The role of collaboration in realising local authority energy objectives: An institutional and stakeholder perspective

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The candidate confirms that the work submitted is his/her own, except where work which has formed part of jointly authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

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Abstract

Local authorities are well-placed to make significant contributions towards national emissions reductions commitments, through the pursuit and enablement of energy-related activities. Numerous factors affect the ability of local authorities to realise their energy ambitions, but current research tends be framed from either a socio-political or techno-economic perspective. Collaborative approaches to delivery, for example local authorities working together or with the private sector, are increasingly cited as a means of overcoming identified constraints, but the process of collaboration itself remains under examined.

This thesis contributes to the body of literature examining local authority energy activity by focusing on the collaborative process. Using a multiple case study approach, the research develops an integrated analytical framework that draws on institutional and stakeholder theories to explore the antecedents, processes, and outcomes of local authority collaborations. Through the application of the framework to three cases over two research phases it characterises the influences on local authorities and the organisations with whom they collaborate, and considers how specific organisational issues interact within a shared collaborative context. By taking a holistic perspective, new insights into conditions that can create successful and unsuccessful collaborations are identified.

Institutional factors create some of the main antecedents to collaboration, while stakeholder and specific organisational issues are more evident at the process stage. The results show that collaboration can play a valuable role in addressing some of the barriers to local authority energy activity. However, while successful local authorities may collaborate, not all collaborations lead to success. The multi-organisational collaborations examined in this thesis were shown to introduce their own pressures, and demonstrated that organisational barriers to independent activity can be perpetuated into a collaboration. While a collaborative approach can be an effective mechanism for delivery of energy activity, when delivered in a competitive market context this research shows that there is the potential for preferential partnerships to develop within a collaboration, arguably favouring those most able to act without the need to collaborate. When collaboration is advocated as a solution, the balance of intentions between mitigating organisational deficiencies and seeking to achieve shared outcomes should be carefully considered.

Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

BHY	Better Homes Yorkshire
CCC	Committee on Climate Change
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Savings Programme
CHP	Combined Heat and Power
CRC	Carbon Reduction Commitment
DH	District Heat
DNO	Distribution Network Operator
EESoP	Energy Efficiency Standards of Performance
ESCo	Energy Service Company
FIT	Feed-in Tariff
LCC	Leeds City Council
LCR	Leeds City Region
LEP	Local Enterprise Partnership
NCC	Newcastle City Council
NFFO	Non-Fossil Fuel Obligation
NGO	Non-governmental organisation
OfGEM	Office of Gas and Electricity Markets
OJEU	Office Journal of the European Union
PFI	Private Finance Initiative
RERF	Recycling and Energy Recovery Facility
RO	Renewable Obligation
ROC	Renewable Obligation Certificate
SPV	Special Purpose Vehicle
WUN	Warm Up North
WYCA	West Yorkshire Combined Authority

1 Introduction

This thesis considers the role of collaboration in realising local authority energy objectives. Using a novel analytical framework, it examines the types and effects of institutional, stakeholder and organisational influences on energy activities in local authorities, focusing on the antecedents to, processes during, and outcomes arising from the use of collaboration as a means of implementation. The research makes several contributions to applied and theoretical literature. From an applied perspective, it demonstrates that while successful authorities may engage in collaborative activity with other authorities and the private sector, not all collaborations are a success. Critically, it demonstrates that constraints to delivery present within an individual organisation can be perpetuated within a collaboration. Additionally, it demonstrates that organisational decisions at a national level can have profound implications on local collaborative activities. Theoretically, the research brings a novel perspective to the debate regarding the capacity of local government to realise local energy outcomes, through the development of an analytical framework to systematically evaluate the influences on collaborative delivery.

This introductory chapter is structured as follows. The importance of local authority energy activities to the global pursuit of decarbonisation and emissions reductions is introduced in section 1.1. Definitions for key terms are presented in section 1.2, before the research aims and focus of the research are introduced in section 1.3. The structure of the thesis is also summarised in section 1.3.

1.1 Context and rationale: local authorities as global actors

In 2012, the International Energy Agency determined that much of the technology required to achieve decarbonisation of global electricity supplies was already largely commercially competitive, with many of the technologies categorised as mature. Alongside electricity decarbonisation, efforts to reduce final energy use through demand reduction and energy efficiency measures, and renewable heat supply are all important contributors to a reduction in carbon dioxide emissions, particularly in light of the fact that key CO_2 capture technologies required to realise the 2 °C benchmark are lagging behind (IEA 2012).

The continuing rise in greenhouse gas emissions despite the availability of technologies to mitigate their creation reflects an intractable link between technological, social and political influences on the transition to a sustainable economy identified by scholars such

as Foxon (2011) and Geels (2014). Increasingly, local government organisations around the globe are taking up the mantle of addressing greenhouse gas emissions from within their own jurisdictions. In doing so they are providing a link between the three systems; bridging the gap from high-level international efforts to achieve a global political agreement on a solution to the small but significant contributions to mitigation that can be realised by communities and individuals (IEA, 2009; Kennedy et al., 2012). Described by Hawkey et al. as "critical contributors and catalysts" (2014 p. 3) to the development of a more efficient, distributed energy system in the UK, local authorities are key organisations in the move towards long-term sustainability and emissions reductions. Nevertheless, within the United Kingdom (UK), the majority of local authorities remain relatively unengaged in energy activities (ibid).

In order to move towards a majority of local authorities being active in the UK energy system, it is necessary to understand how best to support them to do so. To date, numerous studies have been undertaken to identify the barriers and drivers to local authority energy activity, demonstrating in the process that there has been little change in the nature of the challenges and opportunities faced over an extended period of time (Collier and Löfstedt, 1997; Allman et al., 2004; Kelly and Pollitt, 2011). Webb et al.'s (2017) recent and detailed analysis of the relative engagement of local authorities provides evidence of the ambition, scale, and types of energy activity currently occurring in UK local authorities, and puts forward several suggestions for government and local authorities for overcoming the identified challenges to delivery, including the use of collaboration. Across these and wider studies, there is an implicit assumption that collaborative activity by local authorities can mitigate many of the barriers they face. However, while collaborative activity has been examined in the context of transitions or sustainability goals, it has focused on evaluating the role of transitions experiments to foster collaboration (Luederitz et al., 2017) or the role of collaborative activity in developing transitions activity (Hamann and April, 2013; Trencher et al., 2014), rather than an examination of the process of collaboration itself. Through an examination of collaborative delivery, the research in this thesis extends the evaluation of collaboration to consider how the parties involved, and the context in which they act, affects the progress of collaborative activity and the potential for local authorities to act as local agents for global change.

1.2 Definitions of key terms

Numerous theoretical perspectives have been applied to analyse technological, social, political, and economic issues facing local authorities engaging with energy activity across

a range of scales. While many issues examined can be designated as one of the four categories, the reality is that they are increasingly interlinked. Coupled with, and perhaps because of, the wide-ranging origins of local authority energy literature and its increasingly interdisciplinary nature, there is a lack of consistency of terminology within the literature. Cities and local authorities are often used synonymously, and energy activities are often the de-facto focus for studies focusing on local authorities and climate change. The following list of highly-regarded studies illustrate this point, as they consider: local authorities managing greenhouse gas emissions (Fleming and Webber, 2004); cities and their role in addressing climate change (Betsill and Bulkeley, 2007; Castán Broto and Bulkeley, 2013); local authorities addressing climate change (Allman et al., 2004); and local approaches to energy (Kelly and Pollitt, 2011; Hawkey et al., 2014; Webb et al., 2017). This thesis considers *local authorities* and their *energy activities and objectives,* with a focus on *collaboration*. Each of these terms is defined in the following sub-sections.

1.2.1 Local authorities in the UK

Local authorities are the various levels of sub-national government responsible for many of the public services delivered within their jurisdictions (Sandford, 2016a). Within England, areas may be under the control of a single tier of local government, or divided into two or three tiers. One-tier systems are controlled by unitary authorities. Unitary authorities may be designated directly as such, but metropolitan districts and London boroughs are also unitary authorities. Two-tier systems consist of county councils and district councils, with county councils having control over the smaller district councils within their area. In some areas, districts are further subdivided to provide a third tier of government: the town or parish council.

The three forms of unitary authorities all share the same responsibilities, but responsibilities are divided between county and district councils, with county councils responsible for more regional services, while district councils have a more local remit (Sandford, 2016a). In addition to local authorities, nine combined authorities exist in England. Combined authorities are legal bodies, comprised of groups of geographically connected local authorities. The combined authorities enable these groups to work together on regional issues, including the pursuit of devolution deals (ibid.).

In general, in this thesis local authorities are referred to generically, irrespective of level. However, one of the limitations of local authority literature is that there is often little differentiation between the levels of local government, and the implications that this may have for their capacity to fulfil role assigned to 'local authorities'. Therefore, where it is

instructive to do so in this thesis, distinctions between the tiers of local government will be made. Combined authorities will be referred to as such.

1.2.2 Energy activity

The Oxford English Dictionary defines activity as "a thing that a person or group does or has done" (2010). The term 'energy activity' chosen for this thesis, could therefore be defined as a thing done by a person or group that pertains to energy. While such a definition is deliberately nebulous in order to capture a wide range of energy-related activities being pursued by local authorities, it could be argued that all activities pertain to the energy in some way, through a need for consumption or production of energy in order to enact them. Therefore, it is necessary to further define 'energy activity'; to capture the wide range of activities that it can reflect, while also recognising the intent of the activity being undertaken. To reflect the multiplicity of perspectives within local authority energy research, the final definition used in this work is informed by previous studies.

Castán-Broto and Bulkeley (2013) considered over 600 global climate change interventions in order to assess the types of activities being undertaken at an urban scale, the actors involved in their delivery, and their geographical distribution. Initiatives were divided into six sectors: urban infrastructure, built environment, urban form, transport, carbon sequestration, and mitigation. The term 'energy' was included in scheme descriptions for four sectors: urban infrastructure, built environment, transport, and adaptation (as security of supply).

Considering the national scale, the UK Committee on Climate Change (CCC) produced a guidance document in 2012 for local authorities indicating how they could act to lead on the reduction of carbon emissions in their geographical areas. The UK government publishes four-year carbon budgets in order to define a pathway for emissions reductions, with emissions divided into traded and non-traded emissions sectors (HM Government, 2011). Table 1-1 shows the carbon budget emissions sectors over which the CCC determined local authorities have influence (2012).

Table 1-1: Local authority influence over emissions sectors

Emissions sector		Influence type	
		Direct	Indirect
Non-traded	Buildings	High (e.g. Green Deal)	Awareness raising
	Surface transport	High (e.g. Sustainable travel measures)	Promoting alternative vehicles
	Waste	High	Prevention
	Industry, refineries and other energy supply	-	Promoting district heating
	Agriculture	Low (own estate)	-
Traded*	Power sector	Low (community renewables)	Public support/planning approvals
	Energy-intensive industry, refineries, and other energy supply	-	Promoting district heating

*Traded emissions are those that are covered by the European Union Emissions Trading Scheme

Adapted from CCC (2012 p. 29)

The sectors over which the CCC determined that UK authorities have influence are broadly similar to the sectors in which energy activity is occurring, as empirically determined by Castán-Broto and Bulkeley (2013). Castán-Broto and Bulkeley were considering activity on a global scale, led by both public and private sector organisations. However, their findings nevertheless provide a basis for defining local authority energy activity, when considered alongside the CCC report. The buildings and transport sectors in the CCC report align closely with the built environment and transport sectors described by Castán-Broto and Bulkeley (2013). Waste and power sector activities identified individually by the CCC are encompassed within Castán-Broto and Bulkeley's (2013) urban infrastructure sector examples. A definition of energy activity should therefore incorporate the range of activities included in these sectors.

Thus far, practical, technology-related interventions have been considered. Webb et al's. (2017) recent research reinforced the prevalence of the technological aspect of local authority energy, and demonstrated a concentration of UK activity in the urban infrastructure and buildings sectors. However, the research also identified the presence of energy services activity in local authorities' activities, with the example of Bristol Energy, which operates as a municipally-owned licenced energy and gas supplier. Hannon and Bolton (2015) identified further examples of services activity in the form of Energy Services Companies (ESCos) with local authority involvement. Therefore, a definition of energy activity should be capable of including both technological and service activities.

For the purpose of this thesis, 'energy activity' is therefore defined as *any activity which is designed to effect change to energy supply, demand, or vectors.* Energy objectives are *the intended outcomes arising from the pursuit of energy activity.* Local authority energy activities extend the definition of energy activity to indicate the influence of the local authority, and are defined as *any energy activity over which a local authority exerts direct or indirect control.* These definitions, while sufficiently broad to encompass the wide range of activity being undertaken and influenced by local authorities, exclude activities in which local authorities may have an interest, but no control.

1.2.3 Collaboration

Collaboration as a term has multiple definitions, and has been variously conceptualised by organisational researchers as a mode of operation, a form of structure, or a rationale for engagement (Huxham, 1996). In applied local authority literature, examples of collaboration may be described as 'partnerships', 'networks', 'co-operation', 'frameworks', and 'joint-ventures' with the terms used to differentiate between different forms of working together (McCormick et al., 2013; Sullivan et al., 2013). Across the range of literature however, the terms and definitions listed here are inconsistently applied. In this thesis, local authority collaboration is considered in two guises: as *an act of working with external organisations (including public, private and third sector organisations) that can take a variety of structural forms,* and as *the process of interaction* itself.

1.3 Research aims and focus

In this section, the research aims are introduced, along with a brief overview of the methodology and unit of analysis used in the work.

The overarching research question of this thesis asks:

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

To answer the question above an understanding of the factors that prompt collaboration, and an examination of collaboration in practice is required. The thesis makes the initial assumption that the pursuit of collaboration by a local authority is prompted by a desire to overcome constraining influences on activity. The aim of the thesis is to understand these constraining influences affecting local authority energy activity, and to investigate if the use of collaborative arrangements mitigates their presence. Three case studies conducted in two phases were used to pursue this aim.

Constraining influences may arise as a result of the activities of an organisation itself, or the environment in which it operates. The research uses collaboration literature, and institutional and stakeholder theories drawn from organisational studies to structure the case study analyses. Institutional theory is used to assess the macro-level influences in each case, examining the embedded structures and systems within which the organisations operate, and the mechanisms of diffusion that reinforce and spread their effects throughout an organisational group (DiMaggio and Powell, 1983; Scott, 2008). Stakeholder theory is used to examine the more proximate influences on an organisation arising from stakeholder influence over organisational objectives, and the factors affecting relationships and interactions between an organisation and its stakeholders (Freeman, 1984; Mitchell et al., 1997).

Institutional and stakeholder influences can interact to amplify or diminish each other's effects (Lee, 2011). Their combined application in the case study analyses enables such interaction to be identified. However, in addition to external influences, constraints to activity can arise from within an organisation. Therefore, the thesis also examines the immediate influence of individual organisational structure, routines, priorities and resources alongside the institutional and stakeholder influences. Institutional and stakeholder literature, and the detailed theoretical approach used in this thesis is introduced in Chapter 2.

Chapter 3 introduces the methodology. Over the past two decades, despite a growing body of literature that focuses on the socio-political dimension of local authority energy activity (Voisey et al., 1996; Bulkeley and Kern, 2006; Webb, 2015) qualitative methods in energy research as a whole remain limited. Quantitative research focused on economics and engineering solutions are still dominant (D'Agostino et al., 2011). Therefore, a qualitative methodology is employed in this research, reflecting the process-focused perspective of the research, which seeks to explain how events and actions are shaped by the specific circumstances in which they occur. Two phases of research are used; the first phase takes a broad view of local authority energy activity to reframe the question of constraints on activity according to the theoretical perspective introduced above. Phase One also gathers evidence of the range of collaborative activities being undertaken by a single local authority, Leeds City Council, in order to identify possible cases for further examination. Phase Two pursues the examination of collaboration in more detail.

The research is conducted using a critical realist approach (Bhaskar, 2008). The use of such an approach recognises the differences between the mechanisms, events and experiences present in a single reality, and accommodates the multiple perspectives and

interpretations of a heterogeneous set of actors and organisations operating within a shared context. Template analysis, which is a form of thematic analysis (King, 2012) is used in both phases to identify the key factors present in the development and implementation of local authority energy collaborations.

1.3.1 Focus of the empirical chapters

Three empirical chapters comprise the results of this thesis. Chapter 4 presents the Phase One case study, which is focused on the experiences of actors delivering energy activity within Leeds City Council (LCC), coupled with a desktop review of the types and purposes of collaborative energy activity in the UK. The case study draws on the actors' experiences to develop an understanding of the choices and challenges they face in the development and delivery of energy activities. By choosing to limit the study to one authority, staff from across the organisation could be questioned to gain a comprehensive understanding of the range of issues faced. The desktop review provides a contextual understanding of collaborative activity employed by local authorities in the UK, and a basis against which the activities of the local authority can be compared.

Chapters 5 and 6 go on to report the results of a comparative study between two cases of large-scale, regional energy efficiency retrofit. The cases are presented according to their chronological development. Chapter 5 considers the case of Warm Up North (WUN), situated in the north east of England. Chapter 6 considers Better Homes Yorkshire (BHY), which was identified as an example of collaborative activity in which LCC was engaged, in the Phase One research. The cases were chosen for their comparability at several levels: the macro-level context in which they were delivered, the similar technological focus, and the structural arrangements of the schemes themselves. The immediate influences on the collaborating local authorities and private organisations provided a source of difference, and as examples of multiple-authority collaborations, the two schemes represented an opportunity to examine different tiers of local government within a single situation. Additionally, the collaborations bring together organisations with different sources of institutional and stakeholder influence, making the division of the influences in such a way in the analysis particularly relevant. Chapter 7 draws the two phases of research together to summarise the findings of the research, and discusses their implications for local authorities, policymakers and future studies on the role of collaboration in realising local authority energy objectives.

The research presented in this thesis makes several contributions to theory and practice. It integrates stakeholder and institutional theories into a single analytical framework with organisational influences, enabling the interactions of context, agency and practicalities to

be examined. The framework is applied to conduct an in-depth evaluation of the process of collaborative delivery, providing a new perspective on local authority energy activity that departs from the current over-examination of socio-political and technological issues. From an applied perspective the detailed comparison of two collaborative arrangements, each comprising multiple local authorities and their private sector partners, demonstrates that such arrangements are not consistently successful in overcoming the constraints to pursuing energy activity faced by individual local authorities. The use of a collaborative arrangement as a means of overcoming organisational constraints should therefore be carefully considered prior to its implementation, particularly when the arrangement is likely to include or affect organisations with fewer resources or unique needs. Questions of suitability raised by this research are also applicable to non-energy, and non-local authority collaborations.

This chapter has provided the background information and rationale for the research. It has outlined the methodological approach and chosen research paradigm, and the structure and focus of the empirical chapters. Finally, it has shown how this thesis makes unique contributions to literature, both theoretical and applied.

2 Literature review

This chapter is presented in two halves. The first half reviews literature dealing with the topic of local authorities and their role in mitigating climate change through energy activities. The second half of the chapter sets out the theoretical approach used to inform the analysis within the thesis, drawing from three strands of organisational literature: collaboration literature, institutional theory, and stakeholder theory.

2.1 Introduction

Extant local authority literature provides a great deal of insight into the policy context in which local authority energy activity takes place, and highlights the extent of the institutional challenges arising from local authorities' emerging role in energy activities. However, there is as yet a limited focus on collaboration in local authority energy literature, beyond its proposal as an outcome arising from the contextual challenges. It is argued that the body of existing research can be developed by focusing on the process of collaboration and the organisations and stakeholders with which local authorities collaborate. This is particularly important in light of the fact that collaborative and partnership approaches are consistently identified as a means to overcome many of the barriers to activity described in current literature focusing on local authority energy activity.

The extant local authority literature reviewed in this chapter is divided broadly into context- and solution-focused studies. The first of these groups considers how local authorities' roles and their energy-related activities fit within a wider progression towards a low-carbon economy, often with a strong theoretical context. Conversely, many of the studies in the solution-focused group are applied; often comprising descriptive (and frequently comparative) case studies focused on barriers and enablers to activity, or the practical progress and approaches of local authorities in enacting their energy objectives and contributing to wider climate goals.

The context and solution perspectives described above provide a great deal of insight into the challenges and opportunities faced by local authorities in relation to the pursuit of energy-related activities. However, as will be demonstrated through this review, two key (related) aspects of local authorities' energy activity remain under examined. Firstly, many scholars propose collaborative approaches as a means of overcoming identified institutional and practical constraints to activity. However, within the separate field of organisational studies, research into the collaborative process highlights the complexity of

collaborative arrangements, and how the interplay of numerous influences can contribute to the outcome of a collaboration. Despite the recognised challenges of collaboration, there appears to be little in the way of a detailed examination of collaboration within the applied literature focusing on local authority energy activity. While current studies provide a good appreciation of the challenges and opportunities faced in the early stages of the pursuit of local authority energy activity, there is a relative lack of exploration as to how collaborative delivery plays out in practice.

Similarly, while there is an extensive body of literature focused on the role of local authorities in the sphere of energy-related activities, and recognition that differences exist between individual authorities e.g. McEvoy et al. (2001), and Morris et al. (2017), there is a tendency to propose policies and solutions to support 'local authorities' as a homogenous group, and a relative lack of consideration of the stakeholders with whom local authorities are urged to collaborate. Janda and Parag (2013) have begun to address this lack of consideration of wider organisations through their examination of the roles of building professionals and practitioners, but their studies represent a minority of studies with such an approach. Additionally, looking again to organisational studies, there is evidence that differing responses arise within a group of similar organisations operating in a common regulatory context, e.g. Delmas and Toffel (2008), Greenwood et al. (2010), and Ocasio and Radoynovska (2016).

