceptual terms it has provided new understanding of the multifaceted concept of policy learning by exploring different types of learning and the relationships between them. It has set out what an idealised government learning system might look like, using ideas from other studies, and has developed a model of policy learning in UK renewable energy policy. In empirical terms, the thesis has examined the main drivers and barriers to policy learning in UK renewable energy policy. It has exposed the problems caused when policy systems become ‘locked’ into low-level technical learning and fail to stimulate a range of learning types. It has also identified options for the further promotion of renewable energy in the UK through the fostering of more evidence-based policy making and learning mechanisms that engage with a broader range of stakeholders to stimulate more pluralistic government processes.

The purpose of this final chapter is to summarise the key findings of the study, grouped by objectives (see Section 1.4) (Section 9.2); to review the limitations of the study (Section 9.3); and to discuss avenues for further research (Section 9.4).

9.2 Key Findings

9.2.1 Objective 1: identify the shifts in UK renewable energy policy over the past 20 years and the main factors that have driven these policy shifts

Policy change is used as an indicator of policy learning, but there exist other multiple drivers of policy change. Chapter 4 argued that most significant shifts in renewable energy policy over the past 20 years have been stimulated by drivers external to the UK renewable and energy policy sector. For example, changing macro-economic policy and the move to more neoliberal forms of economic organisation provided the impetus for a market enablement policy for renewable energy (the NFFO). EU legislation in relation to the SEM then drove the replacement of the NFFO with the RO. This does not mean that policy learning is not an important driver of change, as it was conceptual learning in other policies, such as a reduced role for the state in the provision of goods and the allocation of resources that led to changes in UK energy policy. However, it does highlight that tracing learning is a complex process in which clear links between learning and outcomes are difficult if not impossible to pinpoint (Zito and Schout, 2009).

The EU was shown to be a major policy driver for renewable energy, both indirectly through economic policy and directly through its policies on renewable energy. Similar conclusions were drawn by Nilsson (2005) through his work on policy learning in Swedish energy policy. However, the UK is heavily involved with policy development at the EU level and was a pioneer of privatisation (Dinica, 2002), indicating iterative and two-way learning processes. Broadly speaking then, these findings support Sabatier and Jenkins-Smith's (1999) premise that major policy change is often driven by factors external to the policy system.

9.2.2 Objective 2: determine the role of policy learning in the development of UK renewable energy policy by analysing three main elements of policy learning: (1) who is learning; (2) what are they learning; and (3) what are the effects of learning on policy change, distinguishing between different types of learning (technical, conceptual, social and political)

The key actors involved in policy learning were defined as those with the ability to influence policy decisions. The research tested the existence of several types of policy learning within the UK renewable energy policy arena, including technical, conceptual and political learning, and found that different sets of actors tended to be involved in each type of learning. The main actors involved in technical learning for UK renewable energy were civil servants and some high-level industry elites. Actors involved in low-level technical learning learn mainly about the operation and efficiency of existing instruments within established policy parameters, while actors involved in high-level technical learning learn about different policy instruments and their effectiveness at solving policy problems within the prevailing policy paradigm. Other actors, including other industry actors and NGOs, were found to be drawing lessons about the operation and efficiency of policy instruments, but generally had less ability to access policy processes to embed their ideas.

The findings indicated that low-level technical learning and policy adjustment tends to lead to narrow and incremental policy change, categorised by “satisficing and routinized decision-making that is normally associated with the policy process” (Hall, 1993:280). Excluding political learning, low-level technical learning appeared as the most common learning type in UK renewable energy, a point evidenced by numerous minor policy adjustments. Although technical learning provides stability, it was argued that it limits the number of ideas under consideration and is not well equipped to respond to the qualitative changes in problems being addressed. In an idealised system, conceptual learning would respond to technical learning, where the build-up of anomalies or unexpected or undesired outcomes signals the need to re-examine policy problems beyond established parameters (Hall, 1993). However, significant barriers to the progression of low-level technical learning were identified in UK renewable energy, including: industry interests, changing actors, institutional reform, time, political risk management, and social learning.

The data suggested that the main actors involved in conceptual learning are ministers, who learn about overarching policy goals, changing problem definitions and the ability of policy instruments to solve problems (Fiorino, 2001). Policy experimentation in new areas of renewable energy policy is perhaps evidence that ministers are questioning the market-based approach to renewable energy development (Mitchell, 2008). In UK renewable energy and energy policy, conceptual learning is usually linked to wider conceptual government learning processes, such as neoliberalism. It has also been linked to other international actors such as the EU. The effects of conceptual learning were difficult to identify, since policy replacement was uncommon, but new policy goals were observed to have been adopted: for example, the environmental energy policy goal to reduce carbon emissions. However, Chapter 8 argued that changing policy goals do not necessarily render instruments ineffective. For example, the addition of the environmental policy goal in 2003 did not lead to the replacement of the RO. Chapter 8 also highlighted the existence of significant barriers to the embedding of conceptual learning. These included: industry resistance to change, politics between government departments and the exercise of political risk management where individuals reduce risk to themselves and their party (see Figure 8.2).

For social learning to influence policy, policy actors need to learn about society's preferences and translate them into policy. However, Chapter 7 established that the key stakeholders with whom the government engages tend to represent a small part of society, mainly business interests. Direct access to UK renewable energy policy is difficult for the general public. They can respond to written consultations, though the technical complexity of the energy sector acts as a barrier to individual submissions. Therefore, they are mainly represented by NGOs and consumer watchdogs such as Consumer Focus. Ofgem has a consumer panel, but it is still just one of many advisory bodies in UK renewable energy policy design, albeit an important one. In the event of a public consultation, such as the nuclear consultation in 2006, there has been limited transparency as to how findings influence policy choice. Little evidence of social learning was found by this study, though it is possible that social learning may particularly focus on the meta-level development of energy policy.

Political learning was shown to have multiple forms and to operate continually in conjunction with other types of policy learning. Its expression predominantly concerned political risk management rather than political innovation and tended to narrow the parameters of debate rather than extending them. Chapter 5 argued that for government actors, political risk management frequently influenced the outcomes of public policy because it directly relates to the interests of individual decision makers, their departments and their political parties. Non-government actors also engaged in political learning about how to get their ideas adopted by government. Recently, NGOs have been more successful at influencing government policy by using a new political strategy of directing their attention towards parliament rather than the civil service and building coalitions of supporters for particular ideas.

9.2.3 Objective 3: examine different learning mechanisms and how they influence different types of policy learning, including investigation of the conditions that have facilitated, shaped or constrained each type of learning

Many learning mechanisms are available to government and not all could be addressed in this study though most were touched upon (see Table 7.1). Chapter 7 evaluated several key formal, informal and hybrid⁴¹ learning mechanisms and examined how they operate and what types of learning they stimulate. The learning mechanisms examined included: consultations and select committees (formal); stakeholder relationships (informal); and consultants and advisory boards (hybrid). The overall conclusion was that current learning mechanisms, with the exception of select committees, do not challenge the parameters of existing policy and most encourage technical and political learning. For example, the current style of written consultation enables questions to be narrowly framed and often prejudices major issues (MacKerron, 2009). Written consultation allows the government to set the parameters of policy development, limiting the range of options under consideration and ruling out non-preferred options. This tends to stimulate single-loop or technical learning and restricts conceptual learning involving exploration beyond established policy parameters. However, select committees tend to generate a broad range of policy options beyond accepted policy parameters, thereby encouraging both conceptual and technical learning (Nilsson, 2005). This was attributed to the relative impartiality of the process, created by cross-party inputs. However, the government is under no obligation to take up the ideas forwarded by select committees and their influence on the strategic direction of policy is often marginalised.

Chapter 8 explored the characteristics of the four policy learning types and how key influences, particularly institutional-departmental structures within government and the influence of highly resourced industry stakeholders, have both stimulated and constrained different types of learning. The argument was made that the hierarchical structure of government institutions fosters a policy-making approach that tackles policy problems by compartmentalising them and then later amalgamating solutions (Dryzek, 2005). This tends to encourage technical learning because structural constraints on communication force learning to occur within a discrete policy area and to be under-integrated with other policy areas. Industry tries to align policy ideas with its competitive interest and block ideas that do not support it. The research data suggested that incumbent energy companies have close relationships with government and access to policy pre-consultation, providing them with a strong capacity to filter ideas and constrain policy parameters.

Chapter 8 highlighted that in the context of UK renewable energy, high-level technical learning about the different types of instruments and approaches available to solve policy problems is constrained by

⁴¹ Hybrid learning mechanisms are those that incorporate both formal and informal processes (see Chapter 7).

a variety of barriers and policy development is dominated by political and low-level technical learning. Policy development thus tends towards incrementalism, focusing on minor adjustments to policy instruments rather than involving more radical instrument change and redesign (Fiorino, 2001). A long history of low-level technical learning in the form of policy adjustments created by the dynamics discussed above has led to increased policy complexity and reduced coherence in policy instruments such as the RO. Multiple minor changes have been overlain to increase operational efficiency. However, the broader question of the RO's ability to produce rapid increases in renewable energy production has not been addressed.

Overcoming the barriers to high-level technical learning is complex. The most common and difficult are the influence of powerful industry interests and a tendency for political learning to be dominated by political risk management rather than political innovation to support more radical and evidence-based reforms. Reducing the influence of vested industry interests to allow the wider goal of reducing the UK's greenhouse gas emissions to guide UK energy policy more fully would require major changes in the way policy is developed. One possibility is to move towards more pluralistic decision making, although how far this is appropriate in a technical and capital-intensive sector such as energy policy is uncertain. The challenge, perhaps, is for government to instead find ways to alter the preferences of major energy companies to make them more sympathetic to accelerating the expansion of the UK's renewable energy capacity. This is only likely to be achieved through the creation of financial incentives and legal requirements that reduce the sector's ability and inclination to steer energy policy towards their current interests, in other words through innovative forms of political learning. Steering political learning away from a preoccupation with political risk management and towards more innovative forms of political learning perhaps represents an even more significant challenge, the understanding of which requires further research.

9.2.4 Objective 4: suggestions for policy makers – advance suggestions for the facilitation of policy learning in renewable electricity policy

Actor turnover and changing configurations

The rapid turnover of civil servants and ministers has implications for knowledge retention, stakeholder relationships, depth of understanding and the ability to draw and embed lessons learned. Thus, it is a major barrier to government learning (NAO, 2009a). High turnover is especially problematic for policy regimes with high complexity and for areas such as energy policy, where infrastructure investments have long lifecycles. Retaining ministers and civil servants in their positions for longer would allow greater time for learning-related feedback cycles to take effect.

Vested interests

Industry has the ability and motivation to filter or block ideas and resist policy changes that are not in its interest. Changing the structure of industry from oligopolistic to more pluralistic by increasing the number of actors engaged in policy development could potentially reduce the ability of a handful of industry interests to resist policy change.

Time

Lack of time is a key barrier to several government learning processes (NAO, 2009a). The efficacy of several learning mechanisms is contingent on time: (1) time to include a broad range of actors; (2) time to thoroughly evaluate their responses; (3) time to consider and evaluate a broad range of ideas; (4) time to reflect and draw lessons from personal experience; and (5) time to draw lessons from the experience of others. Time resources have been linked to an organisation's ability to innovate, as slack resources may provide opportunity for innovation, whereas tight times lead people to be conservative and avoid big changes (Kingdon, 2003). Government learning processes could be enhanced, for example, by allowing civil servants and ministers more time to engage with stakeholders through wider debate (linked to conceptual learning) or giving civil servants time for research or more time in meetings with advisory boards (Nedergaard, 2006).