There exists, therefore, an opportunity to address a gap in the current literature, in which the contextual influences on local authority energy activities are overrepresented. This gap can be addressed through the application of an organisational lens to studies focused at project or organisation level. This thesis applied such a lens. In doing so, it contributes to our understanding of how contextual influences are experienced by individual organisations, and how issues arising from their individual situations interact with issues arising from the context in which they operate. In the application of such a lens, this thesis addresses the as-yet limited focus on implementing collaboration in local authority literature. The overarching question of the thesis is therefore:

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

This overarching question is addressed using three further research questions, which are introduced over the course of this chapter. The questions are introduced alongside the relevant literature, which first explains the need to examine collaboration in local authority energy activity. There then follows a brief introduction to current research on

collaboration, before the theory used to examine collaboration in this thesis is introduced. The three research questions introduced across the chapter are re-stated and numbered at the end, to reflect the order in which they are subsequently addressed.

The remainder of this chapter is structured as follows. Sections 2.2 and 2.3 consider literature dealing with the contextual- and solution-focused perspectives of local authority energy activity respectively. Section 2.5 examines the degree to which energy is considered within organisational literature. The focus of the chapter then switches to the theoretical basis of the analysis. Section 2.6 discusses collaboration literature with a view to developing an analytical framework through which the process of collaboration can be examined. Sections 2.7 and 2.8 present a critical review of institutional and stakeholder theories respectively, and develop a case for the concurrent application of the theories to overcome analytical limitations arising from their independent use. Finally, the anticipated theoretical and applied contributions of this thesis are summarised in Section 2.10.

2.2 Current research into local authority energy activity: the contextual perspective

Section 2.1 introduced the focus on collaboration in this thesis, as an underrepresented area of study within wider local authority energy literature. In this section the context-focused local authority literature is discussed, before the solutions-focused literature is examined in section 2.3. Many of the trends and themes visible in the contextually-focused local authority literature are linked to the inherent relationship that exists between local authorities and national government. The very fact that local authorities are by definition sub-national government bodies means that their actions are inextricably linked to the national institutional context; operating within an established multi-level governance framework, and affected by national policy and its implications for their governance and decision-making (and vice-versa). As a result, much of the theoretical literature focuses on the constraints on local authorities' energy activities arising from the institutional context in which they operate. In section 2.2.1, the impact of national political context on local authorities is examined. Governance is discussed in section 2.2.2.

Alongside the political literature, a second strand looks at the wider role that local authorities play in facilitating a move towards a more low-carbon economy as a whole. This is embodied by socio-technical and transitions literature (section 2.2.3). While there are many overlaps with the more politically focused literature, these studies focus more on the opportunities local authorities have to create lasting change to the energy regime as

a whole. The overlaps between the two bodies of literature arise because many of the roles identified for local authorities as change makers in the transitions literature are constrained by the political and governance issues discussed in sections 2.2.1 and 2.2.2. Finally, section 2.2.4 discusses the role of partnerships and collaboration identified throughout the literature.

Prior to examining the extant literature however, it is useful to consider why local authorities are viewed as key actors for energy activities, and why their activities are considered worthy of research. The presence of local authorities in the energy system in the UK has transformed from their being central to the supply of energy in the early 1900s, to occupying a broader supporting role in the early 2000s (Thorp and Marvin, 1995). During this period, the policies and powers available to local authorities have changed considerably providing them with greater freedom in their actions, as will be discussed in section 2.2.1. However, the status of authorities as intermediaries between local communities and national government has remained largely unchanged. The intermediary role of local authorities is explored further in section 2.2.3.1, but in acting as linking agents, local authorities play a critical role in administering national energy policy at a local scale, drawing on their knowledge of local circumstances to ensure effective delivery that accords with local needs (Morris et al., 2017). It is this linking role of local authorities that provides value in their examination; as "social landlords, trusted community leaders, and major employers" (CCC, 2012 p. 8) they are well placed to act as providers, advisors, and enablers within their communities, bridging the gap from top-down national policy initiatives to those implicated in its delivery. For smaller energy organisations, such as community energy initiatives, local authorities can bring their "scale, credibility and administrative skill" (Tweed, 2014 p. 250) to facilitate action within a national energy sector dominated by large-scale centralised activity. Additionally, local authorities can have an effect on the energy behaviour of larger organisations in their regions through their ability to influence key emitting sectors (Revell, 2013).

In addition to linking with non-government organisations, membership of various government associations and networks such as regional combined authorities (Sandford, 2016a), or the Core Cities[1] group, provide opportunities for local authority collective decision making. Therefore, the variety of scales at which local authorities can act, and the

[1] The Core Cities group comprises ten cities (excluding London) in the UK that together deliver over 25% of the national economic output, working together to promote the cities' role in the UK. https://www.corecities.com/

range of activities in which they are able to engage makes them a valuable point of focus to understand how national energy objectives translate into local activity.

2.2.1 The national political context

Though nominally focused on the local scale, research into the energy activities of local authorities consistently highlights how global, and national political decisions can constrain or promote opportunities at the local level. In the 1990s, while Thorp and Marvin (1995) were considering how liberalisation of the UK energy market affected the energy-related roles of UK local authorities, Voisey at al. (1996) were evaluating the responses of local authorities to Local Agenda 21 (LA21).

At the time of these early studies, UK local authorities were operating within a constitutional arrangement that required them to act under direction from central government, largely restricting their energy activities to management of energy use within publicly owned buildings, or in the role of large scale consumers (Thorp and Marvin, 1995; Collier and Löfstedt, 1997). Notwithstanding the existing constitutional arrangements at the time, Thorp and Marvin (1995) suggested that energy market liberalisation raised opportunities for local authorities to form partnerships with utilities, developers, and other large-scale users for the purposes of policy development, or local-scale generation and supply.

Thorp and Marvin's focus on the opportunities available to local authorities presented by a central political decision, and the observation that "much depends on the attitude of local authorities towards the markets" (1995 p. 480) suggested a reasonable level of independence for local authorities at the time. In contrast, and at roughly the same time, Voisey et al. (1996) observed that "central government over the last 16 years... has placed a straitjacket of constraints on the powers and abilities of local government" (ibid. p.46). However, in common with Thorp and Marvin (1995), Voisey et al. (1996) also looked on partnerships as a beneficial activity for local authorities; to overcome the challenges presented by a lack of capacity of UK local authorities to implement LA21.

The existence of a lack of resources, and an associated lack of capacity for local authorities to engage fully with local energy activity has remained a persistent observation in local authority literature, despite successive increases to the devolved powers conferred on UK local authorities. However, some have also suggested that a lack of proactivity on the behalf of local authorities might explain a lack of action. For example, Kelly and Pollitt (2011) suggested that there was a muted response by local authorities to a power of wellbeing conferred on local authorities in 2000, with "local governments... moving far too

slowly to make any real or lasting impact" in the new areas over which they held control (ibid. p.17).

Since 2000, an ongoing localism and devolution agenda in the UK has continued to increase the independent agency of local authorities. English local authorities gained a 'general power of competence' in 2011, and Northern Irish local authorities in 2014. Prior to the general power of competence, local government activities were limited to actions for which they had statutory powers, or which were deemed to facilitate or be conducive to their functions. The enactment of the general power of competence freed them from this constraint, enabling them to undertake "anything that individuals generally may do" (Sandford, 2016b p. 8). However, Scottish and Welsh local authorities continued to operate through a power of well-being, which enables local authorities to promote the "economic, social and environmental well-being of their area" (ibid., p.4).

Alongside policy changes, successive UK central government publications have demonstrated the expectation that local authorities have a key role to play in implementing national climate targets (DECC, 2011a; CCC, 2012). However, despite the apparent increase in the expectation that local authorities will drive the UK response to climate change, constraints to action in the form of limited resources persist, particularly in the face of ongoing austerity measures (Morris et al., 2017). Furthermore, local authorities in the UK are not required by any statutory measure to drive or deliver energy activity in their regions directly (Bale et al., 2012).

Many of the energy activities that are pursued by local authorities are implemented in response to specific issues, rather than addressing the systemic transformation of the UK energy infrastructure that successive national governments have indicated as being desirable (Hodson et al., 2013). Therefore, while local authorities are pursuing energy activities, they are rarely part of a systematic, strategic transition, in part due to a continued lack of capacity and competence to navigate the complexity of the energy system as a whole. As a result, in spite of numerous changes in national government and policy since, the current situation echoes that described by Voisey et al. (1996) whereby even willing authorities face an uphill struggle to implement local energy outcomes in the UK, exacerbated by a lack of central policy support.

2.2.2 The governance context

Section 2.2.1 described how local authorities have, over the last few decades, accumulated increasing (though non-statutory) responsibility and freedom to implement national energy and climate change mitigation activities. As local authorities' energy activity has

increased, there has been an associated academic interest in the governance mechanisms available to local authorities to delivery such activity. Thorp and Marvin (1995) identified examples of direct and indirect initiatives to engage with energy markets, noting that most academic (and local authority) interest at the time focused on those activities classified as indirect, such as leveraging planning consents towards energy outcomes.

Since then, McEvoy et al. (2001 p. 11) have suggested that local authorities have a 'strategic-enabler' role, through which they can "create the conditions necessary both to stimulate increased implementation" of technologically well-established energy-efficiency measures, and "encourage beneficial changes in behaviour". Further, they noted that local authorities are "ideally placed to act as brokers both for fuel supply and energy services generally".

Each of these examples illustrates possible mechanisms by which local authorities can encourage energy activities within their jurisdiction. Bulkeley and Kern (2006), through a systematic comparison of local climate policy in the UK and Germany, identified four main modes of climate change governance used by local authorities:

- self-governing – internal management of energy outcomes;
- governing by authority – the use of regulative measures to enforce outcomes;
- governing by provision – offering services or resources to shape outcomes; and
- governing through enabling – facilitation and co-ordination of action through partnerships with external agencies.

Through their study, Bulkeley and Kern (ibid.) concluded that enabling and self-governing modes of governance were the most likely to be employed at the time. They linked the prevalence of these modes to the impact of liberalisation in both Germany and the UK, and a lack of financial capacity; resulting in a need to "involve partners in providing capital and resource for climate protection measures" (p. 2255). A relative lack of competency and political will to introduce new regulation, coupled with limited influence over the manner in which infrastructure systems and utility services were provided, were further cited as factors encouraging a tendency for local authorities to employ enabling modes of governance (Bulkeley and Kern, 2006; Bulkeley et al., 2012).

This institutionalised lack of capacity arising from a liberal energy market meant that only a limited number of local authorities were identified as having implemented a sustained, coordinated approach to climate change, with many others failing to make real progress despite a recognition of the need for an urgent response (Bulkeley et al., 2012). Institutionalised barriers to progress continue to affect the modes of governance

employed, such as the entrenched centralised structures of the UK energy system (Kelly and Pollitt, 2011), and market-led financial institutions (Hall et al., 2016).

Castán Broto and Bulkeley (2013) built on Bulkeley and Kern's (2006) research to show that globally, governance through provision and enabling activities dominated, with self-governing and regulatory modes of governance relatively limited by comparison. Many of the activities were delivered in partnerships, leading Castán Broto and Bulkeley (2013 p. 101) to conclude that "partnership emerges as a key feature in climate change governance. Linked to enabling modes of governance it emphasises the extension of local forms of authority through the support of initiatives conducted by non-state actors". More recently, and illustrating an ongoing lack of local forms of authority over the energy system, Webb et al. (2015 p. 29) state that "the lack of direct local or regional government powers over the UK's centrally regulated, privatised energy system means that local authorities struggle to constitute a legitimate space and rationale for intervening in energy systems".

The examples in this section demonstrate the role that collaboration can play in circumventing an ongoing lack of institutionalised capacity for local authorities to govern local energy activities. In the next section, the role of local authorities in the wider transition to a low-carbon economy is considered.

2.2.3 Transitions

Transitions studies consider how the social and technological elements of a system interact during the evolution of technology. Two major theoretical representations of transitions are the multi-level perspective (Rip and Kemp, 1998; Geels, 2002) and the co-evolutionary perspective (Foxon, 2011). Each of the two perspectives are concerned with how innovation disrupts the status quo to prompt change in established systems; often from the point of view of a move towards low-carbon modes of operation. While transitions are not the focus of this thesis, transitions literature provides an important link between local authority literature and organisational theory; this link is discussed in section 2.7. Additionally, studies examining transitions are beginning to consider the interactions of local authorities with regime actors. The multi-level and co-evolutionary perspectives are briefly introduced below, before moving on to consider their applications.

In the multi-level perspective, three levels are identified; the micro '*niche'* level, the meso *'regime'* level and the macro *'landscape'* level (Geels, 2002). Radical innovation and experimental activities occur within the niche level; where niches are protected spaces in which learning and development may occur (Geels, 2002; Geels, 2011). The regime level is

comprised of the rules and routines around which established technological practices are based, and the presence of a regime orients the trajectory along which incremental technological development is pursued. Modes of organisational operation, technologies of production, and engineering practices all contribute to the technological regime (Rip and Kemp, 1998). Policies, markets and their users, science, and socio-cultural practices each form sub-regimes that interact with the technological regime to create an overall socio-technical regime (Geels, 2004).

Finally, the socio-technical landscape consists of "deep structural trends" (Geels, 2002 p. 1260). At this level, long-term trends such as political ideologies, social values, economics, and demographics are slow to change, and provide a backdrop against which the relatively faster transitions at regime and niche-levels occur (Geels, 2002).

The multi-level perspective described above has been criticised for its lack of representation of the role of agency (Geels, 2011), something that Foxon (2011) argues is addressed through his co-evolutionary approach to transitions, which incorporates actor choice into its framing. Foxon's (2011) framework suggests that technologies, business strategies, user practices, institutions, and ecosystems all interact, arguing that each influences the evolution of the others. Technological change may start with change to any part of the system, in contrast to the overrepresentation in the multi-level perspective of innovation as a progression from niche to regime to landscape level change; a criticism contested by Geels (2011).

The role of local government in contributing to technological change is not explicitly framed in either of the transitions approaches described above, but is implicitly assessed through their application. Foxon (2011) includes the role of governments as one example of user choice not addressed through the multi-level perspective. Verbong and Geels (2007) note that public authorities are one actor among many with a role to play in shaping the "emergent directionality" (p.1025) of a system in transition.

However, Fudge et al. (2016) argue that Bolton and Foxon (2013) and Bulkeley et al. (2011) characterise local authorities as part of the dominant regime, implicated as a constraining factor against niche activities. In contrast, Fudge et al. (2016) suggest local authorities have roles as niche actors, and in enacting these roles, the potential to influence regimes. In both characterisations, there is recognition that local authorities have a potentially significant role in supporting a transition to a sustainable, low-carbon energy system.

Within a transitions approach, local authorities are viewed as a "key medium through which to coordinate and influence workable local level responses to the problem of developing more effective policies around energy and environmental issues." (Fudge et al., 2016 p. 2). Characterising local authorities as niche actors, particularly as intermediaries, emphasises the collaborative elements of their role.

2.2.3.1 Local authorities as niche actors and intermediaries

Niche actors include entrepreneurs, non-governmental organisations (NGOs), start-ups, grassroots innovators, and citizens' groups; loosely falling into technological or social groups with similar goals to develop novel technologies or practices (Seyfang and Smith, 2007; Geels, 2011; Bulkeley and Castán Broto, 2013). More recently, local authorities have been included within the group of niche actors, often in the role of intermediaries. Intermediaries can be described as boundary-spanning organisations, mediating between the various priorities of niche-level actors, making connections, transferring knowledge, and building networks (Hodson et al., 2013; Bush et al., 2017).

Bush et al. (2017) identify both internal and external collaboration roles for local authorities acting as intermediaries; securing cross-departmental buy-in internally to engage with a new technology, and externally, building actor networks required to deliver projects that extend beyond the resources and capability of the local authority itself. To support new technologies, local authorities can choose a strategic or active role; either highlighting the benefits and opportunities available for particular technological approaches within policies and actions plans, or taking on a lead actor role in deploying the technology. However, in an earlier, related study Bush et al. (2016 p. 94) note that "local governments are reliant on support mechanisms from national government to build up their capacities and skills, as well as to unlock some of the institutional barriers and obligations preventing delivery of schemes".

Bush et al. (2016; 2017) show that while local authorities as a group are identified as key actors to coordinate stakeholders for innovation at a local level, the degree to which they are able to act in this role, and the nature of the actions they are able to take remain, at present, partially dependent on other organisations; both public and private, and local and national. Fudge et al. (2016) further suggest that while some "progressive" (p.16) local authorities are actively engaging with, and influencing, energy governance at a local level, there is a lack of provision of "meaningful opportunities" (p.15) to influence a broad range of stakeholders. Bush et al. (2017) also argue that the capacity and resources available to local authorities to perform intermediary roles are limited, and that less well-resourced authorities are more likely to pursue an approach that can be implemented through their

existing powers, e.g. planning policy. There is therefore, a degree of heterogeneity evident in the capacity of local authorities to act in an intermediary role.

In section 2.2.4, the role of partnership and collaboration in addressing the challenges identified thus far is explored.

2.2.4 The role of partnership and collaboration

The previous sections have demonstrated that partnership and collaborative approaches are repeatedly suggested as a means of ameliorating the institutional and resource challenges facing local authorities wishing to engage with energy activities. On a global empirical scale, Castán Broto and Bulkeley (2013) showed that 47%[2] of climate change experiments were delivered in partnership, with 58%[3] of identified partnerships led by local government. As discussed in section 1.2.2, a large proportion of these experiments constituted actions relating to energy.

Partnerships are present across a variety of scales, including public-private partnerships (Sullivan et al., 2013), local authority collaborations with grassroots initiatives (Tweed, 2014), and trans-national local government networks (Bulkeley et al., 2012). Where partnerships between local authorities and industry or business are advocated, these are often linked to an opportunity to raise finance, or access and develop expertise unavailable within the local authority at the outset (Sullivan et al., 2013; Webb et al., 2017). Pitt and Bassett (2014 p. 290), in their survey of regional clean energy adoption in the United States (US), note that respondents classified as high adopters overwhelmingly agreed that "collaboration was instrumental in developing their clean energy strategies".

Considering less measurable outcomes, momentum building for a common cause (Bulkeley et al., 2012), knowledge exchange (Argyriou et al., 2012), and peer support (Pablo-Romero et al., 2015) are all identified as beneficial outcomes for local authorities that are members of national or international networks. However, partnerships are not universally sought or suggested in order to provide support to local authorities. Tweed (2014) and Chmutina et al. (2013) note that partnership with a local authority can benefit the partner organisations; lending them credibility or providing administrative support and local knowledge to help implement projects.

In addition to demonstrating the value of collaboration through the outcomes that can be achieved, some scholars have suggested that 'successful' authorities are those that engage

[2] 297 partnered initiatives of 627; values taken from Castán Broto and Bulkeley, 2013: Table 10.
[3] 174 (413 local-government led, minus 239 with no partnership) of 297 partnered initiatives; values taken from Castán Broto and Bulkeley, 2013: Table 9.

in collaborative activities. When evaluating the local dimensions of energy activity, Kelly and Pollitt (2011 p. 27) suggested that "leading councils have gained momentum by working in partnership with utilities, private companies, NGO's [non-governmental organisations], DNO's [distribution network operators] and government departments to raise finance and garner support." More recently, Webb et al. (2017) have suggested that collaborative approaches are required if an authority wishes to implement longer-term initiatives over short-term projects, arguing that "more ambitious strategies generally involve multiple local organisations, and multi-lateral negotiation and decision making" (Webb et al., 2017 p. 46).

Section 2.2.1 described how the UK central government is increasingly looking to local authorities to deliver energy-related activities as part of national efforts to meet national climate targets (DECC, 2011a; CCC, 2012). The subsequent sections have demonstrated that collaboration is often seen as a necessary strategy if local authorities are to achieve the outcomes expected of them; to overcome the institutional situation in which they are operating, or to fulfil the practical requirements of delivering increasingly complex solutions. In the following section, research focused on the solutions aspect of local authority energy activity is examined.

2.3 Current research into local authority energy activity: the solutions perspective

Section 2.2 explored how scholars have examined the contextual aspects of local authority energy activity. In this section, a range of literature focused on the solutions aspects of local authority energy activity is reviewed. The literature in this section can be broadly split into two groups. Section 2.3.1 focuses on the techno-economic approaches to develop tools and techniques to support local authorities in their energy decision-making. In section 2.3.2, co-benefits are discussed as a key strategic tool, particularly in light of collaborative delivery mechanisms.

2.3.1 Techno-economic solutions

Techno-economic approaches to local authority energy research are largely concerned with providing tools and information to facilitate strategic planning for emissions reduction and decarbonisation. Often techno-economic studies consider the practicalities of supporting large-scale assessment and implementation across cities or other geographical areas, rather than having a specific focus on local authorities. However, they are included here because as has already been shown in section 2.2, local authorities are increasingly implicated as having a strategic role in facilitating change. However, a lack of

technical expertise and data availability within local authorities has been cited as a barrier to strategic energy planning (Bale et al., 2012). Lee et al. (2015) similarly suggest that expert knowledge (and in particular localised knowledge) is needed, alongside well developed governance arrangements, in order to develop comprehensive local climate policies.

Holgate (2007) categorised knowledge required to formulate strategic approaches to environmental problems into three types: "diagnostic knowledge, through which to identify the environmental problem, technical knowledge to provide the solution to the problem, and institutional knowledge, which refers to the institution's structure, capacity and competence to address the problem" (ibid. p.472). Many of the techno-economic studies reviewed here are focused on providing solutions to support local authorities in developing diagnostic and technical knowledge, in order to support strategic, or whole-city approaches to energy activity.

In section 2.2.4, momentum building through membership of networks was identified as one purpose of collaboration. The Covenant of Mayors is an example of a trans-national climate scheme designed to provide local authorities with a peer network through which they are supported to implement climate (and therefore energy) activities. When a local authority signs up to the Covenant of Mayors, they are encouraged to adopt a strategic approach to energy activity within a stepwise process. Within the Covenant of Mayors and other similar schemes, local authorities must: commit to making a reduction in emissions; measure an emissions baseline from which they are moving forward; plan a pathway to realising their commitment; and monitor progress towards their goal, in order to participate in the schemes (Kousky and Schneider, 2003; Pablo-Romero et al., 2015). Local authorities therefore require reliable, accurate information on which to base the measuring and planning steps in the processes, and reliable mechanisms to measure progress. Measurement and planning is therefore a significant element of existing techno-economic research.

In light of the need for accurate information, many of the studies focused on diagnostic knowledge are seeking to create reliable information on which organisations, including local authorities, can base their initial energy strategies. Technological research questions for diagnostic knowledge include resource assessment techniques, such as identification of urban heat sources and sinks for planning district heating systems (Finney et al., 2012), or city-wide assessment of distributed generation potential (Adam et al., 2016). In a different approach, Keirstead (2013) and Morris et al. (2015) are two examples of studies seeking to provide accurate benchmarking of energy consumption within local authority regions,

in order to effectively plan energy efficiency interventions across an entire local authority area.

Other studies focus more on information for comparing measures, suggesting indicators to be used in multi-criteria decision making approaches (Neves and Leal, 2010), or providing a comprehensive cost-benefit approach to rank the possible interventions available to a local authority to decarbonise a city (Gouldson et al., 2012). Arguably, many of these comparison tools omit both Holgate's (2007) institutional knowledge, in which the capability of an organisation to deliver the suggested solutions are considered, and the broader effects of implementing the potential solutions. This is recognised by Gouldson et al. (2012 p. 8) who acknowledge that "a wider analysis should also consider the social and political acceptability of the different options, as well as issues relating to the social equity and broader sustainability of the different pathways".

Finally, scholars have focused on modelling for decision-making, whether in terms of optimising a single technological solution (Rylatt et al., 2001), developing and comparing scenarios (Van Hoesen and Letendre, 2010; Grewal and Grewal, 2013), or creating fully integrated planning approaches (Mirakyan and De Guio, 2013). Early tools such as that developed by Rylatt et al. (2001) focused on efficiently assessing single resources or technologies, to inform a particular aspect of local authority planning. As local authority policies towards climate change have become more integrated, so have the tools designed to support them in doing so. The range of models available for applications such as estimating geographical emissions, assessing technological systems, and comparing policy scenarios are now extensive, and Keirstead et al. (2012) and Mirakyan et al. (2013) have undertaken comprehensive reviews of available applications. However, despite the proliferation of models available, two key limitations are identified in the reviews. First, many are still used for a narrow range of policy purposes (Keirstead et al., 2012), and second no model exists that is able to manage a complete integration of the planning process from problem structuring through to implementation (Mirakyan and De Guio, 2013).

An additional challenge facing technological modelling tools is their ability to capture the co-benefits of a scheme. The integration of social criteria with techno-economic criteria has been demonstrated through tools such as The Leeds Heat Planning Tool[4], which enables a nuanced assessment of the benefits of installing an energy technology (Bale et al., 2014). Similarly, Gupta and Gregg (2017) integrate energy consumption estimates with

[4] http://heatplanning.leeds.ac.uk/

fuel poverty data to provide a socially-focused aspect to information used to select appropriate targets for energy efficiency intervention. Co-benefits are increasingly used to demonstrate value of options beyond the economic, and research has focused on what the benefits might be, and how to capture their value. In the following section, co-benefits are considered in more detail.

2.3.2 Co-benefits

The techno-economic approaches described in section 2.3.1 share a common focus on measurable inputs to decision making. However, energy activities are increasingly considered in the context of a complex, interwoven set of issues, with the potential to realise multiple strategic benefits over and above reduced greenhouse gas emissions (Kelly and Pollitt, 2011). Broadly speaking, co-benefits are benefits that are realised over and above the primary stated objective of an activity. However, co-benefits are described in varying terms across the literature. Kousky and Schneider (2003 p. 367) consider co-benefits to arise from "policies that are developed to achieve both climatic and other environmental goals simultaneously". Foxon et al. (2015) extend the co-benefits concept to include social outcomes, such as improved health and welfare, while Lemon et al. (2015 p. 61) include "a greater sense of local community, the opportunity to enhance a locality's national and international reputation and local employment in energy initiatives" as examples of co-benefits arising from the implementation of local energy policies.

Co-benefits speak to the importance of the specific situation of an authority seeking to pursue energy-related objectives. Despite recognition of the potential importance of the contribution of local energy policies to meeting national climate change targets (Bulkeley and Kern, 2006), climate change mitigation is still not a priority for local authorities (Dulal and Akbar, 2013; Tweed, 2014). In the UK this is compounded by the fact that local authorities hold no direct responsibility for the development and implementation of energy policies (Bale et al., 2012). The numerous variations in the conceptualisation of co-benefits highlight the fact that energy and climate change policies are more likely to be developed and implemented at a local level if they include the tailored integration of wider local priorities.

In emerging economies, development priorities are likely to inform energy-related policies for rapidly-growing cities (Puppim de Oliveira, 2013; van Staden et al., 2014). Conversely, in Europe and the US, the value of co-benefits and integration of local priorities into climate change and energy activities can be linked to the socio-economic responsibilities of local authorities (Webb, 2015) or the need to justify spending public money (Kousky and Schneider, 2003). Additionally, with the increasing use of collaboration to address an

institutionalised lack of authority over the energy system, and resource and capacity deficiencies, local authorities need to be able to demonstrate the value of engagement to potential partners.

Traditionally value is demonstrated through a business case, or business model. Business models encompass the structural arrangements between an organisation and its supply chain and customers, its value proposition, and the financial model associated with each of these three elements (Gauthier and Gilomen, 2015). In order to introduce new technologies and services into the market, organisations are likely to need to change or extend one or more of these elements. Schaltegger et al. (2016) argue that business model innovation provides a balance to the technological focus of much sustainability innovation, supporting change through examining new means of value creation for organisations.

Various case studies have demonstrated that extending the value proposition of business models to include environmental and social value alongside economic value is a key aspect of innovation that enables engagement with sustainable energy activity; either by existing actors (Gauthier and Gilomen, 2015), or new market entrants (Bale et al., 2015; Hannon and Bolton, 2015). Webb et al. (2017) make a similar observation for project business cases, indicating a need for a standard metric to help local authorities quantify their socio-economic in addition to techno-economic, value.

2.4 Summary: local authority energy literature

The review of the local authority and city energy literature reveals that much of the research to date can be divided according whether it takes a contextual, or solutions perspective. The literature with a contextual perspective tends to evaluate if and how local authorities can either adapt to extend their activities within the current centralised energy system, or act as agents for change of the system itself. Organisational issues are encompassed in contextual literature by their inclusion in the systems of institutions and business strategies (Foxon, 2011), and their role in niche development (Geels, 2011). Literature with a more specific solutions-focus is, counterintuitively, wide ranging; seeking to address individual issues identified across the system to contribute to improving both diagnostic and technical knowledge.

What is largely missing from local authority energy literature is a body of work that considers Holgate's (2007 p. 472) "institutional" knowledge[5], effectively considering the

[5] Holgate uses institutions to describe organisations. For reasons that will be described in section 2.7, this equivalence is problematic in the context of this thesis and therefore, institutional knowledge should be thought of as organisational knowledge.

capacity of organisations to implement the diagnostic and technical solutions provided by the existing strands of research. A small number of studies are beginning to explore the implementation of energy activity in more detail, for example Webb et al. (2017) have comprehensively evaluated the relative engagement of the UK's local authorities in city energy activity, while Hannon and Bolton (2015) evaluated how local authorities have implemented different types of business model to deliver ESCos. However, these examples look at the methods of implementation used, rather than the process of implementation and its outcomes. Whatever the focus however, the number of studies evaluating implementation remains limited.

Mirroring a lack of organisational issues examined in energy literature, a similarly limited treatment of energy issues within organisational studies can be identified. While the internal energy behaviour of organisations is increasingly examined, exploration of their contributions to a changing energy regime, and involvement in wider energy activity remains limited. There follows a broad overview of existing research avenues in these areas, focusing initially on parallels between local authority and organisational research in considering organisations' roles within the wider energy system, before summarising some of the key areas of research into energy activity within organisations themselves.

2.5 Organisational perspectives to understand energy activity

Research considering organisations' actions and decisions in the context of the wider energy system is often focused on organisational groups, for example as providers, regulators, or facilitators. Section 2.2.3.1 showed how organisations can act as intermediaries, particularly when fulfilling an enabling role.

Parallels between transitions and organisational literature are particularly evident in this area, with intermediary organisations in the former performing a similar function to boundary spanning and middle actors in the latter. Despite the different names and definitions, studies from both areas ultimately focus on how organisations and actors can facilitate change:

- Intermediaries – a group of boundary-spanning organisations; usually described in terms of nurturing technological innovation in niche spaces, or as go-betweens (Hodson et al., 2013; Bush et al., 2017)
- Boundary spanning organisations – used to describe organisations that facilitate collaboration between stakeholders by working to provide structural and practical support for collaborators (e.g. convening, mediation and translation) (Smink et al., 2015)

- Middle actors – used to describe organisations and actors working between 'top' and 'bottom' organisations; acting as go-betweens and independent agents, with their own agency and capacity for action. Includes both intermediary and boundary-spanning organisations (Parag and Janda, 2014).

As familiarity with the existence of such roles grows, there are an increasing number of studies focusing on the specific actions of organisations acting in these roles for energy outcomes, even when they are not referred to as such. In particular, a focus on actions of organisations within supply chains encompasses the idea of organisations as influencers, encouraging sustainability in upstream organisations through the use of minimum standards (Pimenta and Ball, 2015). More recently others have sought to understand why firms engage in influencing behaviours, suggesting that competitive and stakeholder pressures are a driver (Graham, 2017). The studies of business model innovation as an associated driver for engaging with sustainable practice, described in section 2.3.2, are a further example of the parallels between socio-political and organisational literature. Janda and Parag (2013) provide a link between transitions and organisational fields, by considering how different organisational groups in the building profession can influence energy efficiency transitions, highlighting in the process the organisational imperative for survival as a priority.

2.5.1 Organisations and self-determining energy decisions

One of the challenges in establishing a coherent body of literature focused on energy and organisations is the variety of interacting factors that influence organisations' energy consumption and management, and the numerous perspectives from which the issue can be examined. When considering decisions made by organisations for themselves, studies have focused on internal and/or external factors and their effects at a range of levels from employees (Young et al., 2015) through to sectoral groups (Madlool et al., 2013), or considering actors with common roles spread across many organisations (Eberhardt-Toth and Wasieleski, 2013). Methods include small scale qualitative case studies (Galvin and Terry, 2016) or large-scale quantitative analysis (de Groot et al., 2001); using data-driven (Bull and Janda, 2018) or theoretically-grounded (Delmas and Toffel, 2008) approaches. Even in the small sample given above, the perspectives from which the problems are viewed vary enormously, from behaviour- and ethics-based studies, to technical assessments of potential savings available to organisations.

Despite the range of foci, many studies are ultimately concerned with how energy activity within an organisation affects, or is affected by, the interaction of internal and external factors and the actor groups within the organisation. Bull and Janda (2018)noted the

importance of aligning energy activity to established teams and roles within an organisation, identifying the importance of an organisations' overall core strategy on their likelihood to engage in energy efficiency. In an earlier study, Martin et al. (2012) considered whether organisational culture, structure and management practices could be correlated to energy efficiency action in firms. While not claiming a causal relationship, they identified that "management practices and organizational structure of a firm are crucial for its ability to use energy more efficiently" (ibid. 2012 p. 222). In particular they highlighted that climate friendly practises are more likely to be achieved when senior management (e.g. a climate change manager), rather than the head of an organisation, manages the action required. By reviewing studies of evidenced change, Young et al. (2015) showed that work-based organisational, group level, and individual factors work together with external home-based and societal factors as predictors of pro-environmental behaviour change in employees.

Where Young et al. (2015) considered the predictors of employee pro-environmental behaviour, others have evaluated successful organisational environmental actions in order to understand their antecedents; through large quantitative studies (Ramus, 2002) or smaller qualitative evaluations (Galvin and Terry, 2016). In the former, Ramus (2002) used surveys and interviews to evaluate which internal policies and practises in an organisation successfully promoted a willingness by employees to engage in pro-environmental activity, again returning to the theme of actor-influence when they identified a need for engaged, invested managers to embody organisational values. Similarly, Galvin and Terry (2016) examined the case of two corporate landlords and how they achieved energy savings within their multi-tenanted properties, pointing to the actions, attitudes, and business practise of key agents from the corporations as the major driver for improving their energy performance.

Looking beyond individual organisations, the phenomena of heterogeneous organisational responses to common external pressures has been a focus of several studies. Differences can arise as a result of numerous internal organisational characteristics, for example varying arrangements of internal divisions and communications channels, and the differences in perceptions of relevance of different issues between individual departments and actors (Hoffman, 2001; Delmas and Toffel, 2008). When considering the implications of these studies alongside those described previously, it must be supposed that there are limits to the effectiveness of broad-brush policy, regulatory, or incentive mechanisms to encourage particular behaviours within organisations, even when targeting a single sectoral group.

Even the brief synopses of the studies described in this section reveal the wealth of internal organisational influences that can contribute to the energy actions of an organisation, or its employees or stakeholders. The studies demonstrate the value in examining energy activity from an organisational perspective, but are largely concerned with single organisations. Where studies have considered organisational groups, they have highlighted the potential for heterogeneity in their responses to similar contexts.

In section 2.3.2, the relative lack of organisational knowledge in current local authority energy literature was highlighted. In contrast to the organisational literature presented here, the studies in sections 2.2 and 2.3 are largely focused on addressing issues external to organisations. However, the studies in this section illustrate that to focus on the external at the expense of the internal is to omit potentially significant influences on the activity of an organisation. This becomes especially significant when considering that collaboration, or the bringing together of multiple individual organisations, is hailed as a possible solution to many of the constraints to local authority energy activity.

There is therefore an opportunity to address the organisational gap in local authority literature, through the close examination of local authority collaborations, to ascertain whether the prescribed solution of collaboration successfully mitigates the contextual challenges. The second half of this chapter introduces and justifies the choice of the theories drawn from organisational literature that will be used to develop an analytical framework. The theories and framework will be used to answer the overarching thesis research question:

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

2.6 Examining inter-organisational collaboration

So far, this chapter has demonstrated that globally, many of the challenges facing local authorities that seek to realise energy-related objectives are linked to their position within multi-level government structures. Institutionalised governance and policy arrangements vary between countries, and affect the agency and capacity of individual authorities to act. Collaboration is frequently proposed as a means of ameliorating barriers to agency and capacity, largely irrespective of national institutionalised arrangements. However, section 1.2.3 noted that collaboration as a term has multiple definitions drawn from theoretical and empirical literature. Organisational literature shows us that true collaborations are

hugely difficult to implement successfully, and very dependent on both context and membership. However, while there is a body of literature focused on understanding the process of collaboration, and the features of successful collaborations, thus far such an analysis does not appear to have used in applied research into local authority energy activity.

As stated in section 1.2.3, in this thesis collaboration is considered in two forms: as the act of working with others, and the process of the interaction itself. The dual perspective reflects dual aspects of existing research into inter-organisational relationships: the classification and examination of relationships in terms of their structures (Kanter, 1994; Barringer and Harrison, 2000) and purpose (Gray, 1996); and analysis of the stages (Bryson et al., 2006; Wassmer et al., 2014) and interactions (Thomson and Perry, 2006) that comprise the collaborative process. This section considers the structural and process perspectives in turn, providing a basis from which to view and understand the multi-authority, public-private relationships examined in detail in this thesis. Through the examination of the two perspectives, subtle differences between collaboration and other inter-organisational relationships are identified.

2.6.1 Classifying collaborations

The range of collaborative relationships is wide: from small scale collaborations between individuals within a single organisation, to multi-organisational arrangements spanning the public, private and third-sectors, and representing multiple professions. In this thesis, the relationships under examination are inter-organisational, and comprised of local authorities working with other public organisations, and private firms.

Two approaches can be identified that are concerned with classifying different inter-organisational relationships. Inter-organisational scholars Oliver (1990), Kanter (1994), and Barringer and Harrison (2000) have defined relationships according to their structures, using variables such as the strength of the coupling between organisations (tight or loose), the depth and formality of the relationship arrangements (close or distant, formal or informal), and the shape of the relationship (vertical, horizontal or interlocking). Oliver (1990) and Barringer and Harrison (2000) explore the contextual conditions and possible benefits to organisations arising from structures including consortia, joint ventures, trade associations, and networks, providing an in-depth analysis of each individual arrangement. However, their analyses are largely focused on firm-to-firm commercial partnerships for business advantage.

In contrast, Gray (1996) considers cross-sectoral relationships, and focuses less on the specific inter-organisational arrangements, and more on grouping structures according to their motivating factors and anticipated outcomes, as shown in Figure 2-1.

Motivating factors	Expected outcome: Exchange of information	Expected outcome: Joint agreements
Advancing a shared vision	APPRECIATIVE PLANNING Search conference Community gatherings	COLLECTIVE STRATEGIES Public-private partnerships Joint ventures R&D consortia Labour-management co-operatives
Resolving conflict	DIALOGUES Policy dialogues Public meetings	NEGOTIATED SETTLEMENTS Regulatory negotiations Site-specific disputes Mini-trials

Figure 2-1: Designs for collaboration, reproduced from (Gray, 1996 p. 61)

In considering the motivations and outcomes for relationships rather than their substantive structural attributes, Gray's (1996) typology is well-aligned with the second characterisation of collaboration used in this thesis: as a process. As shown in Figure 2-1 four categories of collaborative arrangement are identified: appreciative planning, collective strategies, dialogues, and negotiated settlements. The categories are determined by considering the antecedents of the collaborations from two perspectives: the expected outcomes and the motivating factors. Whether the motivation is advancing a shared vision or seeking to resolve conflict, arrangements span a spectrum of depth and formality, from public meetings to formal partnerships. In general, examples of collaboration for knowledge exchange are more loosely bound than those seeking to achieve a joint agreement.

Many of the terms used in inter-organisational literature to describe relationships between firms can be identified within local authority literature, albeit it within the latter such relationships are often public-private in nature. Additionally, within the public-

private relationships identified in local authority literature, the range of depth and formality described by inter-organisational scholars are encompassed. However, as has already been described, the application of specific terms to describe collaborative arrangements within local authority literature in inconsistent. This thesis considers collaboration from both structural and process perspectives. Therefore, it is arguably more instructive to consider the roots of the relationship structures, rather than their attributes. For example, using Gray's (1996) typology, many of the individual inter-firm arrangements identified by Oliver (1990), Kanter (1994), and Barringer and Harrison (2000) are categorised as collective strategies; while each arrangement exhibits different structural attributes, they share a common thread of organisations seeking to agree an approach to achieve a shared (in their examples, commercial) vision. Furthermore, considering relationships from the point of view of their purpose has the benefit of aligning with the second, process perspective of collaboration. Therefore, when describing collaborative arrangements in this thesis, Gray's (1996) categorisation will be used to differentiate between collaboration types, addressing the following research question:

> *What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*

2.6.2 A process view of collaboration

A second characterisation of collaboration is that it is a process, which starts with the coming together of organisations or individuals, in order to solve an issue that cannot be addressed independently. This interpretation of collaboration is articulated by Bryson et al. (2006 p. 44) who define cross-sector collaboration as "the linking or sharing of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly an outcome that could not be achieved by organizations in one sector separately". In the process view of a collaboration, the structure of a relationship becomes one of several variables, determined in response to the initial conditions in which the collaboration is formed.

Much of the research interest in collaboration is focused on better understanding the variables affecting collaborations in order to improve collaborative practice, and as a consequence, collaborative outcomes (Huxham, 1996; Chen, 2010). Figure 2-2 shows a summary of collaboration literature by Bryson et al. (2006) in which five major research themes can be identified, arranged to illustrate the collaborative process.

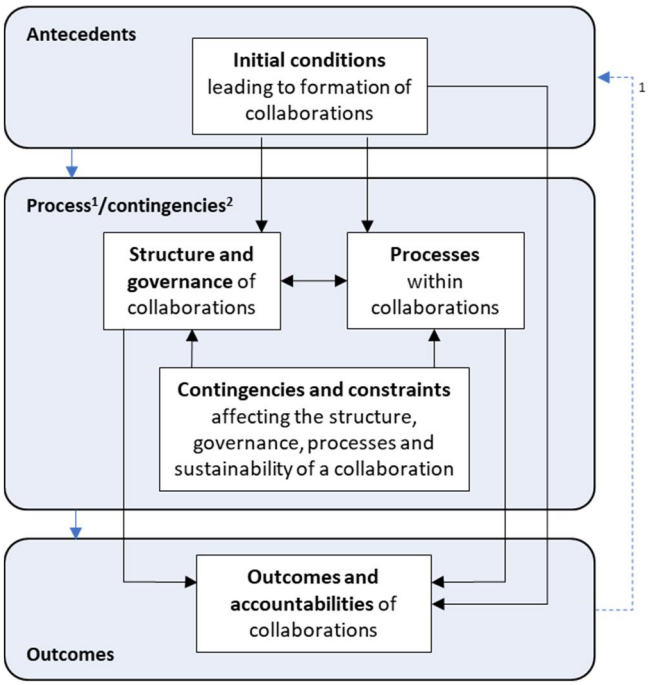


Figure 2-2: Major collaboration research themes and their relationships, represented as the stages of the collaborative process. Five-stage framework (white, black arrows) after Bryson et al. (2006). Three-stage framework (blue, blue arrows) after [1]Thomson and Perry (2006), and [2]Wasssmer et al (2014).

Where Bryson et al. (2006) separate out structure and governance, contingencies and constraints, and processes in response to observed themes within the literature, practically, the process of collaboration can be considered in three stages, comprising the period before (antecedents), during (process), and after the collaboration (outcomes) (Thomson and Perry, 2006; Wassmer et al., 2014). The three-stages are shown overlaid on Figure 2-2, demonstrating that there is a significant degree of overlap between the three- and five-stage frameworks. Bryson et al.'s (2006) five stage framework represents focal themes within existing research. In this thesis, real collaborations are examined and evaluated. When examining real collaborations, the structure and governance, processes, and contingencies and constraints of a collaboration from Bryson et al.'s (2006) framework are collectively identified as variables that are borne from a collaboration's antecedents, and influence its outcome. Chapter 3 presents an analysis framework based on a three-stage antecedent-process-outcome structure.

Thus far, the process of collaboration has been described in terms of a series of events, progressing from the antecedents of the collaboration process to its outcomes. However, as noted on p. 30, consideration of collaboration as a process refers not only to the various stages of activity, but also to the interactions between the collaborating parties.