Improving learning mechanisms

This research has shown that the mechanisms through which the government attempts to learn are not being harnessed to their full potential. The following changes might improve the situation:

Consultation – blue-sky consultation could be used as a pre-consultation measure to encourage creative thinking. Conceptual and social learning could be promoted by more frequent and wider ranging stakeholder and general public engagement (beyond the usual experts). Examples of this include focus groups, deliberative workshops, outreach programmes to school children and web-based questionnaires (MacKerron, 2009). However, increased participation must be managed to allow the perspectives of minority groups to be heard. Good deliberation processes should address: neutrality, breadth, transparency, precaution, openness, diversity, inclusion and commitment (Lehtonen and Kern, 2009). By encouraging greater pluralism, such efforts may help reduce the oligopolistic nature of renewable energy policy. Nevertheless, it is recognised that there are other drawbacks to increasing participation that should be addressed: it is time consuming, costly, does not necessarily lead to consensus and has the possibility of leading to blind alleys.

On the other hand, over-consultation strains stakeholder and government resources, as stakeholders try to respond to each consultation while government must evaluate the responses. The lack of clarity as to how consultation outcomes feed into policy choice has led to stakeholders feeling disenchanted

with the consultation process and distrustful of government. This in turn is detrimental to the learning process.

Select committees – select committees generate a broad range of policy options beyond accepted policy parameters. Lessons might be drawn from the style of select committee hearings and used to improve government consultation processes to promote innovative thinking and reframe policy problems in order to enhance conceptual learning (Nilsson, 2005).

Consultants – consultants fulfil a variety of roles (see Section 7.4.1) and a variety of challenges. Using consultants to carry out government exercises reduces the government's ability to gather information and learn from experiences generated by projects. Second-hand learning experiences could be captured through post-project evaluations, highlighting lessons learned and at the same time assessing the performance of suppliers (HoC, 2007). However, sufficient time must be allocated to carry out such tasks.

The overuse of consultants instead of capacity building impedes the government's capacity to learn. Government capacity could be strengthened by employing more specialists. This would increase background understanding of the policy area and policy problems, potentially increasing the amount of time available to civil servants to engage in other learning activities. Using specialists would reduce civil servants' flexibility to move around, but this could have a positive influence on actor turnover by encouraging people to stay in position for longer.

Knowledge transfer – frequent turnover of politicians and civil servants risks knowledge and experience being lost to government. Enhancing knowledge transfer between employees during the replacement process is a way to reduce this. There is currently a process in place to facilitate knowledge transfer, but it relies on information technology and faces cultural and technical barriers. These could be alleviated by fostering a more proactively learning civil service culture. This could be done, for example, by explicitly linking the attainment of knowledge and learning to departmental objectives (NAO, 2009a), or by encouraging learning as a routine element of work, providing greater time for reflection and linking incentive schemes to learning in order to communicate its value more clearly.

9.3 Limitations of the Study

The first issues to draw attention to are associated with access: to interviewees, especially politicians; and to information regarding the internal workings of DECC. The response rate of politicians to interview requests was low. They stated that they were unable to participate due to the proximity of the interviews to the general election. This restricted the number of actors interviewed who were likely to be engaged in conceptual learning. However, two politicians were interviewed and industry

actors also provided insight into government learning processes. Other efforts were made to gather politicians' perspectives through select committee reports, which include direct quotes, and through Hansard. Similarly, several NGOs responded that they had a 'no interview' policy due to a high number of interview requests and pressure on resources. This could have influenced the research by increasing the apparent dominance of technical learning. The implication of this is that it is less certain that politicians do limited technical learning or any conceptual or political learning.

The characterisation of the learning types developed in this thesis also affected the conclusions drawn from the research. Assessing policy learning is difficult and complex (Nedergaard, 2009), as learning needs to be expressed to be identified: it requires using certain criteria and sets of indicators. For example, Fiorino (2001) argued that policy learning is only said to occur if it is signified by policy change. To maximise objectivity, the typologies used were developed from the multiple theorisations of policy learning in the supporting literature and by analysing the features of different types of learning and condensing them into categories. Similar typologies were used by Nilsson (2005) in empirical research to examine policy learning. The features of the different typologies were then cross-referenced throughout the research to check their robustness.

Researcher positionality may have further influenced the results, as the researcher is an advocate of developing greater renewable energy capacities in order to reduce carbon dioxide emissions. Thus, the researcher may betray a tendency to be critical of current policy processes. To guard against excessive bias, interviewee and methodological triangulation were used to substantiate and validate findings. This was combined with a high level of awareness of the need to remain objective and to reflect on the influence of researcher bias, particularly during the interview process.

Additionally, this research focused on UK renewable energy policy to analyse the role of policy learning. However, the breadth of the study may not have been sufficient to investigate the full process of conceptual learning, which often occurs at a sectoral or even wider level and is likely to have uneven effects within different policy areas. Thus, the research may have benefited from comparison with another policy area within energy policy. However, a large number of policy documents from Energy Policy, such as the EWPs from 1998, 2003, 2007 and 2009 and the major policy reviews, were included within the analysis in an attempt to gain insight into these broader processes.

Marsh and Smith (2000) argued that a single case study cannot be relied upon to determine a model. The applicability of the model of policy learning developed from UK renewable energy policy and the extent to which lessons could be extrapolated from the case study were debated in Section 8.2. This highlighted that although each sovereign state has unique learning processes, the model outlines principles and processes that might be adapted and applied to other areas. Nevertheless, the

idiosyncrasies of each policy and political setting mean that the relationships between learning types and barriers and drivers of learning will require empirical testing in each domain. To support this, Text Box 8.1 presented the key ideas for the model, which may be used to guide further studies. Hypothesis testing examining how different types of learning interact in a specific domain and how each aids or inhibits policy change provides a starting point for further studies into the operation of policy learning within policy processes at a more general level.

9.4 Further Research

Differentiating between learning and power shifts as forces for policy change was methodologically challenging (Nilsson, 2005). Policy development was traced over extended timeframes in an attempt to differentiate between drivers of policy change (Nilsson, 2005). This research extended from 1990 to the end of Labour's premiership in 2010, so covered several changes in premiership but only one change in governing party. Extending the research into the coalition's leadership would offer further insights into developments that are the result of embedded learning as opposed to those related to party political beliefs. Examining the role of learning processes within the coalition government would also be interesting as political bargaining and therefore political learning will be expected to play a larger role in decision making. Nilsson (2005), in his study of Swedish energy policy, concluded that central government's bargaining model of decision making requires negotiation and "constrains learning because of positional wars and strategic uses of knowledge" (Nilsson, 2005:220). In contrast, Sabatier and Jenkins-Smith (1999) argued that policy oriented learning across belief systems is most likely when there is an intermediate level of informed conflict between two coalitions⁴². However, Nedergaard, in research directed at committee-level learning, rejected the hypothesis that "policy learning is more likely when two coalitions with different points of view confront each other" (2009:27). Thus, the conditions that exist in the coalition government could provide new insights into the influence of bargaining and negotiation on policy learning.

Chapter 3 presented methodological reasons why this research was not carried out through comparative study. These included the unique influence of the policy context and the exploratory nature of the research in relation to the characterisation of different learning types. These relationships could be further refined through a comparative study. Interview data suggested that Scotland is more progressive than the UK generally in policy making for renewable energy, so it might provide insights into learning processes within a similar policy context. Comparative studies may also assist in determining quantitative variables for measuring policy learning, which could be applied at a more general level.

⁴² Coalition in this sense is used to describe the actors from various government and non-government organisation who unite behind a policy idea.

The focus of this study was the key actors in the policy learning process, who largely reside in central government. The role of wider society in policy learning was therefore marginalised. Thus, the contribution of this thesis to understanding the relationship between social learning and other forms of policy learning is small. However, it is recognised that all types of policy learning, including social learning, are necessary to facilitate a policy system that is capable of adapting to quantitatively and qualitatively changing problems. Knowledge regarding the solutions to problems is not exclusively held by experts, but lies within wider society and is multi-scalar (Dryzek, 2005). Increasing the number of stakeholders has the added benefit of increasing the legitimacy of policy decisions (MacKerron, 2009). Thus, a greater role for society in the less technical aspects of policy development may be desirable. The potential role of social learning in policy development represents an area for further research, particularly if the government were to deliberately enhance capacities for social policy learning.

This research has shown political learning to be the most common learning type, but it is also one of the more obscure in terms of form and purpose. Its form in this research was predominantly related to political risk management rather than political innovation, narrowing rather than extending the parameters of debate. Political strategising is an important part of policy development, but it must be policy orientated and evidence based, dealing with policy problems and not just concerned with self or party preservation. Very generally speaking, political learning is only negative when energy spent protecting personal interests overshadows attention to policy problems. Political strategy is a necessary tool for policy development, implementing change and overcoming barriers, for example by using windows of opportunity in policy cycles (Kingdon, 1984) and learning how to counter industry interests more effectively. Steering political learning away from a preoccupation with political risk management and towards more innovative forms of political learning represents a significant challenge, the understanding of which requires further research to examine its multifaceted nature.

Appendix 1 – Standard Interview Schedules: Government and Non-Government Actors

Introduction: thank them for their time; reconfirm that they agree to the interview being recorded; repeat email reassurances about confidentiality and anonymity; explain the purpose of the research.

Government Actors

Section 1 – Introduction

- (1) Please can you introduce yourself?
- (2) Please can you describe your involvement with UK renewable energy policy?
Probe: how long have you been involved? What key policies, consultations or projects have you been involved with?

Section 2 – Development of NFFO (if involved before 1990, 18 years)

- (3) What were the values, overarching goals and priorities of the DTI in developing the NFFO?
- (4) What were the alternative options to the tendering quota design?
- (5) Where did information regarding the different options come from?
- (6) How were these options evaluated and decided upon?
- (7) Was there any policy transfer from other sectors or countries?
- (8) What was the role of the EU?
- (9) Can you tell me who were the key actors and institutions involved, government and non-government, and what was the nature of their involvement?
- (10) To what extent do you feel the NFFO achieved its goals?
- (11) Why did the NFFO end when it did?

Section 2 – The RO (if involved before 2002, 7 years or more)

- (12) What were the main goals of the RO and had they changed from the NFFO?
- (13) What were the alternative options to the tendering quota design?
- (14) Where did information regarding the different options come from?
- (15) How were these options evaluated and decided upon?
- (16) Was there any policy transfer from other sectors or countries?
- (17) What was the role of the EU?
- (18) What was learnt from the NFFO experience; how was this derived and how did it influence the design of the RO?

- (19) Were there instances where lessons were learned but not acted upon?
Probe: if so, why?
- (20) Who were the key actors and institutions involved in the development of the RO?
- (21) In your opinion, what were the key differences between the NFFO and the RO and what was the rationale behind them?
Probes: market-based approach? Target groups?

Section 3 – Banding of the RO (past 2 years)

- (22) What were the main motivations for moving to band the RO?
Probe: EU influence? (Climate Energy Package). Picking winners – choosing eligible technologies?
- (23) What were the other policy options, and what benefit does ‘banding’ provide over other policy options, e.g. feed-in tariffs?
- (24) How did the results of the banding consultation influence banding?
- (25) How was the level of ROC eligible for each technology established?
- (26) In terms of renewable energy more broadly, what do you think are the key issues that the government has failed to address or learnt to overcome?

Section 4 – Policy Stability

- (27) Have there been any other instances where major policy changes might have occurred but did not due to the existence of other overriding policy factors? If so what were these factors or influences?