Bryson et al's. definition of collaboration as "linking" organisations (2006 p. 44) acknowledges the structural pre-requisites for a collaborative relationship. Previously however, Huxham (1996) suggested that the primary intention of collaboration is encapsulated in the "Dutch word 'samenwerken', translated literally as 'working together'" (p. 1). The essence of working together creates a distinction between mere inter-organisational arrangements and collaboration. Thomson and Perry (2006) note a difference between collaboration and cooperation or coordination, suggesting that collaborations exhibit greater levels of "interaction, integration, commitment, and complexity" than cooperation (p. 23). Previously, Kanter (1994) made a similar assertion when examining intercompany partnerships, distinguishing between successful collaborative alliances that create new value by nurturing a relationship between organisations, as opposed to partnerships that merely involve an exchange of goods or skills. Reflecting these distinctions, and drawing on a definition of collaboration by Thomson and Perry (2006), this thesis is founded on the assumption that ideal collaborative relationships will be characterised by constructive interactions between partners, with benefits for each as a result, and an intention to realise outcomes unattainable as individual entities. Without such characteristics, a collaboration is reduced to a structural arrangement.

In the following sections, possible antecedents to collaboration and the variables that affect interactions between parties in the collaboration process are briefly discussed. These variables have been identified by previous studies as affecting collaborative outcomes; consideration is also given to the relationship between outcomes of inter-organisational relationships and the success of a collaboration.

2.6.2.1 Antecedents

Antecedents to collaboration can be grouped in terms of practical or reputational motivations. Practical considerations include the need to reduce uncertainty in a turbulent operating environment, sector failure, reducing transaction costs, or mitigating limited resource availability (Bryson et al., 2006). Reputational motivations are often linked to legitimacy, whether the collaboration be formed to enhance the legitimacy of its members as a whole, or enhance the profile of one organisation through its association with another (Oliver, 1990; Chen, 2010). Similarly, collaborations may be based on instrumental or ideological rationales; instrumental collaborations are formed to implement a definitive objective, whereas ideological collaborations may be more visionary, or morally grounded (Huxham, 1996).

In section 2.2.4 it was demonstrated that strategic energy objectives are increasingly delivered through collaboration, often to overcome governance and resource limitations, aligning with the environmental motivations identified here. Within transitions literature, the collaborative efforts of niche actors exemplify another aspect of the pursuit of legitimacy through collaboration.

2.6.2.2 Processes

As described in section 2.6.2, variables affecting the process of a collaboration include both structural and relational variables. Structural analyses are concerned with the membership, arrangement, and governance of the collaboration, whereas relational variables are concerned with the interactions between collaborating parties. In Figure 2-2 relational variables would be considered within the processes box in the five-stage classification, whereas structural attributes and relational elements are considered together as the process stage of a collaboration in the three-stage classification used to guide analysis in this thesis.

Section 2.6.2 also sets out the assumption within this thesis that an ideal collaborative relationship is more than an arrangement that prompts a degree of cooperation between several entities to achieve an end goal. Reflecting this, successful collaboration is identified by evidence that shows mutually beneficial, process-focused activity between the organisations; without this, such an arrangement could, as illustrated by Kanter (1994), be considered an exchange rather than a collaboration. Therefore, in this thesis the success of the collaboration is not judged on its outcomes; rather, as depicted in Figure 2-2, it is expected that the outcomes are influenced by the collaboration process.

Both within and between organisations, collaborations are more likely to be successful when members share a common vision (Tjosvold and Tsao, 1989; Thomson and Perry, 2006). One practical advantage of a shared outlook is that members are more likely to be able to overcome challenges faced by the collaboration. For collaborative policymaking for climate change, it has been suggested that shared beliefs have greater significance on the outcome than power (Ingold and Fischer, 2014). However, in an earlier study examining local policy making, Chatterton and Style (2001) suggest that the exclusion of groups with differing or radical beliefs (such as activists) from collaborations can lead institutionalised policymaking, that reinforces standardised modes of operation.

Power balances are another key element of collaborative success, both in absolute terms, and for the effect that difference in power can have on the relationships between the collaborating parties. Where power imbalances exist, it is less likely that synergy between

partners will be achieved, because the opinions of less powerful partners are at risk of being considered less valid (Lasker et al., 2001).

Hodson and Marvin (2012) formed a related conclusion when examining collaborative intermediary organisations in Manchester, created to support the process of a low-carbon transition within the city. Despite remits focused on environmental and transitions outcomes, the agendas of the intermediaries were largely framed around existing economic interests. This was identified to be as a result of the dominant interests of the funding organisations to the collaboration, facilitated by their inherently powerful funding role. Conversely, some collaborations are formed expressly to increase the power of some or all of its members. For example, Hannon and Bolton (2012) identified empowerment for the community as one of the reasons provided by local authorities collaborating within community-owned Energy Service Companies (ECSOs).

Finally, trust is universally identified as a positive determinant of successful collaborations Chen (2010) links the presence of trust to reduced transaction costs, and suggests that organisations with shared visions, and positive prior relationships are more likely to exhibit trusting relationships. Relatedly, Thomson and Perry (2006) highlight trustworthiness as a critical attribute for organisations engaged in collaborative activity.

2.6.3 The need to examine environmental influences on operational collaborations

In Figure 2-2, the process of collaboration is characterised as a progression from antecedents to outcomes, with variously characterised contingencies and constraints shaping the transition between the two. In the model, the role of the external environment is highlighted in terms of being an antecedent variable to collaboration, but contingencies identified in collaboration literature largely focus on factors associated with the members of the collaboration and the interactions between them. However, it is reasonable to assume that the external factors to a collaboration that are present at the outset, are also able to exert an influence during the operation of the collaboration.

The variables described in section 2.6.2 are highly dependent on the individual characteristics of partners within a collaboration. This is particularly pertinent to partnerships for sustainable energy in cities, which bring together organisations with distinct and potentially conflicting goals (Webb et al., 2015). Participants within such collaborations are simultaneously accountable to the partnership and their own organisations, and the tensions created by this dual identity may have an impact on the final outcomes of the partnership (Thomson and Perry, 2006).

Local authorities have an inherent dual role in that they have been identified as key actors in facilitating changes to energy use, yet they also form part of the institutionalised systems which they are expected to disrupt. As was described in section 2.2.3, collaboration is often proposed as a means of overcoming institutionalised environmental conditions that are a barrier to change. In order to evaluate the ongoing influences on collaborations and the organisations within them, this thesis applies institutional and stakeholder lenses to the three-stage collaborative process shown in Figure 2-2. The two theories have been chosen because together they encompass the variables described in section 2.6.2, but at the same time have the flexibility to characterise the particular situation in which local authorities operate. Together the theories will be used to answer the following sub-questions:

> *What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*
>
> *How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

Each of the theories used to answer these questions are now discussed and introduced in turn.

2.7 Institutional theory

Section 2.2 illustrated how the concept of institutions has largely been applied to two key research areas related to local authorities: governance and transitions; both of which are closely associated with the policy aspects of energy activity. Branches of organisational and socio-technical literature share common sociological roots, giving rise to similarities in language between the two disciplines. The term 'institution(s)' is common in both bodies of literature, and is used to describe both entities and constructs in various contexts. However, despite the differing interpretations, there is a general implication that institutions and human value-systems are linked.

In the development of his multi-level framework to explain transitions in socio-technical systems, Geels (2004) uses Scott's (2003) categories of institutions in combination with five regimes (technological, science, policy, socio-cultural, and users, markets and distribution networks). The combined framework is used to describe how rules and regimes bring stability to existing systems, giving rise to path-dependence and lock-in, which are two key concepts in transitions literature. Similarly, institutional theory tends

to characterise institutions as constraining factors that are resistant to change; again giving rise to path dependence (Andrews-Speed, 2016).

Notably, Geels redefined institutions as 'rules' in order "to avoid confusion between institutions and (public) organisations" (2004 p. 904). Building on Geels' framework, Foxon (2011) developed a co-evolutionary approach designed to analyse a transition to a low-carbon economy. Believing it to be "more flexible than the multi-level transition perspective, in that it enables more explicit consideration of the role of actors within a transition" (ibid. 2011 p. 2263) Foxon identifies five systems that co-evolve to realise a transition: user practises, business strategies, technologies, ecosystems and institutions. Institutions are defined broadly as "ways of structuring human interactions" (Foxon, 2011 p. 2262). Subsequent elaboration returns to the language of rules, using regulatory frameworks, modes of business operation and property rights as examples of institutions. However, social and cultural habits, routines and behaviours are assigned to the system of 'user practices'. This division separates the cultural-cognitive beliefs and routines, and the normative and regulative mechanisms which Scott (2008) considered to comprise institutions as a whole.

Therefore, the term institution has the potential to be problematic, particularly when considering a topic with links to both organisations and transitions within the same research. In this thesis, for clarity, individual organisations will never be referred to as institutions. Institutions are considered in terms of institutional theory rather than socio-technical terms, and contribute to both the internal and external environmental conditions that shape organisational actions. Geels' (2004) 'rules' are included within the regulatory elements of institutions, and Foxon's (2011) divided classifications are reincorporated into a single group. This use of institutions aligns most closely with Scott's characterisation (2008), and the institutional perspective originating from organisational, rather than transitions, theory. A fuller description of new institutionalism is now provided.

2.7.1 New institutionalism

In considering the delivery of local authority energy activity, this thesis is examining organisations that are recognisably institutionalised, and at the same time operate within a multiplicity of organisational fields. An organisational field comprises a "set of organizations interacting in a system that spans the full length of the supply chain, as well as customers and regulators" and is characterised by "a particular set of rules, networks, relations, habits, frames and meanings; in other words, the organizational field is governed by a set of institutional logics." (Andrews-Speed, 2016 p. 219)

New institutionalism "traces its roots to the 'old' institutionalism of Philip Selznick and his associates" (DiMaggio and Powell, 1991 p. 12). Selznick's (1957) institutionalism considered the organisation as the locus of a process of institutionalisation:

> "Institutionalization is a *process.* It is something that happens to an organization over time, *reflecting the organization's own distinctive history,* the people who have been in it, the groups it embodies and the vested interests they have created, and the way it has adapted to its environment." (Selznick, 1957 p. 11 emphasis mine)

Where Selznick's unit of analysis was the organisation, new institutionalism focuses on the organisational field. Restricting the unit of analysis to either the organisation, or the organisational field, risks leaving influences on activity uncovered. Therefore, the research in this thesis incorporates the units of analysis from both old and new institutionalism, allowing for the identification of influences from within and beyond individual organisational boundaries. However, classification of the influences identified draws on new institutional theory.

New institutionalism provides a perspective on the relationships between an organisation and its environment, and in doing so explores ideas of legitimacy, isomorphism and heterogeneity between organisations. However, criticisms of new institutionalism centre on the fact that in moving towards field-level analyses, the original focus of institutionalism as a means of understanding processes within individual organisations has been lost (Greenwood and Hinings, 1996).

2.7.2 Characterising institutional influences

In order to understand the nature of the institutional influences at play in local authority energy activity, it is necessary to be able to elucidate both the source of influence, and the means by which it shapes the behaviour of the actors that perceive it. Institutional theory is widely accepted as a means to evaluate pressures on private sector organisations, but its application to public sector organisations is less frequent, despite the fact that institutional theory itself does not distinguish between the two sectors (Frumkin and Galaskiewicz, 2004). However, Frumkin and Galaskiewicz (2004) argue that the lack of a single stakeholder group to which to answer to means that public sector organisations are in fact more likely than private sector organisations to be subject to institutional pressures and the mechanisms that transmit them, as a result of the need to "embrace external referents of accountability to legitimate their operations" (p. 289).

The characterisation of institutional elements and the means by which they are diffused throughout an organisational field draws on the work of DiMaggio and Powell (1983) and

Scott (2008). DiMaggio and Powell (1983) suggested that there are three mechanisms for diffusion of institutional effects through an organisational field: coercive (effects of political influence and the need for legitimacy); normative (shared professional values within an occupational group, reinforced by specialisation and networks); and mimetic (common responses to mitigate uncertainties in the organisational field), all of which may exist together in an empirical setting. The three mechanisms give rise to institutional isomorphism, which stems from the motive of legitimacy, described by Haverman and David as "*the* central concept in institutional analysis" (2008 p. 579 emphasis theirs). Organisational legitimacy is identified in section 2.6.2.1 as one of the possible antecedents to collaboration. However, legitimacy infers the need to appear acceptable, and as such requires the presence of stakeholders to be enacted; without stakeholders to judge acceptability, the concept of legitimacy fails.

The need for stakeholders to enact judgements of legitimacy is implied in Scott's (2008) characterisation of three diffusion mechanisms that contribute to the pursuit of legitimacy, shown in Table 2-1. Table 2-1 also provides a summary of the indicators for each of the institutional elements, which are used in this thesis to determine the nature of the institutional influences observed.

Table 2-1: Indicators of the three elements of institutions

Institutional element	Regulative	Normative	Cognitive
Enactment continuum	Conscious ⟶		Unconscious
Basis for compliance	Rewards, sanction avoidance	Social obligation to others	Taken-for-grantedness
Diffusion mechanism	Coercive	Normative	Mimetic
Basis of order	Regulative rules	Binding expectations	Constitutive schema (e.g. country-specific currencies)
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators of presence	Rules, laws, sanctions	Certification, accreditation	Common beliefs, shared logics, isomorphism
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible, recognisable, culturally supported

Based on Scott (2008)

2.7.3 Criticisms of institutional theory

If legitimacy stands as the central concept in institutionalism, scholars have increasingly begun to question its focus on isomorphism. Recent institutional research has focused on the question of how it is that organisations operating within a common environment demonstrate heterogeneous responses to their situation. Delmas and Toffel (2004)

suggest that firms' organisational characteristics can combine with institutional pressures to create differences in their environmental management strategies, and therefore differences in their responses to institutional pressures. Subsequent empirical analysis led them to conclude that "organizational structure is key to explaining why organizations adopt heterogeneous [environmental] management practises"(ibid. 2004 p. 41), observed in the presence of a common institutional context. Others have demonstrated that contingency variables such as size, geographical scope, and governance arrangements can all interact with institutional pressures to mediate organisational responses to their environments, and produce heterogeneity (Greenwood et al., 2014).

A perceived lack of attention to leadership and individual agency in new institutionalism forms the basis of a second criticism of the theory. Recurring calls have been made to reintegrate the actions of individuals into institutional analyses (Friedland and Alford, 1991; Greenwood and Hinings, 1996; Hirsch and Lounsbury, 1997). These calls, and ongoing development of the theory in parallel (such as studies into heterogeneity described above) lead to the concept of 'institutional logics'. As with institutionalism in general, the concept of institutional logics is concerned with how societal systems and meanings shape organisations. However, where institutionalism has often focused on isomorphism, institutional logics formalise the differences between individuals and organisations, linked to their context (Thornton and Ocasio, 2008). Essentially, an institutional logic is the set of principles and practices that determine how particular organisations and actors operate, and provides legitimacy for those actions. In a collaborative setting, actors from different organisations may hold differing institutional logics. Actors' adherence to contrasting organisational logics, and their willingness to compromise to reach a mutually satisfactory perspective can affect the outcome of the collaboration. Where actors are more willing to compromise, and surrender some of their organisational autonomy the collaboration is more likely to succeed (Thomson and Perry, 2006; San Martín-Rodríguez et al., 2005).

The core assumption of an institutional logic approach is that there is an interplay between institutional structure and individual actions, and that decisions are made, and outcomes occur as a result of that interplay (Hirsch and Lounsbury, 1997). The concept of institutional logics thus illustrates one aspect of institutional theory that considers the role of actors within the analysis, by considering the effects of the actions of actors within the organisation.

2.7.4 Interactions between institutional and stakeholder influences

Increasingly, scholars recognise that to consider organisations through a single lens is to omit critical aspects of their operation and decision-making. However, similarly, it is recognised that to try and evaluate the full complexity of modern organisations is an impossible task. Sections 2.7.2 and 2.7.3 show that stakeholders and organisational actors have a role in enacting the principles of institutionalism. Additionally, stakeholders may interact with the institutional environment to alter its influence.

In section 2.7.3 the heterogeneity of responses by organisations to a common institutional environment was discussed. Key to the difference was the internal stakeholders within the organisations, who interpreted the institutional pressure differently, therefore resulting in different responses (Delmas and Toffel, 2008). Relatedly, Doh and Guay (2006) demonstrate that similar stakeholders operating in different institutional contexts also exhibit heterogeneity in their interpretations of similar influences, through the examination of the interactions of NGOs with government and non-government actors in different countries.

Institutional theory and stakeholder actions are indisputably interconnected. This is further emphasised when examining the mechanisms of institutional diffusion shown in Table 2-1, with beliefs, rules, regulations, and accreditations all determined by stakeholders to the organisations that either implement or are subject to the mechanisms. Lee (2011) describes the interaction between stakeholders and institutions as being either one of amplification, or diminution. Stakeholders can amplify institutional pressure through the enforcement of regulations, or alternatively provide a diminishing effect by shielding an organisation from the institutional pressure.

Therefore, the role that internal and external stakeholders play in determining a response to institutional influence is key. Arguably, the entire premise of organisational legitimacy, one of the key tenets of institutional theory, is in fact grounded in the perception of an organisation by its stakeholders. Local authorities occupy a dual role as part of the national institutional governance context, bridging between national and local stakeholder groups. It is therefore critical when considering local authority activity that both the institutional context and the actors that operate within it are understood. Section 2.8 introduces stakeholder theory, and demonstrates some of its key strengths in its application to consider the relationships within organisational collaborations.

2.8 Stakeholder theory

Section 2.7 explains how institutional theory provides a useful tool to examine the contextual conditions in which local authority energy activities takes place. To date, interpretations of institutional theory within the local authority literature have largely been applied in the context of governance and transitions, both of which are closely associated with the policy aspects of energy activity. However, in focusing on collaboration for the delivery of energy-related objectives, this thesis examines multi-organisational activity. Therefore, it is necessary to supplement the use of institutional theory (which enables the policy and context of energy activity to be examined) with a theory suited to the analysis of the specific, organisation-level aspects of collaboration. Furthermore, section 2.2 illustrated the tendency to advocate collaboration as a solution for local authorities, or community energy groups, with little evaluation of the range of organisations that these umbrella terms represent.

Stakeholder theory, with its focus on the identification and understanding of "real *concrete* stakeholders" (Freeman and McVea, 2001 p. 195; emphasis theirs) is used in this thesis to provide a complementary lens to institutional theory, and to provide a means through which the proximate influences for specific organisations can be examined.

Stakeholder theory was originally proposed as a strategic management approach, designed to maximise a firm's ability to create value in a turbulent environment (Freeman et al., 2010). The strategic approach challenged deterministic theories, which relegated managers to a reactive role constrained by an organisation's external environmental conditions (Astley and de Ven, 1983). In the decade following its original introduction, a body of literature with numerous, varied, and sometimes contradictory approaches to the application of stakeholder theory was created. Donaldson et al. (1995) argued that this body of literature can be rationalised into the three different interpretations of the theory, each with a specific use, as summarised in Table 2-2.

Table 2-2: The three interpretations of stakeholder theory, and their uses

Application	Use
Descriptive	Explains corporate behaviours and characteristics
Instrumental	Establishes causal links between the adoption of stakeholder principles and corporate performance
Normative	Identifies moral or philosophical guidelines for managing and operating firms

Developed from Donaldson et al. (1995)

Since Donaldson et al.'s review (1995), scholars have continued to develop numerous interpretations both of stakeholder theory, and the term stakeholder itself (Horisch et al.,

2014). However, common to the various uses of stakeholder theory is the unit of analysis, which focuses on the "relationships between an organisation and its stakeholders" (ibid. 2014 p. 329). It is the focus on relationships that informs the use of stakeholder theory in this thesis; as a descriptive tool to explain the behaviour of organisations within collaborative arrangements.

A comprehensive review of all stakeholder literature is beyond the needs of this thesis. The remainder of this section focuses instead on the key aspects of stakeholder theory that are useful for explaining stakeholder relationships. The process of stakeholder identification is introduced, including a discussion of the debates surrounding what constitutes a stakeholder, and which stakeholders are important.

2.8.1 Stakeholder identification and importance

Stakeholder identification is the first step to a descriptive, instrumental or normative application of the stakeholder approach. Freeman's original proposition advanced the concept of stakeholder identification from the listing of generic stakeholder groups to the mapping of specific, named stakeholders to whom a firm should respond (Freeman and McVea, 2001; Freeman et al., 2010). The proposition raises questions however, about the definition of a stakeholder; or alternatively, which stakeholders should be included in an analysis. The classic definition of a stakeholder is generally held to be: "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984 p. 46).

Critics of stakeholder theory, and in particular, critics of the above definition, argue that it could include almost anybody (Mitchell et al., 1997). However, the inclusion of all stakeholders in an analysis has been eschewed as impractical even by the original proponent of the definition (Freeman et al., 2010). Stakeholder theory has further been criticised for assuming that all stakeholders are created equal; a criticism refuted as a frequently applied misapplication of the theory (Phillips et al., 2003).

The prevailing approach to stakeholder differentiation is the concept of stakeholder salience, which was developed by Mitchell et al. (1997 p. 853) in response to the "maddening variety of signals on how questions of stakeholder identification might be answered". They argued that existing attempts to differentiate between stakeholders were over reliant on either power or legitimacy, attributes which they described as intersecting. Examining existing organisational theories, they identified three variables that influenced manager-stakeholder relationships, as shown in Table 2-3.

Table 2-3: Variables influencing stakeholder manager relationships

	Power	Legitimacy	Urgency
Organisational theory in which variable features	Agency theory, transaction cost theory, resource dependence theory	Institutional theory, population ecology theory	Agency theory

Developed from Mitchell et al. (1997)

Mitchell et al. (1997) used the variables shown in Table 2-3 as attributes, to distinguish stakeholders from non-stakeholders. Seven possible combinations of the three attributes gave rise to seven stakeholder categories[6]; stakeholders with more of the three attributes could be considered more salient than those with fewer attributes.