Section 5 – Learning mechanisms

- (28) What types of formal mechanism are in place to stimulate government learning?
Probe: ad-hoc communication?
- (29) How effective are the learning mechanisms, for example, select committee/House of Lords reports?
Probe: can you provide example of how these reports have influenced policy?

Non-Government Actors

Section 1 – Introduction

- (1) Please can you start by giving me a bit of background, telling me how long you have been involved with renewable energy policy, and outline the key policies or projects that you have worked on?

- (2) In what ways do you engage with UK renewable energy policy, e.g. through consultations, meetings with civil servants etc. Can you describe the various ways? Can you give examples?
- (3) Do you have any direct lines of communication with any government departments? (E.g. select committees, etc.)
- (4) In what ways do you engage with EU level policy?

Section 2 – Developing the RO (past 2 years)

- (5) Were you involved in the development of the RO?
Probe: consultation response? Anything else? Were you courted for your ideas?
- (6) Did you support the mechanism or prefer an alternative mechanism? What was the preferred mechanism?
- (7) How were your suggestions received by government?
- (8) Did you sense that the consultation was a genuine attempt by the government to learn about stakeholder perspectives and explore alternative policy options?
- (9) What in your opinion were the lessons taken from the RO and how did they inform the NFFO?

Section 3 – Banding of the RO (past 2 years)

- (10) Were you involved in the decision to band the RO?
Probe: consultation response? How well did the consultation address policy problems? Anything else? Were you courted for your ideas?
- (11) Did you support the banding or prefer an alternative mechanism? What was the preferred mechanism?
- (12) How do you think these suggestions were received by BERR?
- (13) Did you sense that the banding consultation was a genuine attempt by the government to learn about stakeholder perspectives and explore alternative policy options?
- (14) What in your opinion were the reasons that BERR/DECC opted to retain the RO and bring in a feed-in only for micro-renewables?

Section 3 – Renewable Energy Strategy Consultation (2008)

- (15) Were you involved in the RES consultation?
Probe: consultation response? Anything else?
- (16) How well did the consultation address all current issues related to barriers to renewable deployment? What did it leave out?
- (17) How do you think these suggestions were received by BERR? Were your ideas evident in policy outputs?

- (18) Will the government policies outlined in the RES provide an effective stimulus for UK innovation and development of new technologies?
- (19) How effectively did the RES consultation explore alternative policy options and learn about stakeholder perspectives?
- (20) Do you think the final RES represents a radical approach to renewable energy policy and a change in government thinking? A conceptual shift?
Probe: what has prompted this?

Section 4 – Learning Mechanisms

- (21) In what ways do you think the government has learned lessons in renewables policy? For instance, through experience and practice, from others - policy transfer etc? Stimulated by Europe?
- (22) To what extent do you think the government engages in effective policy learning? Is there an effective system memory?
- (23) Do you think there are sufficient formal mechanisms in place to simulate government learning?
Probe: ad-hoc communication? How effective are: select committees, House of Lords committees, consultations, public enquiries?
- (24) What more could be done to improve central government's communication and engagement with stakeholders?
- (25) How would you rate the network/institutional structures for knowledge transfer and communication of information? Does it facilitate or constrain the movement of ideas or information?
- (26) What further institutional changes need to be made to further encourage renewables? Ofgem? Trading rules? What are the main factors which prevent such changes being made?

Is there anything else you would like to add?

Appendix 2 – Interviewee Codes and Organisations

	Interviewee reference code	Organisation	Position	Date completed
1	Academic 1 (A1)	University	Senior lecturer in renewable energy policy	27.02.09
2	Academic 2 (A2)	University and media	Professor of technology policy	02.03.09
3	Politician 1 (P1)	MP	Minister	03.03.09
4	Civil Servant 5 (CS5)	DoEn and DTI	Civil servant	04.03.09
5	Senior Civil Servant 3 (SCS3)	DTI, BERR, DECC	Senior civil servant	27.04.09
6	Senior Civil Servant 1 (SCS1)	DTI, consultancy	Senior civil servant and energy consultancy MD	28.04.09
7	European Union 1 (EU1)	EU commission, energy consulate	<i>To protect this respondent's identity their position is not disclosed</i>	05.05.09
8	Quango 1 (Q1)	Energy agency	Policy strategist	11.05.09
9	Industry 1 (I1)	Wave technology developer	Policy strategist	18.08.09
10	Journalist 1 (J1)	Energy magazine and national paper	Editor and guest editor	20.08.09
11	Lobby group 1 (L1)	Renewables lobby group	Director of policy and research	20.08.09
12	Industry 2 (I2)	Wave technology developer	Policy strategist	21.08.09
13	Research institution (RI1)	Energy research	Policy director	03.09.09

14	Senior Civil Servant 2 (SCS2) and Civil Servant 4 (CS4)	DECC	Policy group director, civil servant	03.09.09
15	Industry 3 (I3)	National Grid	Operations director	04.09.09
16	NGO1	International NGO	Research manager UK	08.09.09
17	Industry 4 (I4)	Renewable energy developer	Commercial manager	10.09.09
18	Ofgem1	Ofgem	Senior policy manager	17.09.09
19	Industry 5 (I5)	Energy utility company	Policy director	17.09.09
20	Industry 6 (I6)	Energy utility company	Policy director	18.09.09
21	Industry 7 (I7)	Trade association	CEO	24.09.09
22	Industry 8 (I8)	Electricity distribution company	Policy manager	29.09.09
23	Industry 9 (I9)	Renewable developer, trade association	Director of operations and trading, chair	03.10.09
24	Industry 13 (I13)	Energy consultant, journalist	Director consultancy firm, editor	06.10.09
25	Ofgem2	Ofgem	Head of programmes	12.10.09
26	Civil Servant 6 (CS6)	DECC	Head of strategy and delivery	13.10.09
27	Industry 10 (I10)	Wind farm developer	Assistant policy strategist	14.10.09
28	NGO 2	International environmental charity	Policy strategist energy policy	14.10.09
29	Industry 11 (I11)	Biomass developer	Operations manager	16.10.09

30	Industry 12 (I12)	Renewable energy supply company	Managing director	19.10.09
31	Quango 2 (Q2)	Sustainable development agency	Policy advisor	20.10.09
32	Ofgem 3	Ofgem	Senior policy manager	22.10.09
33	Journalist 2 (J2)	National paper	Science editor	05.11.09
34	Cooperative 1 (Co-op1)	Cooperative renewable energy developer	Non-executive director	12.12.09
35	Politician 2 (P2)	MP	Member of select committee	07.06.10

Appendix 3 – Documents Analysed

	Year	Document Type	Name of Document	Source
1	1989	Act	Electricity Act (privatisation of companies/1947 nationalised)	Parliament
2	1997	Party Manifesto	Labour Manifesto	Labour Party
3	1998	Energy White Paper	A review of energy sources for power generation	DTI
4	1999 March	Consultation	New & Renewable Energy – Prospects for the 21st Century (John Battle)	DTI
5	1999 May	Report	Evaluation of the DTI New and Renewable Energy Programme -1994-8 - FINAL REPORT	SPRU
6	1999 July	Government analysis of consultation	New & Renewable Energy, Prospects for the 21st Century: analysis of the response to the consultation	DTI
7	2000 Feb	Energy White Paper consultation response	New and Renewable Energy, Prospects for the 21st Century - Conclusions in response to the public consultation (Helen Liddell)	DTI
8	2000 June	Report	Energy – 22 report - The Changing Climate – Royal Commission on Pollution Control	RCPC
9	2000 July	Act	Utilities Act	Parliament
10	2000	Consultation	New and Renewable Energy, Prospects for the 21st Century – the renewables obligation preliminary consultation (Stephen Byers)	DTI
11	2002 Feb	Report	The Energy Review	PIU
12	2002 March	Statutory instrument	SI 2002 No 914 – the Renewables Obligation Order 2002	DTI/Parliament
13	2003	Act	Sustainable Energy Act (to amend utilities act)	Parliament
14	2003 Feb	Energy White Paper	Energy white paper – Our energy future - creating a low carbon economy	DTI
15	2003/2004	Report	2003-4 Science and Technology Committee – 4th report session - Renewable energy: practicalities	Sci & Tech Committee – 4th report
16	2003	Select committee Report	Energy White Paper – Empowering Change?	Environmental Audit Committee

17	2004	Act	Energy Act - provided powers in relation to the nuclear industry, renewable energy and offshore generation, the licensing of interconnectors, and the introduction of a new system of electricity transmission access and settlement across England, Wales and Scotland (BETTA) which came into effect in April 2005	Parliament
18	2005/2006	Select committee report	Environmental audit committee 6th report - Keeping the Lights On: Nuclear, Renewables and Climate Change	Environmental audit committee
19	2005 Feb	Government consultation	Reform of the Renewables Obligation: Preliminary Consultation Document	DTI
20	2005	NAO report	NAO/DTI – Critique of Renewables Policy	NAO/DTI
21	2006 Oct	Statutory consultation	Reform of the renewables obligation and statutory consultation on the renewables obligation order 2007	DTI
22	2006	Government report	The Energy Review: The Energy Challenge	DTI
23	2007	Government response	Keeping the Lights On: Nuclear, Renewables and Climate Change	DTI
24	2007	Government consultation	Energy white paper – meeting the energy challenge - Impact of banding the renewables obligation: costs of electricity production - Reform of the renewables obligation. What is the likely impact of changes? - Reform of RO ob	DTI
25	2007 May	Government consultation	Renewable Energy: Reform of the Renewables Obligation	DTI
26	2008 Jan	Government consultation response	Renewables Obligation consultation government response	BERR
27	2008 June	Government consultation	Statutory Consultation on the Renewables Obligation Order 2009	BERR
28	2008 June	Government Consultation	UK Renewable Energy Strategy Consultation	BERR
29	2008 June	Non-government	2020 VISION – How the UK can meet its target of 15% renewable energy	RAB
30	2008	Select committee report	Renewable Energy – Options for Scrutiny	NAO
31	2009	Performance report	Performance of DECC review 2008/2009	NAO
32	2009	Energy White Paper	The UK renewable energy strategy	DECC

Appendix 4 – Supplementary Information: Renewable Energy Policy

Policy Outcomes from NFFO

Deployment rates were generally low under the NFFO. The number of projects that were granted a NFFO contract then actually built varied starkly between technology bands, and a falling percentage of the contracts awarded in each round was taken up, as shown in Table 1.

Table 1 Status of NFFO Projects in 2000

NFFO round	Date	Number of projects contacted	Number of generating projects
1	1990	75	61
2	1991	122	82
3	1994	141	75
4	1997	195	56
5	1998	261	17
Total		794	291

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(Mitchell, 2000: 289).

There appear to be no recent data regarding the status of contracts for NFFO rounds 4 and 5. The data originate from 2000 so the figures for NFFO 4 and 5 will be higher than shown: the agreed project development phase was 5 years (subsidies started at a maximum 5 years after the contracts were awarded and then ran for 15 years). However, take up is expected to be low given that the government was concurrently developing the UK's second renewable energy policy, the RO (2002), which promised to provide more support. By 2005, the NFFO's 1500 MW target had still not been achieved (DTI, 2005b). This figure contrasts starkly with the 3270.98 MW DNC that was actually commissioned by the NFFO (Mitchell, 2000). Mitchell (2000) argued that the reasons for the poor rates are complex and threefold: the NFFO incentivised 'best scenario bidding' in order to win contracts; there were problems obtaining planning permission (interview data also revealed that, for 'energy-from-waste' technologies, obtaining local council waste contracts was an additional problem (17)); and the NFFO programme and the government's research and development programme were not synchronised.

The development of renewable energy projects in the UK required a two-pronged approach: an NFFO contract and planning permission (Mitchell, 2000). The Confederation of Renewable Energy Associations (CREA) claims that of a total renewable energy capacity of 3638 MW commissioned by the NFFO, only 855 MW had obtained planning permission by 2000 (Smith and Watson, 2002). Interestingly, for wind and energy-from-waste projects, the general public, enabled by the planning system, formed the main barrier to capacity growth. The competitive element of the NFFO should not in theory have influenced the choice of renewable energy sites, but in practice it was difficult for the developer to select sites with a strong likelihood of obtaining planning permission (Mitchell, 2000). In addition, particularly for NFFO rounds 1 and 2, the rate at which the government tried to push projects through and the drive for high outputs at low costs led to sites being targeted in prime locations such as Areas of Outstanding Natural Beauty. This generated a negative social response from concerned parties (Connor, 2003) and created a distrust of central government with respect to renewable energy. These surges produced planning bottlenecks and social opposition, which impeded renewable energy development (Connor, 2003).

The NFFO emerged before the first planning policy guidance on renewable energy was introduced in 1993 (Mitchell, 2000). However, the government failed to provide complementary statements supporting the importance of renewable energy (Mitchell, 2000). The tension between planning and energy policy became apparent in the first rounds of NFFO, and continues to be an issue today. Different government departments have responsibility for planning and energy. At the time of the NFFO, planning was the responsibility of the Department of Environment, Transport and the Regions, while energy policy was the responsibility of first DoEn then the DTI. Lack of cohesion between departments appears to be one factor that restricted and continues to restrict renewable energy development. Also, at the local level a discourse surrounding the local impact of renewable energy projects versus its national benefits existed, which neither planning nor energy policy has resolved. Mitchell (2000) proposed that although the public are generally supportive of renewable energy, this does not necessarily translate to the local level.

Price convergence was a positive outcome of NFFO's competitive design. Once NFFO's time horizon was extended for round 3, the price of electricity from renewable energy came down dramatically, particularly for wind generation (Connor, 2004). The average bid price for wind energy projects (regardless of size) fell by 31% between NFFO 3 and 4 (BWEA, 2006). The negative side effects of the competitive design included reducing the diversity of technologies, market entrants, low-level diffusion and capacity growth. Tenders/bids were won by companies with the lowest generation costs per unit hour. Grubb (1995) argued that the NFFO has shown how costs can fall when a substantial competitive bidding market is created. However, the result of bidding was that the best-case-scenario bids were ultimately unattainable, which, combined with a lack of penalty for companies that did not

take up their contracts, led to many projects being shelved (Mitchell and Connor, 2004). This limited the expansion of built capacity. Another side effect of least-cost policies is technological lock in as more expensive, but in the long term potentially valuable, technologies fail to be developed. Small, innovative generators are priced out of the market. The first rounds of the NFFO were criticised for imposing the 1998 deadline, the general administrative muddle surrounding the process, and the administrative costs and complexity (Grubb, 1995). All of these factors deterred small, independent generators from entering the market, despite the fact that they are often better innovators, and in contrast to the industries in mainland European, which were built by niche players.

Industrially embedding a renewable energy industry in the UK through innovation was an objective of the NFFO policy. Mitchell (1995) proposed that the short timeframes imposed by the NFFO meant that UK manufacturers were not capable of providing turbine equipment. Grubb (1995) offered an alternative explanation, claiming it was the caution of financiers that led to the selection of sturdy Danish wind turbines at the expense of more innovative machines. This reduced the potential for nationally embedding a renewable energy industry, which might have also stimulated social support.

The NFFO ‘picked winners’ by only providing for near-market technologies and helping them ensure price convergence with conventional generation costs (Elliott, 1999). This left other technologies further behind in terms of research and development and demonstrates its short-term approach. Grubb (1995) noted that a purely market-led process creates risk-averse attitudes within banks, which leads to exploitation of only proven technologies, rather than those with greatest potential, and makes it impossible to maintain a ‘level playing field’ with open competition between different technologies. In conjunction with the market-based approach, the government cut research and development expenditure on renewable energy from a peak in 1992, believing that their declining support would be offset by “industrial and other contributions” (DTI, 1994:22). However, funding from non-department sources did not come forward because of the factors described above (Mitchell, 1995) leaving research and development underfunded. Table 2 shows the small amount of support received during the NFFO for research.

Table 2 UK Support for Renewable Energy Development (£ million)

	Research grants ⁺	RO	NFFO	Capital grants
1990-91	21.3	--	6.1	--
1991-92	24.8	--	11.7	--
1992-93	26.6	--	28.0	--
1993-94	26.8	--	68.1	--
1994-95	20.5	--	96.4	--
1995-96	21.6	--	94.5	--
1996-97	18.5	--	112.8	--
1997-98	15.9	--	126.5	--
1998-99	14.4	--	127.0	--
1999-2000	14.9	--	56.4	--
2000-01	15.9	--	64.9	--
2001-02	24.0*	--	54.7	--
2002-03	27.6*	282.0*	Unknown	60
2003-04	29.0*	405.0*	Unknown	131

⁺ Direct government funding for R&D of renewable energy through the DTI's Sustainable Energy Programme & through the Research Councils via the science budget.

* estimates

(Source: Hansard, 21 Nov 2001: Column: 300-01W).

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Development of the RO: the Consultation Process

The aim of the first renewable energy consultation was to consider “what renewables are; the reasons for supporting renewables; the forms of possible support for renewables (including - removal of barriers to entry into the renewables market, research and development support, and market stimulation measures in the form of an obligation on the electricity industry to purchase renewable energy); and, policy options for the future” (DTI, 1999a:6). The document argued that the NFFO was ‘successful’, as it provided price convergence, but restructuring issues (i.e. the new competitive

structures of the electricity industry) required policy adaptation or change (DTI, 1999a). Thus, these necessary changes provided an opportunity for considering other forms of market stimulation (DTI, 1999a). This affirms that the change in market arrangements was a strong driver, particularly if the government considered the NFFO to be a success.

The consultation document (DTI, 1999a) illustrated that the consideration of alternative support was extremely limited. Only obligations and direct grants were considered, not fixed-price mechanisms. The only mention of non-market-based alternatives is in Annex 4, entitled ‘comparison with other countries’, which briefly mentioned the German ‘feed law’, but did not discuss it as an option (DTI, 1999a:49). This indicates that the consultation was very narrowly framed and that the scope for alternative support did not extend outside of what is deemed normal or acceptable in the context of the current framework of competitive markets.

In this first consultation paper, the prospect of a new policy taking the shape of an obligation was introduced; the only consultation element of the document sought opinions on where the obligation should be placed, i.e. supply companies or distributors. The consultation document states that, “this paper does not look in detail at wider fiscal options which raise different and more general policy questions ... emphasis is on the obligation mechanism” (DTI, 1999a:30). This suggests that the department had already made up its mind about the direction of policy and was looking for industrial approval. In addition, it alludes to the fact that the department has little power over wider policy direction, such as the reliance on markets. Despite rhetoric at the beginning of the document pertaining to environment being at the ‘heart of decision-making’, the main emphasis throughout is on ‘cost-effectiveness’ and it is clear that this is the prime policy objective.

The consultation received 260 responses from a range of actors, which were synthesised in the government analysis. The analysis revealed that “a few respondents noted certain successes achieved under the existing NFFO” and that a “rather large number of respondents have highlighted perceived problems and failures” (DTI, 1999b:6). This provided the government with a good opportunity for lesson drawing and technical learning. The success and failures forwarded by the analysis are presented in Table 3.

Table 3 Successes and Failures of the NFFO

Successes of NFFO	Failures of NFFO
Reduction in price of electricity for some renewable technologies.	Low prices and narrow profit margins have driven developers to target the most technically advantageous (and often contentious) sites e.g. beauty spots.
Small increase in renewable energy generating capacity.	Poor capacity growth in comparison to Europe, e.g. Germany.
Perceived cost-effective nature of developments.	The high upfront costs involved in making bids have penalised smaller development businesses.
	Low subsidy prices drove developers to select cheaper foreign manufacturers; UK companies could not compete.
	Poor implementation record and a failure to allow for some degree of non-delivery in the contracts awarded.
	Inadequate long-term support for renewable energy due to infrequent rounds.
	Inadequate long-term support for emerging technologies.
	Intermittent nature of the bidding process has discouraged some larger/utility companies and provided problems for planners.

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The analysis report flagged up some broader issues: (1) there was too narrow a focus on electricity and, like other European countries, greater importance should be placed on heat, transport and embedded generation; (2) more cohesion is needed between renewable energy policy and other government strategies, e.g. energy efficiency, demand reduction and planning; (3) the scope of the mechanism should be broader in terms of technology and scale, i.e. it should not just support near-market technologies and large-scale projects; (4) there are concerns that the NETA will disadvantage small-scale, intermittent generators; (5) greater support for research and development is required; (6) there were significant planning barriers (DTI, 1999b). The analysis made no mention of other options for support mechanisms that were not market based, such as FITs. This might mean that, given the narrowness of the consultation, responses did not comment on non-competitive mechanisms, or that responses were filtered out. Either way it appears that there has been a failing or blinkering of policy learning. Interestingly, within the key findings section of the document, suggestions for cohesion were

limited to within energy policy in contrast to the broader interdepartmental sense that was suggested within the document. “Renewable energy should be developed as part of a balanced energy policy that gives appropriate consideration to energy efficiency, demand reduction and nuclear energy” (DTI, 1999b:18). This demonstrates the narrow remit of the DTI, the limits of its power and the vertical communication structures that exist in government.

The government issued its response to the 1999 consultation, in which it officially announced the decision to create the RO and stated that it had been published to coincide with the introduction of the Utilities Bill (DTI, 2000a). This indicates that the key elements of the proposed mechanism had been already designed and committed to legislation. It acknowledged that the public responses to the consultation had offered no single preferred support mechanism, so following further discussions with interested parties the government had decided to move away from the NFFO and adopt a supply obligation. The document stated that the RO framework was set in the context of a competitive market to minimise costs to consumers through higher electricity prices (DTI, 2000a). The continued commitment to the market-based approach suggests that it was becoming firmly entrenched in the government’s ideology. The consultation response document outlined the basic structure of the RO, the features of which are shown in Table 4.3. In addition to the RO support mechanism, the document pledged more support for research and development and capital grants for energy crops and offshore wind (DTI, 2000a).

The response document also launched a new strategy for renewable energy, consisting of “stimulating the various sectors of the market; the establishing of a regional infrastructure for planning and development control; a collaborative research, development, demonstration and dissemination programme; and removal of legal and administrative barriers” (DTI, 2000a:7). The strategic development of regional government was a characteristic of Labour’s approach to governance, with the purpose of devolving power and decisions away from Whitehall and closer to the communities affected. The formation of regional development agencies along with the setting of regional targets helped to resolve some equity issues surrounding the development of renewable energy (Mitchell, 2000). Broadly speaking, although the consultation response outlined several courses of action to expand on the strategy, government action was slow to follow.