Mitchell et al. (1997) developed their system of stakeholder salience as a tool that would enable managers to proactively attend to their interests. While examples of its application for this purpose exist (Elias et al., 2002), it has also proved a useful tool for evaluating stakeholder-manager relationships (Parent and Deephouse, 2007), and stakeholder-stakeholder relationships (Varvasovszky and Brugha, 2000; Genovese et al., 2013).

In section 2.6.2.2, the role of power and legitimacy as contingencies to the collaborative process are clearly identified (Chen, 2010). Separately, the process of stakeholder analysis has been identified as a useful tool to enhance the likelihood of successful collaborations (Finn, 1996). Mitchell et al's (1997) model provides a systemic approach that can be applied to stakeholder analysis.

The consideration and categorisation of stakeholders is unarguably instructive in terms of understanding the factors that influence decision-making in a real-life process. This is especially so when considered alongside the higher-level institutional factors described in the section 2.7. The recognition of the relative power of stakeholders is a vital component of understanding activities undertaken by organisations working in partnerships. Therefore, understanding the relative legitimacy and power of identified stakeholders forms a key aspect of the theoretical framework applied in this study.

A stakeholder's *power* is defined in terms of the ability to "impose its will in the relationship" (Mitchell et al., 1997 p. 865). Drawing from Etzioni (1964), Mitchell et al. (1997) identify three types of power; coercive (enforcement), utilitarian (resource control) and normative (publicly expressed pressure). Recent criticism of Mitchell et al.'s (1997) system suggests that it endorses the "contemporary structure of corporate neglect"

[6] It is not relevant to this thesis to reproduce the categories here. The categories and their definitions can be found in Mitchell et al. (1997).

in which stakeholders with little power are ignored, even if they have a legitimate claim over a firm (Derry, 2012 p. 258).

In fact, the side-lining of powerless stakeholders is observed by Parent and Deephouse (2007) in their examination of managers' responses to real stakeholders. Subdividing Mitchell et al.'s (1997) power categories into coercive, utilitarian and normative, they conclude that for a stakeholder to be recognised by managers they must have power, and that utilitarian power is the most influential. Utilitarian power is linked to the control of resources; with a lack of resources one of the key reasons that firms might collaborate identified in section 2.6.2.1, and a frequent barrier to energy activity by local authorities.

Mitchell et al. (1997) use Suchman's (1995) definition of *legitimacy* as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". Suchman (1995) in turn builds his definition on conceptual foundations of legitimacy found in bureaucracy, open-systems theory, and institutional theory (Mitchell et al., 1997). The attribute of legitimacy provides a further link between stakeholder analyses and institutional theory (also evident in Table 2-3). Strengthening the link further, Parent and Deephouse (2007) suggest that sub-dividing legitimacy into legitimacy grounded in regulative (or pragmatic), normative or cognitive sub-types (Suchman, 1995; Scott, 2003) may prove instructive.

Finally, *urgency* is defined as "the degree to which stakeholder claims call for immediate attention" (Mitchell et al., 1997 p. 867). However, Parent and Deephouse (2007) found little evidence of urgency in stakeholders (other than those holding all three attributes), leading them to suggest that power or legitimacy precede urgency. Additionally, they note the difficulty of assessing urgency through retrospective analysis. Therefore, this thesis will focus on aspects of power and legitimacy of stakeholders; both within a collaborative context, and as the source of ongoing proximal influences on the organisations taking part in the collaborations.

2.9 The choice of firm-focused theories for the study of local authority activity

The choice of analytical lenses used in the evaluation of local authority activity in this thesis is drawn from firm-focused organisational theories, rather than taking an alternative perspective drawn from the literature of public administration, or new public management (NPM). This choice was made because there is ongoing debate about the usefulness of the application of distinct theoretical approaches to public and private sector

analysis. While the literature of public administration and NPM are both public-sector specific, the degree to which public and private sector organisations can be considered distinct is disputed between them. Proponents of public administration argue that that "organization theory provides an incomplete analysis of the internal structure and external environment of public organizations" (Frumkin and Galaskiewicz, 2004 p. 287). In contrast, NPM literature challenges the idea of distinct public and sectors, and focuses on importing management methods and techniques from private sector organisations to the public sector would result in 'better' provision of public services (Hood, 1991). Scholars of public administration and public management criticised the application of private sector principles to the public sector on the basis that the two sectors were fundamentally dissimilar (Boyne, 2002). However, examining the critics' position in more detail, Boyne (2002) determined that there was little empirical evidence to support the assertion of difference between public and private sectors, save for public sector organisations being more bureaucratic, with managers that exhibited less materialistic, and lower organisational commitment (loyalty). In doing so, Boyne (2002) concluded that there were "few solid empirical grounds for rejecting the application of successful private practices to public organizations" (p. 118).

While NPM integrates private sector principles into the study of the public sector, it does so through a lens of organisational reform, seeking to change operations and structures within the public sector to reflect values such as increased efficiency and effectiveness, in contrast to 'traditional' public sector values such as legitimacy, equity, fairness and reliability (Kuipers et al., 2014). However, the case studies considered in this thesis concern the collaboration of local authorities with private sector firms, in the interests of delivering energy activity. The collaborations examined are public-private partnerships, operating in a market-led environment. While the activities arise from the changing role of the public sector, it is not the operation of the public sector organisations themselves that are under scrutiny in the research, therefore NPM is considered inapplicable. Similarly, even if the view is taken that public and private organisations are different, one of the key differences between the public and private organisational environments is cited as the "absence of competitive pressures", with public agencies having "few rivals of the provision of their services" (Boyne, 2002 p. 100). However, the cases in this thesis highlight examples of local authority activity that extend beyond their statutory duties. By pursuing activity within a market-led energy sector, local authorities are acting in a competitive environment, and are therefore subject to external circumstances more

usually associated with organisations in the sense of private sector firms. Therefore, the application of firm-focused theories is considered to be appropriate.

2.10 Summary

One of the key aims of this thesis is to evaluate the role of collaboration in realising local authority energy objectives. This chapter showed that while current studies that are focused on local authorities provide a good appreciation of the challenges and opportunities present in the earlier stages of pursuing energy-related activity, there is a relative lack of focus on the later stages of delivery. Sections 2.2 and 2.3 illustrated how local authority energy literature has tended to focus on the socio-technical context in which activity takes place, or the pursuit of techno-economic solutions to support innovation. Where organisational issues have been considered in wider energy and sustainability literature, they have often been incorporated within systems-level socio-technical analyses, and more recently, the detailed examinations of specific organisational tools such as the business model. In contrast, section 2.5 demonstrated that much of the energy-focused organisational research examines the internal, or sector-specific energy behaviour of organisations. By focusing on the activities of organisations within local authority collaborations, this thesis brings together the two strands of research, and addresses complementary gaps within each. Using local authority energy-related activity as the subject focus, the examination of the role of collaboration introduces an organisational perspective, and extends the scope of current energy research to include the delivery phase of activity. This is reflected in the overarching thesis research question:

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

Similarly, through the detailed examination of energy-related collaborations, the thesis extends the application of organisational theory beyond the internal, or sector-specific focus that currently dominates energy-related organisational studies. The theoretical approach that is used to achieve this was presented in the latter half of this chapter. Section 2.6 presented a structure for examining collaboration, and an argument for examining both the contextual and internal influences on a collaboration. Sections 2.7 and 2.8 demonstrated how institutional and stakeholder theories can be used to evaluate the variables affecting organisations participating in collaborations. The two theories were shown to complement each other in order to draw out salient influences on collaborations, originating from the broad environmental context, and the more proximate needs of individual organisations' stakeholders. Through the concurrent application of the two

theoretical lenses, alongside an assessment of the practical influences from within the organisations themselves, the thesis answers the thesis research questions, re-stated here in the order in which they are addressed in the empirical chapters:

> *RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*
>
> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*
>
> *RQ 3: How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

By posing the research questions above, this thesis brings an alternative perspective to the applied context of understanding local authority energy activity. It achieves this through its use of organisational theories as a framework for analysis, and through its in-depth focus on the challenges and opportunities that arise not only before, but also importantly during, the implementation of such activities through collaborative means. The following chapter describes the methodology used to undertake the analysis.

3 Methodology

The overarching purpose of this research is to gain a greater understanding of the role of collaboration in realising local authority energy objectives. The literature review (Chapter 2) showed that the presence of collaboration as a feature of local authority energy activity is recognised in literature. However, the first half of Chapter 2 also showed that the treatment of collaboration within the examined literature is usually limited to the macro level, where it is described as a potential solution to some of the barriers that limit the extent to which local authorities can engage with energy activity, or used as an example of a strategy for the successful pursuit of energy activity. Therefore, it was argued that there is value in extending the analysis to consider the implementation of collaboration, in order to understand how it is delivered in practice. The second half of Chapter 2 set out how insights from collaboration studies and institutional and stakeholder theories provide a means of accounting for the heterogeneity of individual organisations and the shared context in which they operate. Furthermore, it highlighted the multiplicity of factors that contribute to the success of otherwise of any collaborative arrangement; factors that are as yet little examined within the local authority energy literature. This chapter details how, through empirical research methods, the theories discussed in Chapter 2 are applied to local authority energy activities, in order to answer the research questions. Section 3.1 explains the reasoning behind choosing a qualitative research approach, before section 3.2 introduces and justifies the research design.

The research is structured in two phases. Phase One uses a case study of a single local authority to evaluate the context in which local authority energy activity is taking place from an institutional and stakeholder perspective. Additionally, the types and purposes of collaborative arrangements employed by the authority in the case study are examined. A desktop review undertaken alongside the case study provides additional evidence of the political context surrounding local authority energy activity, and the types and purposes of collaborative local authority energy activity that have occurred in the UK.

The full scope of Phase One, and the methods and techniques used for collection and analysis of the data therein are described in section 3.3. In Phase Two, two further case studies are used to evaluate and compare two energy efficiency retrofit schemes that employ similar collaborative arrangements. The rationale for the selection of the Phase Two cases, and the data collection and analysis techniques employed in their evaluation are set out in section 3.4.

The final two sections of this chapter consider the effects of the reciprocal relationship between the researcher and participants, and the researcher's influence on the research itself. Section 3.5 reflects on how the chosen research approach could influence the final conclusions, and outlines the steps taken to ensure that the conclusions drawn are trustworthy. Section 3.6 describes the ethical considerations, and process of ethical approval, for the research.

3.1 Qualitative justification

The thesis research questions listed at the end of Chapter 2 deal with interactions between actors, organisations and the contextual influences that shape their actions and decisions. Qualitative research methods are ideally suited to the task of describing and understanding interactions, due to their process-focused theoretical orientation.

Process theories include events and timing as key elements of the analytical focus, which is an outcome that arises as a result of the coexistence of precursor conditions, probabilistic processes, and external directional forces, in combination with a specific object of focus, for example, an organisation (Mohr, 1982). Thus, observed outcomes are held to be dependent on the specific combination of context and object; two separate organisations experiencing the same contextual conditions may not necessarily produce the same outcomes. Qualitative research methods use a process-focused perspective to explain how events and actions, and the meanings attributed to them by actors involved, are shaped by the specific circumstances in which they occur. Furthermore, qualitative methods are characterised by their use of words as data, flexibility of research design, and the generation of narrowly focused but rich data (Braun and Clarke, 2013). This is in contrast to the variance-focused perspective of quantitative research methods, in which causal hypotheses are tested through the use of statistical techniques (Maxwell, 2012).

In this thesis, real-world situations are evaluated in order to understand how institutional and stakeholder influences, and the actors and organisations on which they act, interact to produce a variety of outcomes in the collaborations under examination. Such an application is unarguably process-focused in its conception; the interplay between each of the elements forms a critical aspect of the analysis that cannot be reduced to a series of pre-determined testable variables, as would be required by a quantitative approach.

In describing the nature of qualitative research, Denzin and Lincoln (2008) emphasise the multiplicity of research paradigms that exist to encompass a "researcher's epistemological, ontological and methodological premises" (p31). These paradigms highlight the role played by the researcher in determining the questions asked, and interpreting the answers

to these questions. Therefore, having established the need for a qualitative approach in this research, it is necessary to define the epistemological and ontological position on which the research is based.

The key object of focus within this thesis is collaborations. Collaborations are comprised of multiple actors operating together to achieved shared outcomes. Though shared outcomes are the goal, actors may hold contradicting viewpoints of a shared situation (Thomson and Perry, 2006). The need to recognise the different perspectives arising from common origins is best served by taking a critical realist approach. This is because critical realism assumes a relativist epistemology, in which it is recognised that while there can only be one reality, multiple interpretations of that reality may exist. Critical realism distinguishes between the structural mechanisms, events and experiences that make up the world (intransitive), and the concepts and theories that are used to describe them (transitive), and holds that knowledge is derived through the retroductive investigation and uncovering of causal mechanisms that lead to observed events (Blaikie, 2007; Fleetwood, 2014).

The intransitive domain can be further subdivided to provide a stratified ontology of empirical, actual, and real domains (Bhaskar, 2008). The use of such stratification enables a distinction to be made between pre-existing casual mechanisms that exist irrespective of whether they are set into motion (real domain), events that occur when the causal mechanisms are activated (actual domain), and the experiences and perceptions of those subject to the events and mechanisms contained within the actual and the real domains (empirical domain). Importantly, entities do not have to be observable to exist; it is acceptable to infer the existence of an entity through observation of its effects (Sayer, 2000). It is the task of research to demonstrate the existence of the causal mechanisms contained within the real domain (Blaikie, 2007). The retroductive examination of the case studies in this thesis is easily mapped to this ontology; starting with a set of observations (empirical), and seeking to explain the interaction between pre-existing conditions (real) and the actions of, and interactions between organisations operating within them (actual). Crucially, critical realism recognises that “the same causal power can produce different outcomes” (Sayer, 2000 p. 15). Finally, critical realism permits the use of a variety of (primarily qualitative) research techniques to achieve its aims. Accordingly, the following section presents and justifies the techniques employed in this research.

3.2 Research design

The research was designed in two phases. The first phase comprised a single case study alongside a desktop review, followed by a comparative case study approach (two cases) in the second phase. Within the comparative cases, sub-cases are included, as explained in section 3.4.1. Analysis of the data collected is structured using an analytical framework; the framework is introduced in section 3.2.3, while the specific details of data collection and analysis for each phase are described in sections 3.3 and 3.4.

3.2.1 Case studies

The term 'case study' has many definitions that encompass meanings that refer to both methods, and entities under study using various methods of analysis (Blaikie, 2009). Yin (2009 p. 29) however, defines a case study as a research method in and of itself, and distinct from the "unit of analysis" used to describe the cases under consideration; it is this definition that is used in this research. Yin suggests that a case study approach is appropriate for situations in which a researcher is trying to understand: a contemporary event or events; within a real-life context; over which the researcher has little or no control (ibid. 2009). Saunders et al. (2016) highlight the contextualised setting of a study within its real-world situation as the defining feature of a case study compared to other qualitative methods. The prominence of contextualised understanding of real-world phenomena in definitions of case study methods highlight its suitability as a technique for the study of collaboration in a local authority context.

Stake (2005) describes two types of case study: intrinsic and instrumental; the latter of which can be extended to include multiple cases. Intrinsic studies are undertaken simply to understand the particular case in question. Conversely, instrumental studies seek to provide additional insight into an issue or to extend the understanding of a generalisation. This research takes an instrumental, multiple-case approach, providing an opportunity not only to explore the processes at play within each individual case, but also to consider the effect of context on these processes between the different cases; consistent with the philosophies articulated by Mohr (1982), and Sayer (2000).

The case for choosing a qualitative case study approach in this research is clear, however, qualitative research is often assessed to be less worthy than a quantitative approach. This is in part because the two approaches are often evaluated according to criteria inherently associated with quantitative research (Krefting, 1991). Common concerns surrounding the use of qualitative case study methods centre on a perception of a lack of rigour in the research, and the lesser value of context-dependent knowledge (Yin, 2009). Flyvbjerg (2006) in addressing five major misconceptions concerning case study research argues

that context-dependent knowledge is at the 'very heart of expert activity', and that it is only through 'experience with cases that one can at all move from being a beginner to being an expert'. Furthermore, he argues that it is the wealth of detail that can be obtained from real-life situations that is of great value in developing an understanding of the complexity and nuance of reality (ibid. 2006). Despite Flyvbjerg's assertions, ensuring rigour in the chosen methods is vital if the conclusions of this research are to be considered credible. A full reflection on the implications of the methodological choices and the actions taken to mitigate potential limitations is therefore presented in section 3.5.

3.2.2 Desktop review

The purpose of the desktop review is twofold. Firstly, through an examination of historical and recent energy policies in the UK, it provides an understanding of the political context against which the case study data can be situated. The review seeks to understand the national policy environment that has shaped the current energy-related activities of local authorities, and the role played by key stakeholders in implementing and responding to the policy environment. Secondly, the review examines the applied literature of Chapter 2 alongside policy documentation to identify the types and purposes of collaborative energy activity that have either occurred or are being advocated in the UK. This enables the specific collaborative activities identified in the case studies to be viewed against a broader context. By situating the activities identified in their contextual background, the desktop review provides the first contribution to understanding the antecedents to local authority energy activity and any high-level drivers for pursuing a collaborative approach. The Phase Two case studies build on this initial assessment to examine the specific actions and interactions of organisations operating within a common, pre-existing context.

3.2.3 Analytical framework

Analysis of the data in the two phases of research is structured according to the analytical framework set out in Figure 3-1. Analytical frameworks provide a structure to the analysis of empirical data, and particularly in the case of comparative analyses, a consistent lens through which individual cases can be viewed and compared. The systematic application of a consistent lens increases the reliability of the case study conclusions, an ensures that findings extend beyond the merely descriptive (Kaarbo and Beasley, 1999; Esser and Vliegenthart, 2017).

Consistent with the arguments in Chapter 2, the framework shown in Figure 3-1 places the organisation at the centre of the analysis. Institutional and stakeholder factors act to create environmental antecedents to organisational activities. The institutional and stakeholder influences are also shown to act directly on the organisation(s). The three

elements (institutional, stakeholder and organisational) interact to shape the process stage of the activity under consideration. The outcomes of the activities are considered and explained in terms of the effects of the antecedents and processes leading to their creation.

In Phase One, the framework is applied to the case of local authority energy activity as a whole. In Phase Two, the framework is applied to further understand the antecedents to energy activity in general, before being applied as a whole to specific examples of collaboration.

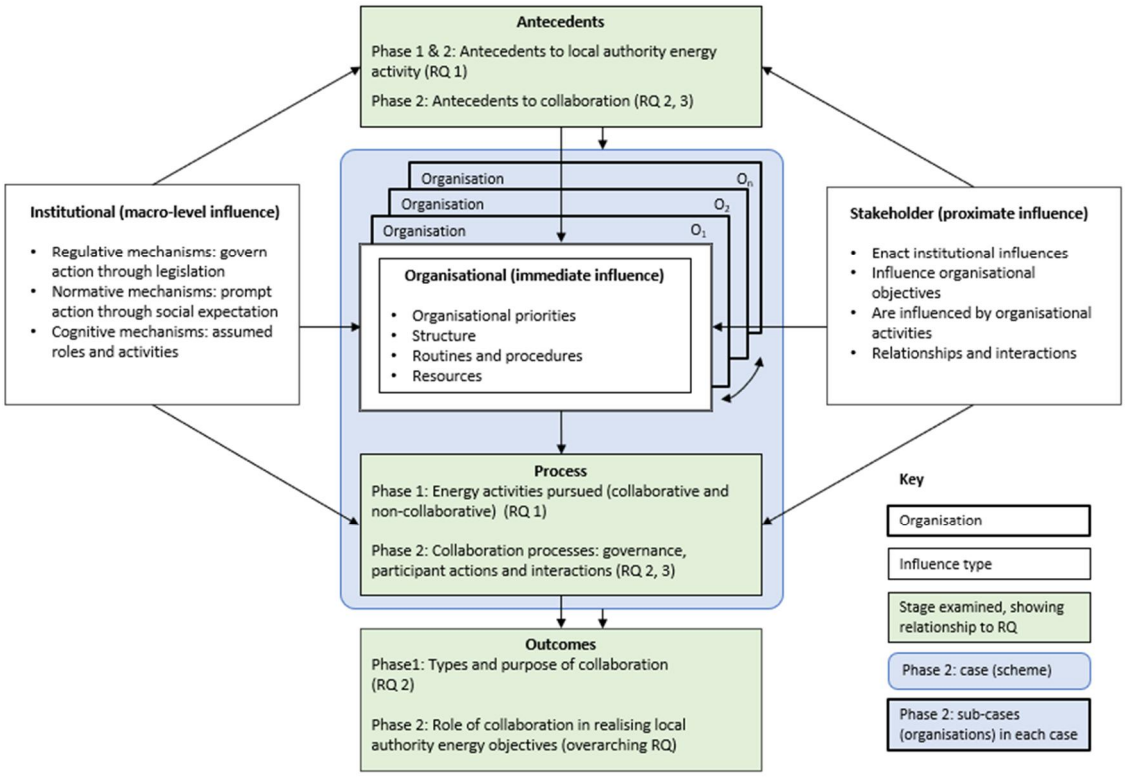


Figure 3-1: Summary of the analytical framework and its application to the two phases of research

3.3 Phase One

3.3.1 Scope

Phase One of this research consists of a case study focused on energy activities of a single local authority (Leeds City Council, in the UK) and the desktop review described in section 3.2.2. The desktop review considered historical and contemporary UK policy and regulations that relate to energy, climate change, and examples of collaboration in the UK. The choice of Leeds City Council (LCC) as the focus for the case study was informed by its status as an energy leader, as determined by Hawkey et al. (2014) in their study of UK

local authority engagement with local energy production and provision. The status of an energy leader indicates “multiple routes into engagement, including economic regeneration, housing upgrades and affordable warmth, energy productivity, avoided costs of alternatives and environmental protection” (ibid. 2014 p. 6).