Table 4.3 and Appendix 4 Table 3 demonstrate that the RO design was influenced by several of the key findings from the consultation while paying lip service to others. It placed the obligation for the RO on suppliers and exempted renewable energy from the CCL. The RO was scheduled to apply until at least 2025 (DTI, 2000b), which overcame issues of funding intermittency and gave more security to project developers. It expanded the number of technologies that were eligible for the scheme, which avoided the criticism that the government was ‘picking winners’. Ultimately however, the price structure of the mechanism still brought the cheapest technologies forward, because each unit of

electricity was entitled to the same subsidy, regardless of technology. Other issues, such as the effects of the review of electricity trading arrangements and NETA on small and intermittent generators, the policy sectors of transport, heat and micro-renewables, and calls for a greater diversity of market entrants, were largely overlooked. It is worth noting that responsibility for transport has never resided with the DTI. This highlights the cross-sector nature of renewable energy, which adds policy complexity and raises the issues of departmental structuring within government. It could be argued that the DTI was not the appropriate department to stimulate policy, as micro-generation and heat are aimed at households and communities as well as businesses. District heating systems, for example, would require the cooperation of planning, communities and councils.

In October 2000, a public consultation was released to discuss the finer points of the RO. Table 4 outlines the specific issues for consultation. It did not consult on banding, as it stated that “it would not provide sufficient impetus for the industry to become more competitive in its own right ... a banded obligation would segment the market unnecessarily, and would leave the government dictating the importance of each relative technology. We also feel that it is no longer government’s job to pick winners or to introduce artificial distortions into the market place” (DTI, 2000b:3). The statement makes explicit the government’s decision ‘not to pick winners’, which demonstrates a deliberate policy change from NFFO, suggesting technical learning. However, the decision to provide capital grants for offshore wind and energy crops and not for other technologies, e.g. wave power, suggests it is still favouring certain technologies, although this could be because the government considered wave generation to still be in the research stage of development. The document also contained assurances that throughout the duration of the mechanism there are no plans to: lower the buy-out price; reduce the size of the obligation as long as it remains in force; curtail the duration of the obligation; or disqualify any technology proposed to be eligible (DTI, 2000b). This suggests signs of technical learning from NFFO with respect to industry and investor confidence

Table 4 Issues Covered in ‘RO Preliminary Consultation’

Sources of renewable energy that are eligible for the obligation	Suggestion to exclude large hydro over 10 MW and energy from waste
Proposed profile of the obligation to 2010	(Subject to costs being acceptable to the consumer) year on year increase to 10% by 2010. Time frame 2001-26
Evidence required to demonstrate compliance	Renewables Obligation Certificates (ROCs):each ROC represents 1 MW renewable electricity generated
Level of the buy-out price	Proposed at 3p/KWh Proposed link to retail price index
Whether the balance between the environmental benefits and costs to the consumer is correct	Estimated cost to consumer by 2010 £600 million – equivalent to a 3.7% increase on 1998 bills
Proposals for banking and borrowing of ROCs	ROCs submitted in a previous or subsequent time period. Restrictions proposed: banking 50%, borrowing 5%
The system for recycling buy-out payments	Gains from buy-out payment recycled to suppliers who met their obligation in proportion to actual fulfilment of obligation
Capital grants for offshore wind and energy crops	(Subject to EU clearance) proposed for a small number of projects, payment of up to 40% of eligible costs, awarded on the lowest cost to the DTI in £ per MW capacity installed.

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In 2001, the government published a Statutory Consultation on the RO. In view of the responses to the RO preliminary consultation, several minor changes were made to their previous proposals. This included the reassessment of certain technologies, which showed that the government was learning from the consultation responses in some areas. However, other issues arising from the responses were not addressed: for example, banding was not taken up and the buy-out price was not adjusted. This might be because of the mixed messages coming from the respondents (predictably motivated by self-interest): some (generators) called for a higher buy-out price and others (supply companies) a lower one (DTI, 2001).

The statutory consultation stressed that the RO was only one of a series of measures to promote the development of renewable energy (DTI, 2001). The other policy strands include: exemption from the CCL; a supporting programme of research, development and technology transfer, with assistance to overcome non-technical barriers to deployment; development of regional strategies for renewable

energy, with regional targets based on resource assessments, and a review of planning arrangements; capital grants for longer term technologies including offshore wind and energy crop projects; a fund of £100 million, announced by the Prime Minister in March 2001, to stimulate the development of renewable energy; locational flexibility for most NFFO projects where planning difficulties have been encountered; a major PV roofs market stimulation programme, aimed, in time, at matching those of Germany and Japan; and the PIU is currently examining the options for meeting our long-term energy objectives, including the role that renewable energy will play as part of a wider-ranging Energy Review (DTI, 2001). In several cases the policies were already in existence and provide nothing novel to assist renewable energy or lack sufficient detail to provide improvements, e.g. the new and renewable energy programme has been around since 1974.

References

- Adam, S. and Kriesi, H. (2007) The network approach in P.A. Sabatier (ed) *Theories of the policy process* Boulder, CO: Westview Press.
- Ahrne, G (1990) *Agency and Organization* London: Sage.
- Argyris, C. (1976) Single-loop and double-loop models in research on decision making *Administrative Science Quarterly* 21, 363-375.
- Argyris, C. (1990) *Overcoming organizational defenses. Facilitating organizational learning* Boston, MA: Allyn and Bacon.
- Argyris, C. and Schön, D. (1974) *Theory in practice. Increasing professional effectiveness* San Francisco: Jossey-Bass.
- Argyris, C. and Schön, D. (1978) *Organizational learning: a theory of action perspective* Reading, MA: Addison Wesley.
- Babbie, E. (2007) *The practice of social research* 11th edition Belmont, CA: Thomson Wadsworth.
- Bachrach, P.S. and Baratz, M.S. (1962) Two faces of power *American Political Scientist Review* 56, 1974-1952.
- Bachrach, P.S. and Baratz, M.S. (1963) Decisions and non-decisions: an analytical framework *American Political Scientist Review* 57, 641-651.
- Bailey, I. (2007) Market environmentalism, new environmental policy instruments and climate policy in the UK and Germany *Annals of the Association of American Geographers* 97(3), 530-550.
- Bailey, I. and Compston, H. (2010) Geography and the politics of climate policy *Geography Compass* 8(4), 1097-1114.
- Bailey, I., Gouldson, A. and Newell, P. (2011) Ecological modernisation and the governance of carbon: a critical analysis *Antipode* 43(3), 682-703.

Baumard, P. and Starbuck, W.H., Advanced Institute of Management Research (2010) *Is Organisational Learning a Myth?* [online] Available from: http://www.aimresearch.org/uploads/File/Publications/Executive%20Briefings%202/Organisational_1_earning_a_myth.pdf [Accessed: 9 September 2010]

BBC (2010) *Shell pulls out of big wind farm* <http://news.bbc.co.uk/1/hi/business/7377164.stm> [20 January 2010].

Bechberger, M. and Reiche, D. (2005) Europe banks on fixed tariffs *New Energy* 2, 14-17.

Bennett, C. and Howlett, M. (1992) The lessons of learning; reconciling theories of policy learning and policy change *Policy Sciences* 25, 275-294.

Berg, B. (2001) *Qualitative research methods for the social sciences* Boston, MA: Allyn and Bacon.

Berman, S. (1998) *The social democratic movement: ideas and politics on the making of interwar Europe* Cambridge, MA: Harvard University Press.

BERR (2008a) *Renewables Obligation consultation government response* <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/files/file43545.pdf> [11 September 2011].

BERR (2008b) *Statutory consultation on the Renewables Obligation Order 2009* <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/consultations/page46710.html> [11 September 2011].

BERR (2008c) *UK renewable energy strategy consultation* http://www.decc.gov.uk/assets/decc/Consultations/Renewable%20Energy%20Strategy%20Consultation/1_20090428150607_e_@@_condocresexsummary.pdf [10 October 2010].

BIS - Department for Business, Innovation and Skills (2011) *The Department of Energy 1974 to 1992* <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/aboutus/corporate/history/outlines/The%20Department%20of%20Energy%201974%20-%201992/page24456.html> [20 November 2009].

Blindenbacher, R., World Bank (2010) *The black-box of governmental learning* http://siteresources.worldbank.org/EXTGOVTLRN/Resources/black_box_full.pdf [20 August 2011].

Bomberg, E. (2007). Policy learning in an enlarged European Union: environmental NGOs and new policy *Journal of European Public Policy* 14(2), 248-268.

Booth, J., Times Online (2010) 'Cab for hire' Stephen Byers to face sleaze watchdog <http://www.timesonline.co.uk/tol/news/politics/article7070862.ece> [22 March 2010].

Braun, D. and Benninghoff, M. (2003). Policy learning in Swiss research policy - the case of the national centres of competence in research *Research Policy* 32, 1849-1863.

Bryman, A. (2004) *Social research methods* 2nd edition Oxford, UK: Oxford University Press.

Bulkeley, H. (2005) Reconfiguring environmental governance: towards a politics of scales and networks *Political Geography* 24(8), 875-902.

BWEA (2006). *British Wind Energy Association response to the Renewables Obligation 2005-2006* http://www.bwea.com/pdf/RO_Review_condoc.pdf [29 October 2009].

BWEA (2007) *Annual review 2007* http://www.bwea.com/pdf/BWEA_annual_review_2007.pdf [10 September 2009].

Campbell, J.N. (1998) Institutional analysis and the role of ideas in political economy *Theory and Society* 27(3), 377-408.

Carbon Trust (2009) *The Renewables Obligation* <http://www.carbontrust.co.uk/policy-legislation/energy-supply/renewable-energy/pages/renewables-obligation.aspx> [24 April 2010].

Carter, N. (2004) *The politics of the environment* Cambridge, UK: Cambridge University Press.

Carvalho, A. (2005) Representing the politics of the greenhouse effect: discursive strategies in the British media *Critical Discourse Studies* 2(1), 1-29.

CCC – Committee on Climate Change (2010) *Committee advises government to focus on meeting current 2020 renewable energy target, rather than raising it* <http://www.theccc.org.uk/news/latest-news/747-committee-advises-government-to-focus-on-meeting-current-2020-renewable-energy-target-rather-than-raising-it-10-september-2010> [14 September 2010].

Chatterton, T. (2010) *DECC- a view from the inside* [Online video]
<http://www.greatwesternresearch.ac.uk/sustainability.php> [20 May 2011].

Cohen, M., March, J. and Olsen, J. (1972) A garbage can model of organizational choice
Administrative Science Quarterly 17, 1-25.

Connor, P.M. (2003) UK renewable energy policy: a review *Renewable and Sustainable Energy Review* 7, 65-82.

Connor, P.M. (2004) Renewable electricity in the United Kingdom in de Lovinfosse, I. and Varone, F. (eds) *Renewable Electricity Policies in Europe* Belgium: Presses Universitaires de Louvain.

Crang, M. and Cook, I. (1995) *Doing ethnographies* Norwich: Geobooks.

Dahl, R. (1961) *Who governs? Democracy and power in an American city* New Haven, CT: Yale University Press.

Dahl, R. (1982) *Dilemmas of pluralist democracy: autonomy versus control* New Haven, CT: Yale University Press.

DECC (2007) *Renewables advisory board*
<http://webarchive.nationalarchives.gov.uk/+http://www.dti.gov.uk/energy/sources/renewables/policy/renewables-advisory-board/page16101.html> [2 February 2011].

DECC (2010) *Resource Accounts 2009-10*
<http://www.decc.gov.uk/assets/decc/annual%20reports%20accounts%20and%20business%20plans/2010/218-decc-resource-2009-10.pdf> [11 May 2011].

DECC (2011a) *Digest of United Kingdom Energy Statistics 2011*
<http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx> [8 August 2011].

DECC (2011b) *Renewable Heat Incentive (RHI) scheme*
http://www.decc.gov.uk/en/content/cms/meeting_energy/Renewable_ener/incentive/incentive.aspx
[4 August 2011].

DECC (2011c) *New Feed-in Tariff Levels for large-scale solar and anaerobic digestion announced today* http://www.decc.gov.uk/en/content/cms/news/pn11_046/pn11_046.aspx [9 July 2011].

de Lovinfosse, I. and Varone, F. (2004) *Renewable electricity policies in Europe* Belgium: Presses Universitaires de Louvain.

Denscombe, M. (2003) *The good research guide* 2nd edition Buckingham, UK: Open University Press.

Denzin, N.K. (1978) *The research act: a theoretical introduction to sociological methods* New York: McGraw-Hill.

Dinica, V. (2001) Barriers and solutions for the application and development of three selected renewable energy technologies: wind, solar thermal power and biomass. *The Journal of the Department for Environmental Sciences and Policy* Budapest, Hungary: Central European University <http://weblx030.civ.utwente.nl/cstm/staff/cv/dinica/budapest-paper.pdf> [10 June 2010].

Dinica, V. (2002) Policies for renewable energy support in the United Kingdom in Reiche, D. (ed) *Handbook of renewable energies in the European Union – case studies of all member states* Frankfurt am Main: Peter Lang Publishing Group.

Dolowitz, D. and Marsh, D. (1996) Who learns what from whom? A review of the policy transfer literature *Political Studies* 44(2), 343-357.

Dror, Y. (1989) *Public policy-making re-examined* New Brunswick: Transaction Publishers.

Dryzek, J.S. (1995) The informal logic of institutional design in Goodin, R.E. (ed) *The theory of institutional design* New York, USA: Cambridge University Press.

Dryzek, J.S. (1997) *The politics of the Earth* Oxford, UK: Oxford University Press.

Dryzek, J.S. (2005) *The politics of the Earth* 2nd edition Oxford, UK: Oxford University Press.

DTI (1994) *New and renewable energy: future prospects in the UK* Energy Paper 62 London: TSO.

DTI (1998) *The White Paper – conclusions of the review of energy sources for power generation* London: TSO.

DTI (1999a) *New and renewable energy—prospects for the 21st century* London: TSO.

DTI (1999b) *Analysis of responses to the consultation paper: new and renewable energy—prospects for the 21st century* London: TSO.

DTI (2000a) *New and renewable energy—prospects for the 21st century: conclusions in response to the public consultation paper* London: TSO.

DTI (2000b) *New and renewable energy, prospects for the 21st century: the Renewables Obligation* London: TSO.

DTI (2001) *New and renewable energy, prospects for the 21st century: the Renewables Obligation statutory consultation* London: TSO.

DTI (2003) *Energy White Paper – our energy future – creating a low carbon economy Cm 5761* London: TSO.

DTI (2005a) *Renewables Obligation Order 2005*
http://www.legislation.gov.uk/ukxi/2005/926/pdfs/ukxi_20050926_en.pdf [5 August 2007].

DTI (2005b) *Digest of UK Energy Statistics* London: HMSO.

DTI (2006a) *Energy review 2006 - the energy challenge* London: TSO.
<http://www.berr.gov.uk/energy/review/page31995.html>.

DTI (2006b) *Reform of the Renewables Obligation and statutory consultation on the Renewables Obligation order 2007*
http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/renew_obs/key_stages_ro/key_stages_ro.aspx [11 September 2011].

DTI (2007) *Energy White Paper – meeting the energy challenge CM 7124* London: TSO
<http://www.berr.gov.uk/files/file39387.pdf> [10 October 2010].

Dudley, G.F. and Richardson, J.J. (1996) Why does policy change over time? Adversarial policy communities, alternative policy arenas, and British trunk roads policy 1945-95 *Journal of European Public Policy* 3(1), 63-83.

Dyball, R., Brown, R.A. and Keen, M. (2007) Towards sustainability: five strands of social learning in Wals, A.E.J. (ed) *Social learning towards a sustainable world – principles, perspectives, and praxis* The Netherlands: Wageningen Academic Publishers.

Easterby-Smith, M.P.V., Johns, A and Burgoyne, J.G. (1997) Action learning: an evaluation in Pedler, M. (ed) *Action learning in practice* Aldershot, UK: Gower Publishing Company.

Easterby-Smith, M. (2000) Organizational learning: debates past, present and future *Journal of Management Studies* 37(6), 783-796.

Elliott, D. (1999) Prospects for renewable energy and green energy markets in the UK *Renewable Energy* 16, 1268-1271.

Etzioni, A. (1967) Mixed scanning: a third approach to decision-making *Public Administration Review* 27, 385-392.

European Commission (2001) *EU renewables directive 2001/77/EC*.

Farnham, D., Horton, S. and White, G. (2003) Organisational change and staff participation and involvement in Britain's public services *The International Journal of Public Sector Management* 16(6), 434-445.

Fiol, C.M. and Lyles, M.A. (1985) Organizational learning *Academy of Management Review* 10(4), 803-813.

Fiorino, D. (2001) Environmental policy as learning: a new view of an old landscape *Public Administration Review* 61(3), 322-334.

Flockhart, T. (2004) Masters and novices: socialisation and social learning through the NATO parliamentary system *International Relations* 18(3), 361-380.

Flowerdew, R. and Martin, D. (2005) *Methods in human geography* 2nd edition Harlow, Essex: Pearson Education.

Foxon, T.J. and Pearson, P.J.G. (2007) Towards improved policy process for promoting innovation in renewable electricity technologies in the UK *Energy Policy* 35, 1539-1550.

Gale, D. (1996) What have we learned from social learning? *European Economic Review* 40, 617-628.

Garrett, G. and Weingast, B. (1993) Ideas, interests, and institutions: constructing the EC's internal market in Goldstein, J. and Keohane, R. (eds) *Ideas and foreign policy* Ithaca, NY: Cornell University Press.

Gaventa, J. (1980) *Power and powerlessness, quiescence and rebellion in an Appalachian Valley* Oxford, UK: Clarendon Press.

Gee, J.P. (1999) *An introduction to discourse analysis: theory and method* London: Routledge Press.

Giddens, A. (1984) *The constitution of society: outline of the theory of structuration* Cambridge, UK: Polity Press.

Giddens, A. (2009) *The politics of climate change* Cambridge, UK: Polity Press.

Gilson, G., Dunleavy, P. and Tinkler, J. (2008) *Organizational learning in government sector organizations* http://www2.lse.ac.uk/government/research/resgroups/LSEPublicPolicy/pdf/PPG_OrgLearninginGovLit_review.pdf [20 October 2010].

Girardet, H. and Mendonça, M. (2009) *A renewable world: energy, ecology, equality*, Totnes, UK: Green Books.

Glasbergen, P. (1996) Learning to manage the environment in Lafferty, W.M. and Meadowcroft, J. (eds) *Democracy and the environment: problems and prospects* Cheltenham, UK: Edward Elgar.

Glasser, H. (2007) Minding the gap: the role of social learning in linking our started desire for a more sustainable world to our everyday actions and policies in Wals, A.E.J. (ed) *Social learning towards a sustainable world* The Netherlands: Wageningen Academic Publishers.

Goldstein, J. and O'Keohane, R. (1993) *Ideas and foreign policy: beliefs, institutions and political change*. New York: Cornell University Press.

Great Britain (1989) *Electricity Act 1989: Elizabeth II Chapter 29* London: TSO.

Great Britain (2004) *Energy Act 2004: Elizabeth II Chapter 20* London: TSO.

- Great Britain (2003) *Sustainable Energy Act 2003: Elizabeth II Chapter 30* London: TSO.
- Great Britain (2000) *Utilities Act 2000: Elizabeth II. Chapter 27* London: TSO.
- Greenaway, J., Smith, S. and Street, J. (1992) *Deciding factors in British politics* London, UK: Routledge Press.
- Grin, J. and Loeber, A. (2007) Theories of policy learning: agency, structure and change *Public Administration and Public Policy* 125, 201-222.
- Grubb, M. (1995) *Renewable energy strategies for Europe: foundation and context* London, UK: Earthscan.
- Grubb, M., Vrolijk, C. and Brack, D. (1999) *The Kyoto protocol: a guide and assessment* London: Royal Institute of International Affairs Energy and Environmental Programme.
- Haas, P. (1990) *Saving the Mediterranean* New York: Columbia Press.
- Hajer, M.A. (1995) *The politics of environmental discourse: ecological modernisation and the policy process* Oxford, UK: Oxford University Press.
- Hall, P. (1993) Policy paradigms, social learning, and the state. The case of economic policy making in Britain *Comparative Politics* 25(3), 275-296.
- Ham, C. and Hill, M. (1984) *The policy process in the modern capitalist state* Hemel Hempstead, UK: Harvester Wheatsheaf.
- Hammersley, M. (2003) Conversation analysis and discourse analysis: methods or paradigms? *Discourse & Society* 14, 751-781.
- Hardin, G. (1968) The tragedy of the commons *Science* 162, 1243-1248.
- Harriss-White, B. and Harriss, E. (2006) Unsustainable capitalism: the politics of renewable energy in the UK in Panitch, L. and Leys, C. (eds) *Coming to terms with nature* London: Merlin Press.
- Hayward, J. and Page, E. (1995) *Governing the new Europe* Cambridge, UK: Polity Press.

Hecló, H. (1974) *Modern social politics in Britain and Sweden* Michigan: Yale University Press.

Helm, D. (2002) A critique of renewables policy in the UK *Energy Policy* 30, 185-188.

Helm, D. (2003) *Energy, the state, and the market* Oxford: Oxford University Press.

Helm, D. (2010) Expert points to window for fossil fuel tax *Financial Times* 8 August 2010 [online] available at <http://www.ft.com/cms/s/0/5f30d454-9e54-11df-a5a4-00144feab49a.html#axzz1UQNoZgKG> [10 August 2010].

Helm, D., Hepburn, C. and Mash, R. (2003) Credible carbon policy *Oxford Review of Economic Policy* 19(3), 438-450.

Hermans, L. M. (2007) The puzzle of policy learning in water resources management in Van de Giesen, N., Jun, X., Rosbjerg, D. and Fukushima, Y. (eds) *Changes in water resource systems: methodologies to maintain water security and ensure integrated management* Wallingford, UK: IAHS Press.

Hertz, R. and Imber, B.J. (1995) *Studying elites using qualitative methods* London: Sage.

HM Government (2002) *Renewables Obligation Order* SI 2002/914 London: HMSO.

HM Government (2009) *The UK renewable energy strategy* Cm 7686 London: Crown Copyright <http://www.official-documents.gov.uk/document/cm76/7686/7686.pdf> [10 October 2010].

Hoggart, K., Lees, L. and Davies, A. (2002) *Researching human geography* New York: Oxford University Press.

Holsti, O.R. (1968) *Content analysis in* Lindzey, G. and Aronson, E. (eds) *The handbook of social psychology* 2nd edition Reading, MA: Addison-Wesley.

Holt-Jensen, A. (1999) *Geography, history and concepts* London: Sage Publications Ltd.

House of Commons Environmental Audit Committee (2003-4) *Energy White Paper- empowering change?* HC 618 8th Report Session 2002-2003 London: TSO.

House of Commons Environmental Audit Committee (2005-6) *Keeping the lights on: nuclear, renewables and climate change* HC 584-I of 2005-6 London: TSO.

House of Commons, Public Accounts Committee (2007) *Central government's use of consultants* HC 309 Session 2006-2007 London: TSO.

House of Lords European Union Committee (2008) *The EU's target for renewable energy: 20% by 2020* European Union Committee 27th Report of Session 2007-08 HL Paper 175-I London: TSO.