The identification of LCC as an energy leader lent credibility to the opinion of the researcher, formed during previous research (Adam et al., 2016) that the council took a proactive approach to energy activity. It was expected that this proactive approach to energy would mean that a range of staff within the council could be identified, across different departments, who were involved with the council’s energy activities as part of their role. Engaging with staff from across the organisation provided the best opportunity to capture a comprehensive understanding of the range of issues facing the authority when considering their energy activities. Practically, the choice of LCC as the focus of the first case study enabled the candidate to draw on relationships established during the earlier research to gain access to a good range of potential participants.

Initial expectations for the research in this thesis were that the Phase One data would contribute to the development of a decision-making tool to support energy activity by local authorities, by first identifying the influences that contributed to the decisions to invest in energy activities. Over the course of the Phase One analysis however, the emphasis of the research was reframed. While the identification of influences on the choice to pursue energy activities within the council remained a core element of the analysis, the objective of developing a decision-making tool that incorporated insights from the analysis was reconsidered. The reframing of the Phase One research reflected the results of the initial data analysis, as is described in section 3.3.3, and instead focused on identifying the types and purposes of collaboration employed by the council in their pursuit of energy activities.

3.3.2 Data collection

Data were collected for the two elements of the phase from semi-structured interviews, and national and local policy documents. Interviews were conducted with a range of staff from within Leeds City Council, all of whom were engaged in the energy activities of the council through their job roles. Coupled with the interviews, and in addition to the national policy documents consulted during the desktop review, the Council’s energy-related policy and strategy documentation provided an alternative source of information about the energy-related activities being undertaken within the Council.

3.3.2.1 Semi-structured interviews

The 12 semi-structured interviews of the first case study were undertaken in the summer of 2015. The semi-structured approach allowed the researcher to anticipate topics of interest by preparing an interview guide, but provides the methodological freedom to respond to the developing context of the interview situation (Braun and Clarke, 2013). In order to address some of the strategically important, difficult, and diverse challenges it faces, LCC had established a series of cross-departmental boards, at management level. The initial interview participants were chosen using a targeted approach, and were drawn from the board tasked with providing solutions to reducing the carbon dioxide emissions in the authority's jurisdiction. The choice to invite board members to participate in the interview process was informed by discussions with a member of council staff familiar with both the previous research and the initial purpose of the case study described in Section 3.3.1. The board provided a means of ensuring that although participants were drawn from across the organisation, they shared a common interest in implementing energy projects that would realise a reduction in the Council's carbon dioxide emissions. Additionally, the choice to conduct interviews initially from within a single authority, but across multiple departments, was made in order to understand a wide range of responses and criteria that exist within an organisation. An alternative approach could have been to focus on employees with similar roles in different organisations. However, it was decided that this approach was likely to result in a narrower range of issues being captured, as it would be harder to identify actors whose roles incorporated an indirect involvement in energy activity.

Six of the initial participants were drawn from the cross-departmental board, representing the planning, transport, housing, waste, and sustainability and climate change departments. Further interviews were conducted using a snowballing technique, in which the initial participants recommended members of staff involved in the delivery of energy projects discussed, as additional participants. Suggestions for further interviews via the snowballing process reached saturation relatively quickly, with interviewees often suggesting the same names as potential participants. As a result, ten staff members from the authority were interviewed, with a further two interviews conducted with employees of organisations external to the authority. The external organisations held key roles in supporting the delivery of significant energy projects for the authority. Table 3-1 (overleaf) summarises the roles held by each of the interviewees, and their areas of expertise. A range of departments and seniority was evident across the participants,

therefore ensuring the best chance of achieving the stated aim of capturing a broad range of perspectives on the issues faced while implementing energy activities.

Prior to commencement of the interviews, a list of possible interview questions was prepared. Appendix A includes the questions, along with examples of the information sheets distributed to potential interviewees outlining the purpose of the research (to help them decide whether they were willing and appropriate candidates for interview) and the ethical consent forms for those that took part. As described in 3.3.1, the original intention for this research was to develop a decision support tool that could be used to support local authority energy activities. This purpose is reflected in the documents in Appendix A.

Table 3-1: Summary of actor roles for Phase One interview participants

Area of expertise (within Council unless stated)	Role	Code
Sustainability and climate change	Senior management	LCC L1
	Project management	LCC L2
	Project management	LCC L3
	Project management	LCC L4
	Project officer	LCC L5
Housing	Senior management	LCC L6
Transport	Senior management	LCC L7
	Project management	LCC L8
Planning	Senior management	LCC L9
Waste	Senior management	LCC L10
Engineering Consultancy: District Heating and Solar PV	Senior Engineer	LCC P1
District Network Operator: Electricity Distribution	Senior Engineer	LCC P2
Total interviews	12	

The semi-structured nature of the interviews enabled the pre-prepared questions to be asked verbatim, in an alternative format, or not at all, as appropriate to each individual. Many of the interviewees had a broad view on what constituted energy-related activity; if conversations ranged away from the research focus narrower, more specific questions were used to bring the focus back towards the particular subject in question. This ensured that peripheral considerations relevant to individual participants were captured, while avoiding highly generalised responses that were far beyond the boundaries of interest for the study. All interviews were recorded with prior consent in audio format for transcription, enabling the researcher to fully engage with the participant while making only minimal notes during the interview process itself. Interviews were conducted face to face where possible (and via telephone where not) and typically lasted between 30 and 60 minutes.

3.3.2.2 Council documentation review

In addition to the semi-structured interviews, energy-related policy and strategy documentation from LCC was collected as part of the LCC case study, providing an alternative source of information about the energy-related activities being undertaken by the Council. The Council documentation was reviewed to provide an overview of the range of projects taking place that included an energy-related element within them. This provided both a sense of the extent of energy activity being undertaken, and the variety of means by which it was implemented. Additionally, the documents provided an opportunity to compare the responses of interviewees relating to the purpose of energy activity with the published position of the Council, thereby providing a means of data triangulation.

3.3.2.3 Desktop review

Data to inform the review of the policy and regulatory environment, and collaborative activity was drawn from both academic and grey literature sources. Academic sources for the review included the studies of UK energy policy, often focusing on the historical development of policy and regulations, or the comparison of UK policy with that of other nations. Academic literature sources are referenced in the standard method throughout the thesis. Relevant policy documents, white papers, and regulatory documents were collected throughout Phase One. Documents not already known to the candidate were identified through a combination of following up references in other (academic and non-academic) literature, through reference to their existence by interview participants, and by searching the central government publication database.

Non-academic data sources collected as part of the case study and desktop review are listed separately from the references in this thesis. Each of the sources has been assigned a reference code. The empirical chapters use the reference codes to identify the sources that they draw from. Grey literature is coded [G-xx] to indicate its data type as grey literature. Documentary data collected in both phases of research is coded [D-xx]. The xx is a numerical reference. Appendix B contains a list of the grey literature used to develop an understanding of the national political context of energy activity in the UK, and the mechanisms used to support it. Documentary data sources collected over the two phases of research are also listed in Appendix B, with the case study to which they refer indicated. Phase One interview data is identified according to the codes shown in Table 3-1.

3.3.3 Data analysis

Collected data was analysed in NVivo analysis software, using a form of thematic analysis called template analysis (King, 2012). Thematic analysis is a specific method for data

analysis through which patterns in data are determined, usually through an inductive or theoretical approach (Braun and Clarke, 2006). The inductive approach is a bottom-up technique whereby data is coded without reference to previous theory, and allows a description of the data under consideration to be developed that is independent of a researcher's initial conceptions. In contrast, a theoretical, top-down approach uses themes developed from existing theory to guide the analysis, with the objective of identifying instances of these ideas within the data to answer particular theoretical or analytical questions brought to the analysis by the researcher. Where elements of each objective are required, template analysis provides an alternative approach, which sits between the inductive and theoretical methods (King, 2012).

Template analysis provides the researcher with a starting structure using a small number of a-priori themes determined from theory or research questions. However, it retains the flexibility to develop new themes as they are determined during the analysis process. This not only provides the researcher the opportunity to build on existing theory but also allows unanticipated patterns in the data to be incorporated into the final evaluation. The framework shown in section 3.2.2 provided some predefined themes, but in order to ensure that unforeseen themes were captured, a degree of flexibility in the analysis was required. Additionally, King describes template analysis as suited to research in which the "researcher assumes that there are always multiple interpretations to be made of any phenomenon" (2012 p. 427), a statement that reflects the epistemological position outlined in Section 3.1. Therefore, template analysis was assessed to suit the needs of the study.

King (2012) presents a detailed explanation of the key features and stages of template analysis, which can be summarised as a five-stage process. This is outlined below, integrated with a description of its application in this research. As described in section 3.3.1, the interview data were originally collected with the intention of developing a decision support tool. The first iteration of the template analysis identified a mismatch between the intention to develop a tool and the way in which local authorities chose and delivered their energy activities. Therefore, the collected data were reanalysed; with the exception of Stage 1, the stages described below refer to the process of reanalysis for the current research focus.

Stage 1: Familiarisation with data. This allows the researcher to check and review each piece of data prior to analysis. Familiarisation includes the transcription of verbal data by the researcher or an initial read through of transcripts to check for accuracy. Therefore, the 12 interviews were transcribed by the researcher as soon as possible after

completion of each individual conversation, and where possible in advance of the subsequent interview.

Stage 2: Preliminary coding during initial read through of a subset of the data. Where there is variability in a data set is it useful to choose contrasting transcripts within the subset to ensure contrasting ideas are adequately captured by the themes (King and Horrocks, 2010). Therefore, three transcripts were selected for preliminary coding. Two of the three transcripts selected were records of interviews conducted with staff from within Leeds City Council, and represented both senior management and project officer roles. The final transcript was a record of one of the two interviews conducted with actors external to the council. Choosing transcripts that represented differing levels of seniority in the interviewees, and from within and beyond the council, ensured as far as practicable that the initial template would be applicable across the range of interviews. Preliminary coding themes were taken from the (white) theoretical variables included in the analytical framework shown in Figure 3-1. Additional themes were developed in this initial phase using a data-driven approach, in order to capture the full range of influences described (DeCuir-Gunby et al., 2011).

Stage 3: Developing the initial template. This involves clustering of the preliminary codes determined from the initial read through of the subset of data. There are no pre-determined rules regarding the hierarchy of the template; a-priori themes are not necessarily top-level themes and may be discarded if the initial read through revealed them to be irrelevant to the data collected, or better described by themes arising during the initial read through. Nodes developed in Stage 2 with similar meanings were combined and renamed where appropriate. Nodes that did not appear to fit into any of the emerging template groups were reviewed and renamed or removed, to more accurately reflect the coded content. The revised template was then used to code the nine remaining transcripts.

Stage 4: Coding of remaining transcripts using the template. The template is very likely to be amended during this process as any inadequacies of the initial template become apparent. Changes are likely to include the creation, removal or merging of themes, changing the scope of a theme and rearranging themes to ensure a full expression of the data set (King, 2012). Further development of the template at this stage resulted in the final Phase One template, shown in Appendix C.

Stage 5: Finalising template. The template is final when all relevant sections from the data set can be coded somewhere with the template. Data extracts may be coded at more than one point at the same level, and there may be as many hierarchical levels as

necessary to fully elaborate a top-level theme. Links and integrative themes describing the relationships between themes and the underlying threads can also be included (King, 2012). An extract of an interview showing coding using the final template is included alongside the template example in Appendix C.

The analysis process described above was applied in full to the analysis of the semi-structured interview transcripts. Subsequently, the final coding template was used to draw out key information from the documentary data collected. This ensured that the Phase One analysis fully addressed research question 1 and 2. Categorisation of the collaboration examples identified in the case study data and desktop review was drawn directly from Figure 2-1, with examples placed into each of the four categories as appropriate. The results of the Phase One research are presented in Chapter 4.

3.4 Phase Two

3.4.1 Scope

As described in section 3.3.1, the Phase One research focused on identifying the influences on energy activity within LCC, and the types and purposes of collaborative energy projects undertaken by the organisation. The Phase One case study, therefore, provides a contextual analysis of the current conditions in which local authorities are operating, and identifies the nature of collaborative projects employed by an authority operating within such a context.

In contrast, the Phase Two research selected a specific collaborative arrangement for detailed examination: multiple local authorities joining together to collectively secure the services of one or more private sector partners, to deliver energy efficiency measures to the region as a whole. In Phase One, Better Homes Yorkshire (BHY) was identified as exhibiting this arrangement, and chosen for further study in Phase Two. Warm Up North (WUN) was identified as employing the same collaborative arrangement, and selected as a comparative example from a different region. The two schemes are now introduced, before the rationale for their selection is discussed.

Warm Up North was a partnership consisting of nine of the twelve local authorities from the North East and Tees Valley Local Enterprise Partnerships (LEPs) and a single private sector organisation: British Gas. British Gas delivered energy efficiency and renewable energy measures for the participating authorities via a central framework contract with Newcastle City Council which acted as the lead authority for the scheme. An inter-authority agreement between the nine local authorities provided the contractual link

between the remaining authorities and British Gas. The Warm Up North brand was used across the region, and was launched in August 2013.

Better Homes Yorkshire is a partnership consisting of ten local authorities that make up the Leeds City Region LEP, the West Yorkshire Combined Authority (WYCA), and three private sector partner organisations. Two private building contractor firms (Keepmoat and Willmott Dixon[7]) deliver energy efficiency measures and renewable energy services across the Leeds City Region, through an overarching framework contract with WYCA, and individual call-off contracts with each of the ten local authorities. Better Homes Yorkshire is the regional brand, with each of the individual authorities having a sub-brand for their own area, e.g. Better Homes Harrogate. The third private sector partner, an energy supplier, occupies a silent role in the partnership for reasons that will be discussed in Chapter 6. The scheme was launched in March 2015.

In examining the two regional energy efficiency schemes of WUN and BHY, the Phase Two research seeks to provide insights into the influences that affect the collaborative process within multi-organisational public-private projects, and in turn if and how the collaboration process can affect their outcomes. Kaarbo and Beasley (1999) highlight the importance of comparability in a multiple-case study, in order to minimise the number of variables that could explain differences observed between the cases. WUN and BHY are two examples of several regional energy efficiency schemes that were implemented in response to Green Deal proposals put forward in 2010 (DECC, 2010b). While other examples of regional energy efficiency schemes existed, WUN and BHY were selected for the similarity of their collaborative models, their common national political context, and a comparable technological focus.

The Phase One case study and desktop review identified the presence of energy efficiency both as a consistent element of national government energy policy, and the only aspect of energy activity on which UK local authorities are required to report. Additionally, discussions about collaborative activities occurring in LCC revealed that collaborative energy efficiency activity was planned across the region. BHY was selected for detailed examination after confirmation in early Phase Two interviews that it would be a suitable case. At the outset of Phase Two, the choice of comparison cases was left open. The selection of WUN as a comparable case was based on information provided by BHY interviewees. At scheme level, the two selected cases have similar objectives, with BHY

[7] Keepmoat is now ENGIE, and Willmott Dixon is now Fortem. However, reflecting the situation at the time of data collection, the two organisations will be referred to using their original names in this thesis.

having been informed in part by the activities of WUN. While differences between details of the schemes exist, the overarching similarity between them further promotes their comparability.

In addition to a degree of comparability, the selection of cases for a comparative study must also ensure that variations in the dependent variable are possible, in order that causal inferences for the observed phenomena can be put forward. The potential for variation in the dependent variable can be ensured by seeking cases exhibiting differences in the explanatory variables, or through cases showing variation in the dependent variable itself (Kaarbo and Beasley, 1999). In this phase of the research, it is the outcome of a scheme that is the dependent variable. The national and structural contexts of the two selected schemes in this research provide the comparability. In contrast, it is the differences arising within the local contexts, and the fact that each partnership is comprised of different organisations that provides the variability, thus creating the potential for differences in the scheme outcomes. The nature of success relating to collaboration was discussed in section 2.6.2.

The overarching thesis research question considers the efficacy of collaboration as a strategy for pursuing local authority energy objectives. However, the numbered research questions detailed in Chapter 2 are concerned with the effects of institutional, stakeholder and organisational pressures on organisations' participation in collaborative schemes. Following the analytical framework presented in section 3.2.3, the institutional, stakeholder and organisational influences on the collaborating organisations during the development and delivery of the two schemes were identified, and their interactions and effects compared. However, the presence of different individual organisations in the two schemes provides an opportunity for further analysis. The individual organisations within the overall schemes represent sub-cases within the two comparative cases represented by WUN and BHY, as shown in Figure 3-1. Consideration of the influences on the decisions of these organisations provides the opportunity to reveal their heterogeneous nature, and the influence of such heterogeneity on their responses to a common context.

3.4.2 Data collection

As with Phase One, data collection for the Phase Two case studies drew on a combination of semi-structured interviews and document review.

3.4.2.1 Semi-structured interviews

A total of 18 individuals were interviewed between September 2016 and August 2017, representing the public and private sector organisations involved with WUN and BHY. A summary of the interviews undertaken in Phase Two is shown in Table 3-2.

Table 3-2: Summary of interviews undertaken in Phase Two

Sector	Better Homes Yorkshire	Warm Up North
Private	Energy Supplier	British Gas (3)
	Keepmoat	
	Willmott Dixon	
Public: participant	Barnsley	Hartlepool
	Craven*	Newcastle (2)
	Harrogate*	Northumberland
	Leeds (2)	Sunderland
	Selby*	
	WYCA (2)	
	York	
Public: non-participant		Middlesbrough*
		North Tyneside
Total interviewees	**9**	**9**

*Interview data for these organisations were collected from interviewees with knowledge of the organisation, but not in its direct employment.
Brackets indicate the number of interviewees that took part, if more than one.

Interview participants were selected for their knowledge of the schemes across both the development and delivery stages of the schemes, and in the case of WUN, included representation of authorities that chose not to participate. As with the Phase One interviews, information detailing the focus of the research, and ethical consent information was provided to potential interviewees prior to their participation. This is included in Appendix D. The first interviewees in this phase of research were identified with the guidance of participants from Phase One. The earliest interviewees for the BHY case were interviewed about a range of collaborative projects, from which BHY was confirmed as the most appropriate for the detailed study, for the reasons given in Section 3.4.1. As with Phase One, a snowballing technique was then employed, with early interviewees providing suggestions (and introductions or contact details) for further participants with knowledge of BHY from various organisations and perspectives. During the interviews for BHY, several actors referred to WUN. After establishing the suitability of WUN as a comparable case study, a personal connection of the candidate (unrelated to the research or WUN) at one of the participating authorities identified a colleague involved with the scheme, and provided an introduction. The member of staff agreed to be

interviewed, and provided contacts for potential interviewees in the other WUN authorities, four of whom also agreed to be interviewed. Further suggestions for actors representing the private sector and non-participating authorities were provided by the early interviewees. While contacts for the additional local authority actors were provided, private sector actors were sought and contacted via LinkedIn. Maintaining confidentiality and anonymity of participants is a condition of the ethical undertaking of this research, as will be explained in Section 3.6. There is widespread availability of material in the public domain regarding the two schemes, and much of this information contains the names and roles of actors engaged with the schemes, and the organisations they represent. Therefore, to avoid identification of the participants, the roles of the interviewees are not included in Table 3-2. Similarly, some interviewees were able to speak for more than one organisation. Where this is the case, the organisations that were represented indirectly are indicated, but no indication is given of the organisation to which the interviewee speaking of them belongs. This is because detailing the connections between the organisations in this way has the potential to reveal the identity of the relevant interviewees. Maintaining confidentiality also means that the reference codes for the interviewees in the two case studies are not shown in conjunction with their organisations, for the same reason as their roles are not displayed. For each case, the interview reference codes were divided by case study and organisation type. Interviewees from WUN are identified as [WUN-Lx] or [WUN-Px], and those from BHY as [BHY-Lx] or [BHY-Px]. In this way, the case study, and sector (L: local authority, which includes WYCA in the BHY case, P: private sector) can be determined, with different sources within a single group distinguished by a unique number (x in the examples above).

As with the Phase One interviews, a series of potential questions was developed prior to conducting the interviews. These covered the following areas of interest:

- Background information about the organisation and the interviewee's role within the organisation
- Energy activity undertaken by the organisation generally
- Decision-making within the organisation for energy-related activity
- Collaborations and partnerships
- Specific project examples

These first three areas were used to establish the broad attitude and activity levels with each organisation towards energy related activity, and built on the data collected in Phase One from Leeds City Council. The final two areas focused more specifically on the

collaborative activity of the organisation, both generally, and then with respect to the case study scheme in which the actors were involved. The questions in the final two areas above developed during the data collection period to reflect a focus first on BHY, and then on WUN as a comparative study. In the earliest interviews, before the cases to be examined had been fully determined, a question may be "Can you give me some examples of energy activity in the areas most important to the organisation?" This could be followed by "How and why you did you get involved with these?" Once the two cases were selected, questions would directly address the scheme under consideration: "How and why did you get involved with BHY?"

As in Phase One, interviews were recorded in audio format with prior consent; most lasted approximately 60 minutes, however, durations ranged from 30 to 90 minutes. During interviews, questions were asked in general terms concerning the reasons for decisions and the opportunities and challenges associated with the schemes, rather than in the language of the framework shown in section 3.2.2. This ensured that interviewees spoke about the things that were important to them when describing their experiences.

3.4.2.2 Documentary data

In addition to the semi-structured interviews, an extensive search for documentation relating to each scheme was undertaken. This included local authority meeting minutes, news articles referring to the case study schemes, public-sector tender notices, and corporate web pages, documents and presentations. In total, 185 documents were collected using a combination of systematic searches (detailed below) and information provided by interviewees. Table 3-3 provides a summary of the types of documentary sources collected that relate specifically to the two case studies.

Table 3-3: Summary of Phase Two documentary data relating directly to the case study schemes

	Case study	
Source type	Better Homes Yorkshire	Warm Up North
Accounts	2	-
Meeting Records	66	25
News Article	29	17
Personal Communication	2	1
Presentation	1	4
Report	9	2
Tender notice	1	1
Web Page	11	14
Totals	121	64

Ten further documents were collected in addition to the data listed in Table 3-3, as supporting data to understand the context of both schemes. A list of individual sources is included in Appendix B. As with the documentary evidence in Phase One, identification codes included within the list are used to identify any source directly referenced in the thesis text.

The systematic search to identify relevant, publicly available data was undertaken as follows. For each study an online search using Google was used initially, to gather data published directly on the web. This initial set of online searches used a series of terms to capture results relating to the scheme, and the individual organisations involved. The summaries of links from the first three pages of results from each search were read to establish their potential relevance. Potentially useful links were opened, and any relevant data was captured and stored in NVivo, to enable coding and classification of the data. In addition to the web search, a systematic search was conducted within the online database of public meeting records (where available) for each of the public-sector organisations in the two case study regions. The databases were searched for minutes and reports containing the scheme names, or the terms “Green Deal”, “ECO” & “energy efficiency”. This ensured that any earlier records that reported on the development of the schemes prior to their branding were also captured. All minutes containing the phrases above were downloaded and read to establish their relevance, and those relevant to the schemes imported into the NVivo database. Details of the searches are summarised in Table 3-4.

Table 3-4: Summary of search terms used to identify documentary data in Phase Two

Search location	Primary search term	In combination with
Web	“Better Homes Yorkshire”	<organisation names>
	“Better Homes”	<organisation names>
	“Warm Up North”	<organisation names>
Council Document Database	“Better Homes Yorkshire”	
	BHY	
	“Warm Up North”	
	WUN	
	ECO	<region, scheme>
	“Green Deal”	<region, scheme>
	“Energy efficiency”	<region, scheme>

As in Phase One, the documentation was used both as a source of new information and for triangulation purposes; to compare with interview responses where possible, and to provide an additional source of information for organisations where a participant was not able to be interviewed. The documents also provided an invaluable source of information

from which to determine the timings of events in relation to the national context in which decisions were being made.

3.4.3 Data analysis

Analysis of the Phase Two data followed the same five-stage template analysis approach described in Section 3.3.3, again using NVivo analysis software. In Phase One, data familiarisation (Stage 1) was approached using transcription. However, the process of transcription was experienced by the candidate as a series of sequential audio prompts to type individual words; a lengthy process that yielded no additional familiarity with the data until a subsequent read through of each transcription as a whole. As a result, in Phase Two, a paid professional was employed to transcribe all but one of the 18 interviews, using intelligent verbatim style (in which utterances, interruptions and coughs etc. are removed, but meanings remain unchanged). In place of transcription as a form of familiarisation, each of the audio recordings was replayed as soon as possible after completion of the interview. As the interview was replayed, notes and/or a mind map were created from the recording to capture the tone and enthusiasm of interview respondents during the discussion, make links between connected topics, and sketch a representation of any visual responses to questions. This enabled the final transcript to be read and coded with a good recollection of the details of the conversation at the time.

Preliminary coding of the transcript data was achieved using a subset of the BHY interviews. Initially the template from the Phase One analysis was used to address research question 1. Minor additions to the template were required to reflect new information; these additions are indicted in the template in Appendix C. For the sections of the interview exclusively focused on the collaborative schemes, the high-level structure of the Phase One template was used to provide a-priori themes for a second collaboration-focused template. Two transcripts representing interviews from a private and public organisation from BHY were chosen to develop the collaboration-focused template from these a-priori themes. The remaining transcripts were coded in turn as they were produced, therefore, the majority of BHY transcripts were analysed in advance of the WUN interviews. During the analysis of the WUN interviews, additional issues were identified that had not been present in the BHY examples. The collaboration-focused template was therefore amended to include these issues, and its overall structure refined to ensure that it was equally suitable for use with the two studies. Therefore, the final collaboration-focused template encompasses the full range of issues identified across both BHY and WUN. The template and a coded extract from one of the Phase Two interviews is included in Appendix E.

3.5 Methodological reflections

In section 3.2.1, the potential for a lack of rigour was recognised as one of the criticisms levelled at qualitative methods research, and shown to be a criticism which can be addressed through the careful selection and collection of data. In addition to rigour, the degree of external validity of the insights drawn from case studies is sometimes questioned, due to the highly context-dependent nature of the method. Yin (2009) suggests that undertaking multiple case studies can improve the validity and generalisability of results. However, Flyvbjerg (2006) has addressed this conflation of a lack of generalisability or theory building with a lack of value, noting that:

"Often it is not desirable to summarize and generalize case studies. Good studies should be read as narratives in their entirety." (Flyvbjerg, 2006 p. 241)

A methodological limitation to this research is its small sample number, which places a natural limit on the likelihood that extensive generalisations, or new theory, can be derived from this research. However, the research design has been structured so as to provide opportunities for generalisation where possible, through the use of a phased approach in which ideas arising from the first phase could be explored in more detail in the second phase. This is further enhanced by the use of two comparative studies, evaluated within an overarching analytical framework.

While universally generalisable conclusions are not the object of this research, there is nevertheless a duty for the researcher to ensure that the narrative of the findings accurately represents the phenomena being investigated. This has been achieved by using triangulation, and through the phased design of the research. The purpose of triangulation is debated, with Yin (2009) describing it as a means to establish a convergence of evidence, whereas Buchanan (2012) describes it in terms of ensuring an accurate representation of the variety of competing experiences of case study participants. Due to the fact that the case study includes an exploration of the processes and relationships contributing to the delivery of the energy efficiency schemes, it is possible that divergent evidence may be collected; for example, reflecting differing personal perceptions of the events experienced. It is equally possible that evidence could converge to suggest a consistent experience of events. The use of extensive primary literature to supplement the interview data, and the phased nature of the study allows triangulation and comparison of evidence to explore both of these possibilities. Additionally, since this research does not seek to create theory, there is no need to converge on a single coherent conclusion; rather

the full complexity of delivery of energy-related activity within and between organisations can be presented.

A second purpose of triangulation is to improve the internal reliability of the study, particularly with respect to errors introduced by respondents and the researcher. Potential inaccuracies introduced by respondent(s) include consciously or unconsciously: altering their behaviour because of the presence of a researcher (reactivity); shading responses to present a particular picture of events; or omitting pertinent information (Lincoln and Guba, 1985; Weiss, 1994). The lack of a previously established relationship between the researcher and the respondents, and issues of commercial sensitivity, potentially increase the likelihood of shading and omission in this study. Recognition of this as a risk meant that the researcher was able to consider potential issues as data collection progressed, and seek corroborating or additional evidence where possible through the triangulation process.

Researcher-introduced inaccuracy (indeterminacy) concerns the fact that the observations made by a researcher are, by definition, the results of their choice of what to observe (Lincoln and Guba, 1985). Therefore, by extension, the results of a study can be argued to be shaped by the researcher, with case-study methods in particular allowing for a "researcher's subjective and arbitrary judgement" (Flyvbjerg, 2006 p. 234). Recognition of the potential for preconceptions and subjective reasoning enables the researcher to reflect, with this in mind, upon the conclusions drawn. Furthermore, there is the potential that the 'falsification', or disproving of preconceptions may enhance the validity of a study, and generate new insights (Flyvbjerg, 2006). The pre-supposed and eventual focus of the Phase Two case study in this thesis is arguably an example of such falsification.

3.6 Ethical considerations

Prior to data collection in both phases, a process of ethical review was completed (University of Leeds Ethical Review References LTSEE-029 and LTSEE-041). The review ensures that any potential risks to participants and the researcher are considered in advance of any activity involving human participants. In the context of this research, risks to all parties were ethical rather than physical, and including considerations such as wasting participants' time. To avoid such a situation, potential participants were provided with an information sheet detailing the purpose of the research, interview arrangements, and the intended use of the collected data, at the recruitment stage. A copy of the written consent form was also provided at this stage. Permission to record collected data was confirmed by the participant by completing the consent form at the beginning of face to

face interviews. Where interviews were conducted on the telephone, a digital version of the form was completed by the participant, and verbal confirmation of their choices on the form confirmed at the start of the recorded conversation. The ethical approvals are contained in Appendix B and D, and include information detailing the University of Leeds Data management and storage guidelines, compliance with which is a condition of ethical approval. These guidelines were made available to interview participants, and followed by the researcher.

The public nature of the case study schemes in Phase Two means that it is not realistic to anonymise the names of the organisations that participated in the schemes. However, the guarantee of anonymity for individuals was important to ensure that respondents felt able to speak freely, particularly when discussing collaborative relationships with other organisations. Therefore, particular care has been taken to ensure that individual participants cannot be identified through their quoted responses within the analysis.

3.7 Summary

This chapter has set out and justified the practical methods used to collect and analyse the empirical data that form the basis of the research presented in this thesis. The findings from the analysis are presented in the following chapters as follows. Chapter 4 presents the results from the Phase One analysis. Chapters 5 and 6 present the results of the WUN and BHY case studies respectively. Chapter 7 considers the findings of the two phases together, and discusses implications for local authorities, and policymakers on the role of collaboration in realising local authority energy objectives.

4 Phase one results: How and why are LAs involved in energy-related activities?

4.1 Introduction

This chapter presents the results of the first phase of research, which contextualises the energy-related activities of UK local authorities through the use of a case study of Leeds City Council (LCC) and a desktop review of academic literature and policy documents. The purpose of the chapter is to understand the choices and challenges facing a local authority wishing to pursue energy-related activity in the UK, both in terms of the context in which such activity would be delivered, and the collaborative arrangements employed.

The chapter first examines the influences on local authorities choosing to pursue energy-related activities in fulfilment of their role as energy actors. Using the analytical framework outlined in section 3.2.3, institutional, stakeholder, and organisational influences in the antecedent and process stages of energy-related activity were identified. The results illustrate how interactions between stakeholder and organisational influences play a significant role in determining the nature of energy activity undertaken by LCC. Many of the antecedents to the choice of energy activity were linked to policy decisions by central government, who were identified as key stakeholders to the authority. Conversely, examining influences on the delivery process showed that organisational factors, both strategic and operational, played a critical role in determining which projects were implemented. Stakeholders were often engaged in a collaborative capacity to mitigate organisational constraints. The results are used to address the following research question:

> *RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*

The second half of the chapter considers collaboration independently, identified in the literature review (Chapter 2) as a key mechanism advocated for furthering local authority energy activity, and frequently referenced by case study interviewees when describing how they deliver LCC's energy activity. Findings from the desktop review provide an overview of collaborative arrangements used to deliver energy-related activity, from loose informal arrangements through to formal partnerships. Practical illustrations of collaborative activity in use by LCC were identified from the case study data, and show a

variety of arrangements in place to address the issues identified in the first half of the chapter. The findings are used to answer the first research question:

> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*

The structure of the chapter is as follows. Section 4.2 introduces the case study and reiterates key aspects of the scope and analysis presented in the methodology (Chapter 3). Section 4.3, examines the influences on energy-related activity in local authorities. Firstly, the antecedent influences are discussed (section 4.3.2), followed by the influences at the delivery stage 4.3.3. Section 4.4 focuses on collaboration as a specific mechanism to deliver energy-related activity. The types of collaboration identified from literature and policy are described in section 4.4.1, before, section 4.4.2 presents the practical examples identified in the case study data. The final section (4.5) summarises the chapter and highlights the relevance of the findings to the direction of the Phase Two research.

Data for the Phase One research include interview and documentary sources. Throughout the chapter, reference codes as defined in section 3.3.2.3 are used to identify the origin of quoted statements, and to provide indicative bibliographic source(s) of data to support the analysis narrative. Standard references are used for academic literature. A list of data sources and associated codes is presented in Appendix B.

4.2 Case study introduction

LCC is a single-tier metropolitan district council, with statutory responsibility for provision of services across the city including (but not limited to) education, transport, planning, social care, and waste management. The city's population was approximately 785,000 as of June-2017 (ONS, 2018). As described in section 3.3.1, LCC was chosen as the focus authority due to its position as an identified energy leader in the UK. The status of energy leader means that the council is proactively engaged in the delivery of energy-related outcomes in multiple forms (Hawkey et al., 2014). Leeds has a history of pro-actively seeking to pursue energy activity [D-9].

In 2010, LCC made a commitment to reduce carbon emissions in the city by 40% by 2020 [D-4]. The commitment was followed up with the publication of documents detailing the Council's vision of a move towards a low carbon economy in the city [D-3, D-5]. This early vision was supported by an assessment of the economic implications of such a move, undertaken by researchers at the University of Leeds (Gouldson et al., 2012). Subsequently, the vision has been backed up with the publication of an updated climate

change strategy, an energy policy, and sustainable energy action plan, the latter produced in fulfilment of LCC's status as a signatory to the Covenant of Mayors [D-11, D-17, D-19]. Finally, energy is included within broader strategy documents as a strategic aspect of city development and investment [D-13].

The case study and desktop review data include the documents detailing LCC's energy activity, alongside central government publications. Twelve semi-structured interviews, of which ten were conducted with officers from LCC, and two were with employees of organisations involved in supporting energy-related activity by the authority, were also used. Interviewees from within the council were employed across a number of departments, as shown in Table 3-1.

4.3 Influences on energy-related activity

This section examines the factors that affect local authorities' pursuit of their energy-related objectives, and how they relate to the activities of LCC. The results are presented according to the analytical framework in Chapter 3, first examining the antecedent influences on the choice to pursue energy activity, and the type of activity pursued, before considering the issues affecting the ability of LCC to deliver their objectives.

4.3.1 A note on institutional influence and central government

Within the empirical results chapters, central government is characterised both as a manifestation of institutional effects, and a stakeholder. The dual role of central government reflects its role as policymaker. The manifestation of central government policies can be thought of as having institutional influence, either through the establishment of regulatory imperatives (for example the obligation on utilities to contribute to energy efficiency delivery in the UK as a whole) or through the creation of an embedded organisational context (such as the centralised, market-led nature of the UK energy sector). In general, *institutional* manifestations of central government are long-term, and operate at a macro level. In addition, as an institutional *stakeholder,* central government and its agencies and departments has a more proximate impact on the cases examined. Through their short-term policy actions and decisions as stakeholders, central government can create immediate impact on the activity of organisations, whether through the articulation of expected behaviour, or the introduction or removal or regulatory requirements.

4.3.2 Antecedent influences

Analyses showed that the antecedent influences identified in this section were linked to two aspects of energy-related activity: the choice to engage in activity in the first place, and the type of activities pursued. Many of the choices made at the antecedent stage were strategic responses to the prevailing external conditions, with activity by central government as a key external stakeholder having a significant role in creating the conditions to which the authority was responding. Alongside the external context, a small number of organisational factors were also identified as contributing factors to the pursuit of energy-related activity within the authority. Influences on the choice to engage and the type of activity pursued are considered in turn.

4.3.2.1 Influences on the choice to engage in energy-related activity

This section explores the antecedents to the pursuit of energy activity by UK local authorities, identifying institutional, stakeholder and organisational influences that have shaped the decision making of LCC. Table 4-1 summarises the key themes identified in the analysis. The details and effects of each of the influences identified are described below.

Table 4-1: Summary of key influences affecting LCC's choice to pursue energy related activities

Category	Influences
Stakeholder	Influenced by stakeholders: Central government policy decisions; Local stakeholder campaigns. Influencing stakeholders: Leading by example; Encouraging city-wide energy activity.
Organisational	Drivers: Sustainability as an economically driven activity; Energy security.

Table 4-1 shows an absence of institutional influence concerning the decision to pursue energy activities generally. The lack of institutional influences that the analysis identified is arguably a reflection of the historical role of local authorities in the energy market. Section 2.1 illustrated how local authorities have had a limited role in the UK energy market since its liberalisation, as a result of the combined effects of the centralised structure of both the energy system and UK government, and unequal capacity between the public and private sector to engage in a market-led system. Interviewees made no reference to any institutional influence, instead underscoring the authority's voluntary role in energy activity, as illustrated by the quote below:

> *"...you know with all of these things, energy management is not a statutory responsibility for local authorities, we don't have do any of this at all." [LCC L1, emphasis theirs]*

Despite energy activity being pursued voluntarily, there was evidence that central government policymaking has had an influence on LCC's pursuit of energy activity. In 2007, central government introduced national indicators and the Carbon Reduction Commitment (CRC). Through the Local Government and Public Involvement in Health Act (HMSO, 2007), central government monitored the performance of local authorities against 198 national indicators (DCLG, 2007). The Act mandated the development of Local Area Agreements, in which approximately 35 local improvement targets were identified from a list of 198 national indicators. While formal performance assessment and reward was linked only to the specified targets, central government monitored the performance of local authorities against all 198 indicators (DCLG, 2007). The CRC by contrast was a financial measure, targeted at reducing the emissions of non-industrial organisations with electricity consumption in excess of 6,000 MWh per year (DTI, 2007 p. 278). National indicators were abolished in 2010, purportedly to place the control for local action in the hands of local authorities[8] [G-37]. Today, local authorities using more than 6000 MWh of electricity annually remain mandated to take part in the CRC Energy Efficiency Scheme[9].

Neither of the two policies described above mandate energy activity: national indicators covered a huge range of possible measures upon which to be assessed, many of which had no connection with energy, and the structure of the CRC means that organisations may opt to pay for the carbon emissions associated with energy use, rather than implementing changes. However, the ongoing financial cost to carbon emissions production arising from the CRC could be linked to a desire to take energy action within LCC. The effect of the policy was directly referenced by one interviewee as a key factor associated with energy projects that reduced CO_2 emissions. In responding to the policy, the authority was responding to the stakeholder pressure applied by central government:

> *"A lot of the basis of reducing carbon was based on the bottom line. We needed to reduce our [CRC] liabilities." [LCC L3]*

Additionally, both national indicator 185, which required local authorities to calculate and report the annual CO_2 emissions of their estates and services, and the CRC were directly

[8] In Scotland, local authorities remain mandated to report on emissions reduction targets.
[9] Formerly the CRC.

referenced as strategic drivers within LCC's Carbon and Water management plan [D-9], which in turn was cited by one interviewee as guiding the authority's energy activity:

> *"...we've got a carbon and water management plan, so it deals with water as well, but that looks at the energy requirements of our corporate buildings, projects it into the future, and where we are going to get that energy from... that has also looked at how can we generate energy on our own estate as well." [LCC L1]*

A similar response to pressure applied through central government policies was seen in a decision to build an energy from waste plant by the authority, where the primary stimulus of the scheme was to avoid charges associated with sending waste to landfill:

> *"I suppose the incinerator is a good example of that; as a council, every time we send a tonne of rubbish to landfill you get a certain fine, so we decided to build an incinerator" [LCC L6]*

During the development of the 'incinerator' (an informal description of LCC's Recycling and Energy Recovery Facility, or RERF) which was initially focused on waste management, additional energy opportunities were identified. As a result, a project that started out as a response to financial penalties for landfill production, developed into a key element of a wider aspiration to develop a district heating network across the city:

> *"...what we are hoping is that this facility will produce a core heat load and that we can then work with others to take that heat from here to various locations..." [LCC L10]*

The examples above demonstrate the powerful influence that central government retains over local authority activity, despite the moves towards localism described in section 2.2.1. In the case of LCC, there was also evidence that local stakeholder pressure had contributed to the authority's carbon reduction ambitions. Documentary evidence shows a long-standing commitment within the authority to carbon emissions reductions [D-9]. However, the current target of a 40% city-wide reduction in CO_2 emissions by 2020 was originally proposed in 2009 as a reduction in emissions from the authority [D-4]. In 2010, the authority increased their ambition to the current city-wide target [D-11], at least in part in response to co-ordinated lobbying by four stakeholder groups in the city:

> *"A massive thank you to everyone who has got behind the Leeds: Get Serious About CO_2 campaign. We're still pinching ourselves, and*

> *celebrating, but yes, Leeds council have voted to cut city carbon 40% by 2020." [D-1]*

The increased target remains a key strategic driver for energy activity in the city [LCC L1].

In addition to inward stakeholder influence, analysis showed that stakeholder antecedents to LCC's energy activity include effecting outward influence on stakeholders in the city. Outward stakeholder influence was strategic; objectives were described in terms of the aspirations of the council to achieve their stated policy objectives and statutory targets, but also in terms of their influence on other actors in the region, and the potential local policy gains that could be achieved by leading by example. One interviewee described their hope that the council's engagement in energy activity would influence stakeholders in the city to follow their lead:

> *"We're almost at Passivhaus standards in our new build stock... we want our stock to be good, but we also want to influence other builders to say, 'well if the council can do it, Christ you guys can do it', and try and improve planning policy and planning from that." [LCC L5]*

Another interviewee described their role in terms that articulated the link between energy activity, external stakeholders, and outcomes for the city:

> *"My... focus is around creating further collaborations facing externally... and generally making sure that in delivering on low carbon energy infrastructure projects we're not doing that in just sort of an isolated bubble, it's very much part of the future of the city as a whole." [LCC L1]*

The quote above demonstrates an overlap between stakeholder influences and the major organisational antecedent to energy activity identified in the analysis: sustainability and energy activity as an economic activity. The link between energy activity and economic returns was evident in the earlier example of activity in response to the CRC. In that example, the activity was undertaken in response to the financial burden of the policy instrument. However, throughout the case study analysis, an underlying theme of a recognition within the authority of the economic opportunity associated with energy activity was evident. Economic benefits identified in the analysis included leveraging government energy funding to the city [LCC L3, L2], reducing corporate energy bills [D-9, LCC L3], attracting private sector investment [LCC L5], and encouraging spending in the city through reduced energy expenses [LCC L1]. The inherent economic value attached to energy activity is encapsulated in the vision presented in LCC's Climate Change Strategy,

which also indicates an expectation of a collaborative approach to energy activity within the city:

> *"Ultimately, Making the Change will help galvanise action from organisations across Leeds. Together, we can make Leeds the best city in the UK: resilient to climate change with a prosperous and sustainable low carbon economy and a high quality of life." [D-11]*

Aligned with the economic opportunities, several interviewees [LCC L1, L2, L9] expressed a belief that energy activity could increase the resilience of the council to future changes in the energy market, either as an independent benefit to the council as energy security through self-generation, or from a longer-term commercial perspective, as described in the following quote:

> *"I think that the key is getting energy generation that decouples from the peak oil price… and that's why we're keen to exploit the opportunities for district heating […] as the energy price for the district heating system relevant to the energy price of the grid, diverges, the business case for other partners in the city… who wish to connect to a district heating system gets ever stronger, and the owners of that could – well, there's a financial advantage to us in doing that.." [LCC L9]*

This section has shown that the pursuit of energy activity in LCC was broadly influenced by two linked influences: central government policy decisions; and the pursuit of energy activity as an economic opportunity. While there were examples of stakeholder interactions based on influencing actor behaviour (both inwardly and outwardly), the majority of influences identified were ultimately connected to the economics of energy activity. The dominant theme of economic alignment was continued when considering the choices made by the authority in selecting types of activity to pursue. This is discussed in the following section.