House of Lords Science and Technology Committee (2003-4) *Renewable energy: practicalities* 4th Report of Session 2003-2004 HL Paper 126-I London: TSO

Howes, M. (2005) *Politics and the environment: risk and the role of government and industry* Oxford, UK: Earthscan.

Howlett, M. and Ramesh, M. (1993) Patterns of policy instrument choice *Review of Policy Research* 12(1), 3-24.

Hoyle, R., Harris, M. and Judd, C. (2002) *Research methods in social relations* 7th edition London: Wadsworth Thomson Learning.

Huhne, C. (2010) *Increasing the target for energy from renewable sources*
http://downloads.theccc.org.uk/s3.amazonaws.com/Renewables%20letter%20Sept2010/Letter_from_SoS_to%20Turner_29_07_2010.pdf [30 July 2010].

Hulme, M. and Turnpenny, J. (2004) Understanding and managing climate change: The UK experience *The Geographical Journal* 170, 115-125.

IEA (International Energy Agency) (2010) *World outlook report 2010* www.iea.org [3 August 2011].

Jasanoff, S. (2005) *Designs on nature. Science and democracy in Europe and the United States* Woodstock, UK: Princeton University Press.

Jogerst, M.A. (1991) Backbenchers and select committees in the British House of Commons: can Parliament offer useful roles for the frustrated? *European Journal of Political Research* 20(1), 21-38.

- Jonas, A.E.G. (2006) Pro scale: further reflections on the 'scale debate' in human geography *Transactions of the Institute of British Geographers* 31(3), 399-406.
- Jordan, A. (2005) *Environmental policy in the European Union* London: Earthscan.
- Jordan, A. and Greenaway, J. (1997) *Paradigm shift or muddling through? British coastal water policy 1955-1995* CSERGE working Paper WM 97-02
http://www.uea.ac.uk/env/cserge/pub/wp/wm/wm_1997_02.htm [17 May 2006].
- Jordan, A. and O'Riordan, T. (1995) *Institutional adaptation to global environmental change (I): social institutions, policy change and 'social learning'* CSERGE Working paper WM 97-02
http://www.uea.ac.uk/env/cserge/pub/wp/gec/gec_1995_21.htm [9 October 2006].
- Jordan, A. and Richardson J.J. (1987) *British politics and the policy process: an area approach* London: Unwin Hyman.
- Jordan, A., Wurzel, R.K.W. and Zito, A.R. (2003) *New instruments of environmental governance? National experiences and prospects* London: Frank Cass.
- Jordan, G. and Schubert, K. (1992) A preliminary ordering of policy network labels *European Journal of Political Research* 21(1), 7-27.
- Kalitowski, S. (2008) Rubber stamp or cockpit? The impact of parliament on government legislation *Parliamentary Affairs* 61(4), 694-708.
- Keen, B., Brown V.A. and Dyball, R. (2005) *Social learning in environmental management. Towards a sustainable future* London: Earthscan.
- Kemp, R. and Weehuizen, R. (2005) *Policy learning: what does it mean and how should we analyse it?* Publin Report D15 <http://survey.nifu.no/step/publin/reports/d15policylearning.pdf> [5 June 2006].
- Kerber, W. and Eckardt, M. (2007) Policy learning in Europe: the 'open method of coordination' and laboratory federalism *Journal of European Public Policy* 14(2), 227-247.
- Kingdon, J. (1984) *Agendas, alternatives, and public policies* New York: Harper Collins.

Kingdon, J. (2003) *Agendas, alternatives, and public policies* 3rd edition New York, USA: Addison-Wesley Educational Publishers.

Kuhn, T. (1970) *The structure of scientific revolutions* Chicago, USA: University of Chicago Press.

Labour Party (2010) *Policy making in the Labour government*

http://www2.labour.org.uk/policy_making [1 November 2010].

Leach, R. (1995) Political ideas in Mullard, M. (ed) *Policy making in Britain* London: Routledge Press.

Lehtonen, M. and Kern, F. (2009) Deliberative socio-technical transitions in Scrace, I. and MacKerron, G. (eds) *Energy for the future* Basingstoke, UK: Palgrave Macmillan.

Leitner, H. (2004) The politics of scale and networks of spatial connectivity: transnational interurban networks and the rescaling of political governance in Europe in Sheppard, E. and McMaster, R.B. (eds) *Scale and geographic inquiry* Oxford: Blackwell.

Lindblom, C.E. (1977) *Politics and markets* New York: Basic Books.

Lipp, J. (2000) Policy considerations for a sprouting UK green electricity market *Renewable Energy* 24(1), 31-44.

Lipp, J. (2007) Lessons for effective renewable electricity policy from Denmark, Germany and the United Kingdom *Energy Policy* 35(11), 5481-5495.

Liverman, D. (2004) Who governs, at what scale and at what price? Geography and environmental governance, and the co modification of nature *Annals of the Association of American Geographers* 94(4), 734-738.

Lofland, J. and Lofland, L. (1995) *Analyzing social settings: a guide to qualitative observation and analysis* Belmont, CA: Wadsworth.

Lukes, S. (1974) *Power: a radical view* London: Macmillan.

MacKerron, G. (2009) Lessons from the UK on urgency and legitimacy in energy policymaking in Scrace, I. and MacKerron, G. (eds) *Energy for the future* Basingstoke, UK: Palgrave Macmillan.

Marsh, D. and Furlong, P. (2002) A skin not a sweater: ontology and epistemology in political science in Marsh, D. and Stoker, G. (eds) *Theory and methods in political science* 2nd edition New York: Palgrave Macmillan.

Marsh, D. and Rhodes, R.A.W. (1992) *Policy networks in British government* Oxford: Oxford University Press.

Marsh, J. and Olsen, J.P. (1984) The new institutionalism *American Political Scientist Review* 78, 734-749.

Marsh, D. and Smith, M. (2000) Understanding policy networks: towards a dialectical approach *Political Studies* 48(1), 4-21.

Marsh, D. and Stoker, G (2002) *Theory and methods in political science* Basingstoke: Palgrave Macmillan.

Marsh, D., Richards, D. and Smith, M.J. (2001) *Changing patterns of governance in the United Kingdom* Basingstoke: Palgrave Macmillan.

Marshall Task Force (1998) *Economic instruments and the business use of energy: conclusions* November, Marshall Task Force on the Industrial Use of Energy <http://archive.treasury.gov.uk/pub/html/prebudgetNOV98/marshall.pdf> [10 November 2009].

Marston, S.A., Jones, J.P and Woodward, K. (2005) Human geography without scale *Transactions of the Institute of British Geographers* 30(4), 416-432.

May, T. (2001) *Social research* Buckingham: Open University Press.

May, P.J. (1992) Policy learning and failure *Journal of Public Policy* 12(4), 331-354.

Mazmanian, D. and Sabatier, P. (1989) *Implementation and public policy, with a new postscript* New York, USA: University Press of America.

Merton, R.K., Fiske, M. and Kendall, P.L. (1990) *The focused interview - A manual of problems and procedures* 2nd edition London: Collier Macmillan Publishers.

- Mitchell, C. (1995) The renewables NFFO: a review *Energy Policy* 23(12), 1077-1091.
- Mitchell, C. (2000) The England and Wales non-fossil fuel obligation: history and lessons *Annual Review of Energy and the Environment* 25, 285-312.
- Mitchell, C. (2008) *The political economy of sustainable energy* Basingstoke: Palgrave MacMillan.
- Mitchell, C. and Connor, P. (2004) Renewable energy policy in the UK 1990–2003 *Energy Policy* 32(17), 1935-1947.
- Murrall, S. and Bailey, I. (2008) Policy learning in UK renewable energy policy: a methodology *Proceedings of the ICE – Energy* 161(3), 113-140.
- National Archives (2010). *Departmental strategic objectives*
http://webarchive.nationalarchives.gov.uk/20081108034018/http://www.berr.gov.uk/aboutus/corporate/performance/performance_Framework/page43603.html [11 May 2010].
- National Audit Office (2005) *Report by the Comptroller and Auditor General (2005) renewable energy* (HC 210 Session 2004-2005) London: TSO.
- National Audit Office (2008) *Renewable energy: options for scrutiny*
http://www.nao.org.uk/publications/0708/renewable_energy_options.aspx [12 October 2010].
- National Audit Office (2009a) *Helping government learn* Publication date: 23/02/2009 HC 129 Session 2008-2009 London: TSO.
- National Audit Office (2009b) Performance of the Department of Energy and Climate Change, 2008-09 http://www.nao.org.uk/publications/0809/dept_energy_and_climate_change.aspx [11 September 2011].
- Nedergaard, P. (2006a) Policy learning in the European Union: the case of the European employment strategy *Policy Studies* 27(4), 311-323.
- Nedergaard, P. (2009) Policy learning processes in international committees: the case of the civil servant committees of the Nordic council of ministers *Public Management Review* 11(1), 23-37.

- Nevis, E.C., DiBella, A.J. and Gould, J.M. (1995) Understanding organizations as learning systems *Sloan Management Review* 36(4), 73-85.
- Newman, J. (2001) Participative government and the remaking of the public sphere *in* Newman, J (ed) *Remaking government: peoples, politics and the public sphere* Bristol: The Policy Press.
- Nilsson, M. (2005) Learning, frames, and environmental policy integration; the case of Swedish energy policy *Environment and Planning C: Government and Policy* 23(2), 207-226.
- Nixon, J. (1986) Evaluating select committees and proposals for an alternative perspective *Policy and Politics* 14, 415-438.
- O'Connell, D. and Drillsma-Milgrom, D. (2006) Crisis in the pipe line *Sunday Times* 8 January 2006 [online] available at http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article786087.ece [14 January 2006].
- Ofgem (Office of Gas and Electricity Markets) (2005) *Renewables Obligation second annual report* Feb 2005 44/55 www.ofgem.gov.uk [5 July 2005].
- Ofgem (2006) *Reform of the Renewables Obligation 2006 – Ofgem's response* <http://www.ofgem.gov.uk/Sustainability/Environment/Policy/Documents1/16669-ROrespJan.pdf> [20 September 2007].
- Ofgem (2009) *Ofgem pushes on with scrutiny of security in GB energy supply* <http://www.ofgem.gov.uk/markets/whlmlkts/discovery/Documents1/Discovery%20status%20report.pdf> [19 November 2010]
- Ofgem (2010) *RPI-X@20 review and the RIIO model for network regulation* <http://www.ofgem.gov.uk/Networks/rpix20/Pages/RPIX20.aspx> [19 November 2010].
- Oliver, M.P. and Pemberton, H. (2004) Learning and change in 20th century British economic policy *Governance* 17, 415-441.
- O'Riordan T. and Jordan, A. (1995) *The precautionary principle in contemporary environmental politics* London, UK: White Horse Press.

Out-Law.com (2010) *From DTO to BERR to BIS: Government creates mega-department.*

<http://www.out-law.com/page-10080> [11 May 2010].

Parker, D. (2003) The UK's privatisation experiment: the passage of time permits a sober assessment in CESIFO conference on privatisation experiences in the EU Brussels, 1-2 November 2003

http://www.cesifo.de/pls/guestci/download/CESifo%20Working%20Papers%202004/CESifo%20Working%20Papers%20February%202004/cesifo1_wp1126.pdf [10 September 2011]

Parkin, F. (2002). Max Weber (Revised Edition). London, UK: Routledge.

Parliament (2008) *Written ministerial statement – renewable energy*

<http://www.publications.parliament.uk/pa/cm200708/cmhansrd/cm080123/wmstext/80123m0001.htm> [10 October 2010].

Parliament (2010a) *Committees* <http://www.parliament.uk/business/committees/> [14 February 2011].

Parliament (2010b) *Parliament and government* <http://www.parliament.uk/about/how/role/parliament-government/> [29 October 2010].

Parson, E.A. and Clark, W.C. (1995) Sustainable development as social learning: theoretical perspectives and practical challenges for the design of a research programme in Gunderson, L.H., Holling, C.S. and Light, S.S. (eds) *Barriers and bridges to the renewal of ecosystems and institutions* New York: Columbia University Press.

Parsons, W. (2003) *Public policy* Cheltenham, UK: Edward Elgar.

Perl, A. and White, D.J. (2002) The changing role of consultants in Canadian policy analysis *Policy and Society* 21, 49-73.

PIU (2002) *The energy review* London: TSO.

Politicalstuff (2009) *Archive of Labour party manifesto - New Labour because Britain deserves better* <http://labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml> [10 November 2009].

Radaelli, C. (2009) Measuring policy learning: regulatory impact assessment in Europe *Journal of European Public Policy* 16(8), 1145-1164.

RCEP (2000) *22 Report - Energy: the Changing Climate Cm4749* London: TSO.

Read, M. and Marsh, D. (2002) Combining qualitative and quantitative methods in Marsh, D. and Stoker, G. (eds) *Theory and methods in political science* 2nd edition New York: Palgrave Macmillan.

Renewable Energy Association (2006) *Response to the UK energy review* http://www.r-p-a.org.uk/article_default_view.fcm?articleid=1852 [19 May 2007].

Renewable Energy Foundation (2001) *Renewables output in 2010* <http://www.ref.org.uk/publications/229-renewables-output-in-2010> [8 August 2011].

Renewables Advisory Board (2008) *2020 Vision - How the UK can meet its target of 15% renewable energy* <http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file46652.pdf> [10 October 2010].

Rhodes, R.A.W. (1988) *Beyond Westminster and Whitehall; the sub-central governments of Britain* London: Unwin Hyman.

Richardson, J. (2000) Government interest groups and policy change *Political Studies* 48(5), 1006-1025.

Richardson, J. (ed) (1982) *Policy styles in Western Europe* London: Allen & Unwin.

Ringle, M. (2006) Fostering the use of renewable energies in the European Union: the race between feed-in tariffs and green certificates *Renewable Energy* 31, 1-17.

Roberts, S., Centre for Sustainable Energy (2008) *On the same map?* <http://www.cse.org.uk/pdf/pub1112.pdf> [8 October 2009]

Robinson, C. (1993) *Energy policy: errors, illusions and market realities* Occasional Paper 90 Institute of Economic Affairs London.

Rooijen, S.N.M. and Wees, M.T. (2006) Green electricity policies in the Netherlands: an analysis of policy decisions *Energy Policy* 34(1), 60-71.

Rose, R. (1993) *Lesson drawing in public policy* New Jersey, USA: Chatham House publishers.

Sabatier, P. (1993) Policy change of a decade or more in Sabatier, P.A., and Jenkins Smith, H.C. (eds) *Policy change and learning: an advocacy coalition approach* Boulder, CO: Westview Press.

Sabatier, P.A. (1999) *Theories of the policy process* Boulder, CO: Westview Press.

Sabatier, P.A. and Jenkins-Smith, H.C. (1993) *Policy change and learning: an advocacy coalition approach* Boulder, CO: Westview Press.

Sabatier, P.A. and Jenkins-Smith, H.C. (1999) The advocacy coalition framework: an assessment in Sabatier, P.A. (ed) *Theories of the policy process* Boulder, CO: Westview Press.

Sabatier, P. A. and Jenkins-Smith, H.C. (2007) *Theories of the policy process* Boulder, CO: Westview Press.

Sabatier, P.A. and Weible, C.M. (2007) The advocacy coalition framework: innovations and clarifications in Sabatier, P.A. (ed) *Theories of the policy process* Boulder, CO: Westview Press.

Sarantakos, S. (1998) *Social research* 2nd edition Basingstoke, UK: Macmillan.

Scrase, I., Wang, T., MacKerron, G., McGowan, G. and Sorrell, S. (2009) Introduction: climate policy is energy policy in Scrase, I. and MacKerron, G. (eds) *Energy for the future* Basingstoke, Hampshire: Palgrave Macmillan.

Scrase, I. and MacKerron, G. (2009) Lock-in in Scrase, I. and MacKerron, G. (eds) *Energy for the future* Basingstoke, Hampshire: Palgrave Macmillan.

Seager, A. and Milner, M. (2007) *Revealed: cover-up plan on energy target* The Guardian 13 August [online] available at <http://www.guardian.co.uk/environment/2007/aug/13/renewableenergy.energy> [13 August 2007].

Siebenhuner, B. and Suplie, J. (2005) Implementing the access and benefit-sharing provisions of the CBD: a case for institutional learning *Ecological Economics* 53, 507-522.

Silverman, D. (2005) *Doing qualitative research* London: Sage.

Simons, H.A. (1957) A behavioural model of rational choice in Simons, H.A. and Wiley, J. (eds) *Models of man: social and rational* New York: Wiley.

Smith, A. (2007) Emerging in between: the multi-level governance of renewable energy in the English regions *Energy Policy* 35(12), 6266-6280.

Smith, A. (2009) Energy governance: the challenges of sustainability in Scrase, I. and MacKerron, G, (eds) *Energy for the future* Basingstoke, Hampshire: Palgrave Macmillan.

Smith, A. and Watson, J., Tynall Centre (2002) *The Renewables Obligation: can it deliver?* <http://www.tyndall.ac.uk/content/renewables-obligation-can-it-deliver> [10 September 2011].

Smith, M. (1993) *Pressure, power and policy: autonomy and policy networks in Britain and the United States* Hemel Hempstead: Harvester Wheatsheaf.

Smith, G. and May, D. (1980) The artificial debate between rationalist and incrementalist models of decision making *Policy and Politics* 8, 147-161.

SPRU (Sussex Policy Research Unit) (1999) *Evaluation of the DTI new and renewable energy programme 1994-8 FINAL REPORT* http://webarchive.nationalarchives.gov.uk/20040722014614/http://dti.gov.uk/about/evaluation/renew_main.pdf [10 October 2010].

Stein, E.W. (1995) Organizational memory: review of concepts and recommendations for management *International Journal of Information Management* 15(1), 17-32.

St Martin, D. (1998) The new managerialism and the policy influence of consultants in government: an historical–institutionalist analysis of Britain, Canada and France *Governance* 11, 319-356.

Sustainable Development Commission (SDC) (2007) *Lost in transmission – the role of Ofgem and the changing climate* <http://www.sd-commission.org.uk/publications.php?id=594> [10 April 2010].

Szarka, J. (2003) The politics of bounded innovation: ‘new’ environmental policy instruments in France in Jordan, A., Wurzel, R.K.W. and Zito, A.R. (eds) *‘New’ instruments of environmental governance* London: Frank Cass.

Szarka, J. (2005) Wind power, policy learning and paradigm change *Energy Policy*, 5, 105-113.

Tesch, R. (1990) *Qualitative research: analysis types and software tools* New York: Falmer.

Tews, K. (2005) The diffusion of environmental policy innovations: cornerstones of an analytical framework *European Environment* 15, 63-79.

Thatcher, M. (1993) *The Downing Street years* New York: Harper Collins.

True, J.L., Jones, B.D. and Baumgartner, F.R. (2007) Punctuated-equilibrium theory: explaining stability and change in public policymaking in Sabatier, P.A. (ed.) *Theories of the policy process* 2nd edition Boulder, CO: Westview Press.

Useem, M. (1995) Reaching corporate executives in Hertz, R. and Imber B.J. (eds) *Studying elites using qualitative methods* London: Sage Publications Ltd.

Varone, F. and de Lovinfosse, I. (2004) Explaining renewable electricity policies in Europe in Lovinfosse, I. and Varone, F. (eds) *Renewable electricity policies in Europe* Belgium: Presses Universitaires de Louvain.

Varone, F., de Lovinfosse, I. and Lauber, V. (2004) Renewable electricity policies in Europe: a tentative comparison in Lovinfosse, I. and Varone, F. (eds) *Renewable electricity policies in Europe* Belgium: Presses Universitaires de Louvain.

Vidal, J., Guardian (2010) *Labour's nuclear disaster*

<http://www.guardian.co.uk/commentisfree/2007/feb/15/wellwasthegovernmentsdecis>

[21 April 2010].

Walker, K.J. (2001). Uncertainty, epistemic communities and public policy in Handmer, J.W., Norton, T.W. and Dovers, S.R. (eds) *Ecology, uncertainty and policy* Harlow, UK: Prentice Hall.

Walker, G. and Cass, N. (2007) Carbon reduction, "the public" and renewable energy: engaging with sociotechnical configurations *Area*, 39(4), 458-469.

Wals, A.E.J. and T. Leij. (2007) Introduction in Wals, A.E.J. (ed) *Social learning towards a sustainable world* The Netherlands: Wageningen Academic Publishers.

Weale, A.P. (2000) *Environmental governance in Europe? An ever closer ecological union* Oxford: Oxford University Press.

- Weale, A.P., Pridham, G., Cini, M., Konstadakopulos, D., Porter, M. and Flynn, B. (2005) *Environmental governance in Europe* Oxford: Oxford Press.
- Weber, M. (1974) Objectivity in social science and social policy in Riley, G. (ed) *Values, objectivity and the social sciences* Reading, MA: Addison-Wesley.
- Weiss, C.H. (1977) Research for policy's sake: the enlightenment function of social research *Policy analysis* 3, 531-546.
- Weitzman, E.A. and Miles, M.B. (1995) *Computer programs for qualitative data analysis* Thousand Oaks, CA: Sage.
- Williams, M. (2003) *Making sense of social research* London: Sage.
- Woodman, B. and Mitchell, C. (2011) Learning from experience? The development of the Renewables Obligation in England and in Wales 2002-2010 *Energy Policy* 39, 3914-3921.
- Wurzel, R.K.W. (2002) *Environmental policy-making in Britain, Germany and the European Union* Manchester: Manchester University Press.
- Wurzel, R.K.W., Jordan, A., Zito, A.P. and Bruckner, L. (2003) From high regulatory state to social and ecological market economy? 'New' environmental policy instruments in Germany in Jordan, A., Wurzel, R.K.W. and Zito, A.R. (eds) *'New' instruments of environmental governance* London: Frank Cass.
- Young, R., Centre for European Social Studies (2007) *Europe's external energy policy: between geopolitics and the market* http://www.frice.org/descarga/WP_CEPSEnergy_ENG_nov07.pdf CEPS Working Document No. 278/November 2007.
- Youtube (2010) *A Byers guide: hiring an MP* http://www.youtube.com/watch?v=XZmc6oYP_-c [24 March 2010].
- Zahariadis, N. (2007) The multi stream framework: structure, limitations, prospects in Sabatier, P.A. (ed) *Theories of the policy process* Boulder, CO: Westview Press.
- Zarkin, M. (2008) Organizational learning in novel policy situations: two cases of United States communication regulation *Policy Studies* 29(1), 87-100.

Zito, A.R, (2000) *Creating environmental policy in the European Union* Basingstoke, UK: Palgrave.

Zito A.R, and Schout, A. (2009) Learning theory reconsidered: EU integration theories and learning
Journal of European Public Policy 16(8), 1103-1123.