4.3.2.2 Influence on the choice of activity undertaken

In the UK today, local authority energy-related activity is overwhelmingly focused on either providing, or reducing the use of, energy for the built environment. Energy provision is primarily in the form of combined heat and power (CHP) and district heating networks, sometimes operating together. Solar photovoltaics (PV), and biomass boilers constitute a smaller, but notable, percentage of energy provision technologies selected by local authorities. Retrofit building improvements are the preferred approach to reduce energy demand (Webb et al., 2017). Alongside technical interventions, a small but steadily

increasing number of local authorities are choosing to become involved in the provision of energy services directly through the creation of ESCos (Hannon and Bolton, 2015). Each of the technologies above featured in the energy-related activity undertaken by LCC, alongside fleet replacement, asset rationalisation, and simple operational amendments to reduce energy consumption [LCC L2, L8, L10]. Table 4-2 summarises the key influences identified in the analysis associated with the choice of activity type. Many of the institutional and stakeholder influences identified were closely associated with policy details; this section therefore draws on policy and literature sources in addition to case study data.

Table 4-2: Summary of influences associated with choice of activity type in LCC

Category	Influences
Institutional	Regulative: Regulatory burden associated with potential areas of activity. Normative: Local authority statutory duties.
Stakeholder	Influenced by stakeholders: Incentives for particular activities.
Organisational	Drivers: Alignment with wider organisational objectives; Achievability. Barriers: Perceived risk to the organisation.

In contrast to the antecedents to energy activity in general, a clear link between institutional influences and the type of energy activity pursued was evident in the case study data. Both regulative and normative influences were identified.

Regulative policies influenced the choices of local authorities seeking to pursue energy-related activity across a range of sectors. Interviewees identified the ease with which they could engage with a technology area as a key element in their decision making; where regulation was onerous, it influenced whether they engaged in that area. Electricity supply in the UK is heavily regulated, and in order to become a licenced supplier an organisation must comply with a series of stringent industry codes, originally designed to ensure a balanced supply across a national distribution network (Hall and Roelich, 2015). In contrast to the highly regulated electricity market, the supply of heat in the UK is not currently subject to any formal regulation (Webb, 2015). The comparative burden of the regulatory compliance required to engage with electricity – as opposed to heat – supply is clearly indicated in the following quote, as a motivating factor to pursue heat objectives within LCC:

> *"Interviewee: In terms of heat I think we've done more work on heat because electricity is something that we don't have a huge amount of control over.*
>
> *Candidate: in what sense?*
>
> *Interviewee: Because it's so heavily regulated..." [LCC L4]*

Normative legislative influences were also identified in the analysis. The Home Energy Conservation Act (HECA) created the first explicit energy responsibility for UK local authorities, requiring them to identify and report on energy saving opportunities within residential properties in their areas (DoE, 1995). However, HECA requires local authorities only to monitor and report energy efficiency performance, without consequences for inaction (Mallaburn and Eyre, 2014; Morris et al., 2017). While HECA carries no penalties for non-compliance, it delivers clear expectations for a course of action that requires local authorities to engage in energy efficiency activity. This is further enhanced by the links between energy efficiency and the provision of decent homes; the Housing Act (2004) requires authorities to ensure that residential dwellings meet minimum condition and thermal comfort requirements, as specified by the Decent Homes standard (DCLG, 2006). Taken together, the legislation gives a clear indication that local authorities are expected to actively engage in energy efficiency activity, but without regulative enforcement. Analysis showed that despite the absence of regulative enforcement, the energy efficiency activity undertaken by LCC had been informed by HECA and Decent Homes. References to each were evident within LCC documentation over a sustained period, in conjunction with evidence of the associated pursuit of energy efficiency activity:

> *"Support the three Leeds ALMO [Arms-length Management Organisations] to install cavity and loft insulation up-grades as part of the Decent Homes Standard" [D-3]*
>
> *"In early 2013, Leeds City Council developed a detailed HECA Further Report. This [was] supported by an in-depth analysis of the domestic energy efficiency work undertaken to date and the work still required..." [D-18]*

Table 2-2 described the basis of normative order to be binding expectation, with accreditation or certification as an indicator of a normative influence. The explicit citations of the HECA and Decent Homes within LCC's documentation showed a direct and signalled

response to the policies, and demonstrated a desire to comply with the requirements despite the absence of penalties for failing to do so. Therefore, the policies are considered an example of direct normative influence.

The institutional influences described above constrain the choices made by local authorities seeking to pursue energy-related activities by forcing them to engage with a fixed legislative context. In contrast the stakeholder pressures identified in the analysis do not constrain activity, but exert an influence through targeted funding and incentives for particular activities. However, not all policies exert their influence on local authorities directly; the following example shows how historical legislation imposed on energy suppliers has come to influence the activity of local authorities.

Liberalisation of the UK energy markets in the 1990s minimised the role of local authorities as stakeholders in the UK energy system. In contrast, the Electricity Act (1989) legislated that electricity suppliers should be required by the regulator to promote efficient consumption of energy to consumers. This legislative requirement was supported by the introduction of the Energy Efficiency Standards of Performance (EESoP) in 1994. EESoP was assumed to be a necessary, but short-term, intervention to incentivise suppliers to promote energy efficiency, before full competition between suppliers was established (Rosenow, 2012). Despite the initial expectation that the obligation placed on suppliers would be transient, incremental changes in the intervening period have resulted in the supplier obligation becoming the backbone of the UK policy approach to carbon emissions reduction in the domestic sector (Rosenow, 2012).

The supplier obligation, while having no direct effect on the activities of local authorities, has increasingly created a link between the suppliers' compliance with the legislation and local authority activity. Two major foci of the obligation have been dominant throughout: warmer homes for poorer households (or 'fuel poverty' aspects[10]), and energy efficiency as a tool for emissions reduction. Each of these foci can be closely matched to the normative requirements of HECA and the Housing Act, described in section 4.3.2.1. Over repeated iterations of the supplier obligation, local authorities have been identified as one of several possible stakeholders that energy suppliers can engage to help them deliver their obligations, as shown in Figure 4-1 (overleaf).

[10] The current definition of a household in fuel poverty is one that has lower than average income, and higher than average fuel costs. Previously, households were considered to be fuel poor if they had to spend 10% or more of their income on energy costs (Middlemiss, 2016).

In 2013, the Conservative-Liberal Democrat coalition government introduced the current version of the supplier obligation the Energy Company Obligation (ECO), in conjunction with the Green Deal. The government explicitly articulated their expectation that local authorities would act as drivers of the market-based Green Deal mechanism, whether through provision of information to interested households, or through powers of compulsion over landlords (DECC, 2010). Additionally, ECO unified fuel poverty and emissions objectives by incorporating minimum targets for measures installed in vulnerable and low-income households. While still bound only by the HECA legislation with respect to energy efficiency, local authorities became key stakeholders alongside utilities in the dispensation of the ECO scheme, through their connections and engagement with the local communities they represent (Morris et al., 2017). Therefore, local authorities have become incrementally more central to the delivery of energy efficiency initiatives, as a result of the actions of central government, chiefly through a series of amendments to the supplier obligation and the introduction of other energy efficiency policy instruments.

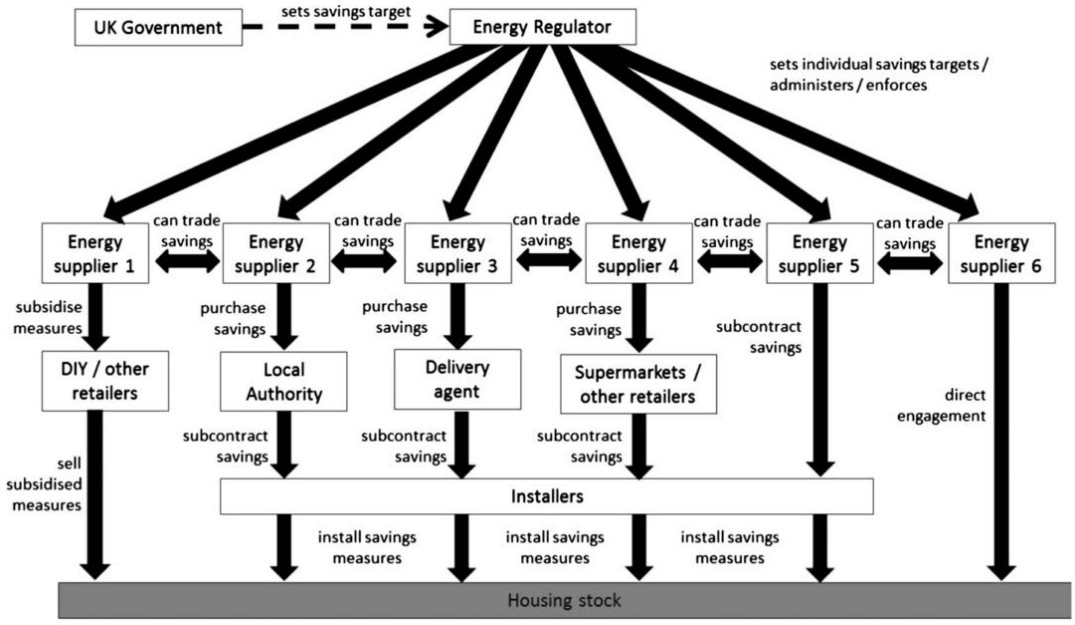


Figure 4-1: Architecture of the supplier obligation, showing local authorities as one of several possible stakeholders providing a link between policy and community (reproduced from Rosenow, 2012 p. 374)

Several interviewees referred to the role of ECO in driving energy efficiency activity within LCC. One interviewee explained how the supplier obligation provided an economic rationale to engage in energy efficiency, by seeking to encourage potential stakeholders to invest in the region. This was true both for the current ECO model, and previous versions of the supplier obligation:

> *"Home energy efficiency has been a running theme for a number of years and will continue to be so in the future. The main project there is about… bringing down the Energy Company Obligation funding into the city. So, it's about making Leeds City Region an attractive place for the energy companies to spend their ECO obligation finance." [LCC L1]*

In comparison to energy efficiency incentives, policy instruments associated with the generation and supply of electricity have not provided a supportive framework for the involvement of local authorities, or other small operators. However, the Feed in Tariff (FIT) introduced in 2010, pays generation and export tariffs for electricity generated by small-scale PV, hydroelectric, wind and anaerobic digestion plants (less than 5 MW), and micro-CHP (fossil-based CHP less than 2 kW) (Ofgem, 2013). Nevertheless, while the policy provides support to small-scale operators, it was neither aimed at, nor was the catalyst for local authority engagement with distributed energy activities; local authority access to FIT payments was originally proscribed. The prohibition of revenue generation by local authorities through the sale of electricity was lifted in response to an "overwhelming majority" of responses to a government consultation being in favour of allowing local authorities to "benefits from Feed in Tariffs and other incentives to renewable generation" (DECC, 2010a p. 3); the lifting of the proscription shows the roles that stakeholders may play in shaping the institutional context in which they operate.

The access to FITs was cited as a significant factor in the decision to pursue installation of renewable generation by interviewees. That the FIT had enabled the installation of technology was clear, but the economic case for installation was very much linked to the level of tariff received, with lower tariffs decreasing the viability of renewable energy in interviewees' eyes:

> *"…it is complicated because although the cost of installation, supply and installation has come down, the FITs rates have come down by a higher degree, so it doesn't really stack up that well sometimes financially." [LCC L5]*

Unlike energy efficiency and electricity generation, heat generation and supply does not have a long history of regulation or incentivisation through government policy instruments. The domestic Renewable Heat Incentive (RHI) provides support for retrofitted[11] renewable heat technologies using a banded tariff system similar to the FIT, payable per unit of generated heat for a period of seven years (DECC, 2015a). The non-

[11] Renewable heat technologies installed in self-build new builds are also eligible (DECC, 2015a).

domestic RHI introduced in 2014 operates a similar tariff system, but payments are made for a period of 20 years. Local authorities are able to access the non-domestic RHI scheme, which supports both individual installations and district heating schemes (Ofgem, 2018). In contrast to ECO and FITs, interviewees rarely cited the RHI as an incentive for activity. One interviewee who did mention RHI was keener to point out its drawbacks than advantages, and hinted at uncertainty surrounding the incentive:

> *"Actually, the application process to OFGEM is really convoluted for RHI. [...] it's quite lucrative I think the RHI market. Too lucrative and I think the government has recognised that and they're going to reign it in." [LCC L5, emphasis theirs]*

The ability to generate revenue from subsidies was however, a critical element of a viable business case. This was illustrated by the same interviewee at the end of the discussion about a range of energy projects:

> *"Candidate: Have any of the schemes that you've done, or that are in the pipeline, would any of them stack up without the subsidies?*
>
> *Interviewee: No. Definitely not." [LCC L5]*

The analysis above shows that the effects of each of the major central government policies for stimulating energy activity can be seen in the activity of LCC. In addition to the information provided by interviewees, policies were directly cited in LCC's climate change strategy, as key targets around which to develop activities:

> *"Leeds Priorities for Action... Develop and promote an overarching domestic energy efficiency and renewable energy programme, linked to the Green Deal, Energy Company Obligation, Feed in Tariffs and the Renewable Heat Incentive, to offer packages of improvements to households in Leeds." [D-11]*

However, characterising the activities of organisations as dependent solely on external issues is to take a deterministic view, in which the decisions by management are purely reactive, as discussed in section 2.8. Such a view does not allow for strategic activity within an organisational context. Analysis of the case study data showed that much of the activity being undertaken could be linked to the strategic decisions reflecting internal organisational priorities. These are now discussed.

4.3.2.3 Organisational priorities for energy activity

Sections 4.3.2.1 and 4.3.2.2 have, for the most part, shown how institutional and stakeholder influences shape the choices made by local authorities seeking to pursue energy-related activities. The institutional and stakeholder influences were interlinked, with both regulative and normative pressures enacted by stakeholders. Central government as an independent stakeholder had a strong influence on activity through the use of targeted incentives. However, very few of the influences described thus far obligate action, suggesting that broader motivations to pursue energy activity were in place. Therefore, this section considers how internal organisational drivers shaped the actions of the local authority; identified from the case study interviews and council documentation. Table 4-3 lists the strategic objectives identified from the case study data, alongside the beneficiaries of the objectives.

Table 4-3: Range of organisational objectives for energy-related activities identified in case study one, and associated beneficiaries

Driver	Primary beneficiaries	Example objectives
Environmental*	Stakeholders	Improving air quality Reduction of CO_2 emissions to target levels Climate change mitigation and adaptation
Economic	Organisation	Revenue creation Reduced expenditure Internal energy security
	Stakeholders	Encouraging inward investment to the city Job creation
Political	Organisation, stakeholders	Influencing wider activity
Social	Stakeholders	Reduction of fuel poverty Area regeneration Improved health for the public

*Natural environment, as opposed to organisational environment

The board from which the initial interview participants were drawn was focused on the reduction of CO_2 emissions in the city and references to this as an objective for energy action were therefore frequently identified in the analysis. Overall however, the range of drivers described by interviewees could be classified into four major categories: environmental, economic, political, and social. Environmental and social drivers were largely stakeholder-focused in nature. Economic drivers were both organisation- and stakeholder-focused, often simultaneously, e.g. to create revenue for the organisation, while at the same time creating jobs for the city. Political drivers were focused on influencing the actions of others, indirectly benefiting both LCC and the wider stakeholder community.

Stakeholder influences tended to be outward facing; outcomes were either seeking outcomes for stakeholders, or influencing stakeholder activity. This is in contrast to the stakeholder influence identified in section 4.3.2.2, in which decisions made by key stakeholders influenced the activity of the authority. Many of the activities undertaken by LCC fulfilled multiple objectives simultaneously, demonstrating the importance of co-benefits to driving energy activity as discussed in section 2.3.2:

> *"...we've basically prioritised the work on energy efficiency, that's taken up the lion's share because it ticks so many other boxes as well. As well as cutting carbon it's about reducing fuel poverty, improving health..." [LCC L1]*

Outcomes linked to organisational influences were centred on improving the organisations finances, either directly or indirectly. These organisational goals suggested an economic agenda underpinning activity in the local authority, supporting the argument put forward in section 4.3.2.1 that a dominant antecedent to energy activity was economic benefit. The specific strategic objectives cited by interviewees varied with their departments; individuals often emphasised a project's alignment with the strategic objectives of their specific department when giving examples of co-benefits that might bolster a business case. For example, individuals working in the transport department cited air quality and public health gains as factors to strengthen a business case, whereas individuals working in housing more often referred to the social benefits of a scheme. However, despite being the primary strategic aim of the board on which many interviewees sat, CO_2 reduction benefits were not seen as a major factor in the decision making at the stage of investment decisions. This was recognised by respondents:

> *"...the key thing to unlock some of these projects, is the income stream that it would bring to the authority rather than the carbon saving or anything like that, and we just have to live with that... nothing will get done if there isn't a business case for it..." [LCC L1]*

The emphasis on the business case could be strongly linked to the prevailing activities within the authority. Across the various departments the majority of activity taking place could be linked to support from central government, either through ongoing subsidies for energy generation technologies (for example the FIT and RHI), or via grant funding for one-off technology installations (as in the case of the alternative-fuel buses funded through Office for Low Emission Vehicles (OLEV) initiatives). However, energy subsidies in the UK cover a greater number of technologies than those being employed by LCC. In

addition to the presence or otherwise of subsidiaries or similar support, the ease and certainty associated with the pursuit of an activity contributed to the choice of project activity.

Perceived risk in an activity was identified as a factor in choosing which avenues to pursue, with those actions considered more achievable being more likely to be undertaken. Achievability was often referred to as an early consideration in the project decision process, and used as a means of determining the objectives on which to focus the authority's efforts, or to distinguish between the various means of realising a stated objective. In general, actions described as more achievable tended to fall within existing council expertise or control:

> *"You know what you're going to get with solar. I think we're trying to stick to the things that we know for now" [LCC L5]*

> *"So that's all much more achievable because it's within our own gift." [LCC L1]*

Similarly, a lack of funds meant that investment was targeted at technologies that carried a more certain outcome in order to avoid the risk of wasting limited resources. The duty of the authority to spend money wisely was reiterated by several of the respondents, leading to technology choices being focused on less innovative opportunities:

> *"I'm aware that there's all sorts of technologies out there being thought of and being trialled, being trialled in a very early stage elsewhere... What we don't have is a massive budget that we can experiment with... So, until a technology is getting to a point of confidence and pretty well proven, we wouldn't take risks." [LCC L7]*

The organisational antecedents to energy activity described here are, in general, characterised by a circumspect approach in which engagement with the institutional and stakeholder contexts, and the energy activity sought reflected certainty and limited risk in preference to innovation. Such an approach can be linked to the practical reality of an organisation seeking to realise goals with limited resources. Analysis of data regarding the factors that affect the delivery of energy projects demonstrated how organisational factors provide the critical influences in the process stage. These are now discussed.

4.3.3 Process influences

Analysis of the influences affecting the delivery stage of energy projects showed that the majority of issues were linked to factors from within the organisation itself. Table 4-4

summarises the influences identified in the process analysis. Most of the issues raised were barriers and/or drivers to activity dependent on the context. Table 4-4 divides the organisational influences into operational factors and strategic factors; often the strategic influences would be used to mitigate the effects of the operational constraints. However, for more complex activities collaboration was employed as a key enabling strategy, providing the authority with the opportunity to stretch their energy ambitions. Reflecting its significance in extending the activity of the authority beyond the 'low hanging fruit', collaboration is explored separately in the following section.

Table 4-4: Summary of influences affecting the process stage of energy activity

Category	Influences
Stakeholder	Influenced by stakeholders: Central government policy changes; Austerity.
Organisational	Operational constraints: *Internal governance procedures;* *Resource availability;* Degree of support from internal actors. Strategic: Potential for integration with existing activities; Degree of alignment with wider organisational priorities; Opportunism. Collaboration with stakeholders as a solution to other limitations (examined separately in section 4.4)

Italicised influences indicate influences raised by interviewees in conjunction with policy uncertainty.

As shown in Table 4-4, in addition to influencing the antecedent stage, the decision making of central government as a key stakeholder also influenced the delivery process of energy projects. Whereas at the antecedent stage central government influence related to the presence of incentives to encourage the use of particular technologies, in the process stage it was ongoing changes to the incentives available that was identified as the critical factor. Frequent changes to incentives and funding levels interacted with a range of organisational influences. In some cases, organisational issues that may not have been a constraint independently were cited as a barrier when combined with the policy changes. For example, project decision-making within LCC took place within a framework of published constitutional procedures and legislative regulation. The rules framework determined who in the organisation had the authority to make different types of decision and how decisions are made, and was enacted as a series of milestones and approvals that had to be satisfied in order to gain investment approval. These standard systems of checks and balances ensure that local authorities spend wisely and consistently, but when

combined with a national context of changing policies and economic flux, introduce pressures to the project process, as was evident within LCC:

> *"...it does take us a long time, to go through all the necessary stages of delivering a project... which we have to do... we have to go through a proper process to ensure we are getting a good return, and that all takes time. And if during that time, the feed in tariff has halved, then the business case had been blown out the water." [LCC L1]*

The quote above also infers how the procedural and policy interaction went on to interact with issues of resource availability, specifically financial resources. The need for a viable business case was highlighted across all areas of activity by interviewees, who described how business cases often relied on subsidies and incentives such as the FIT to be viable. Therefore, changes to external incentives and funding during the project process often had a direct influence on the type of activity being undertaken [LCC L2, L4, L6]. Furthermore, declining availability of grants and funding as a result of austerity had had a dampening effect on the rate of activity, with ambitions within the authority adjusted to reflect the funding available. A strategic response to the declining financial support was to integrate energy activity within routine organisational operations, as described by this interviewee:

> *"...you're now looking for the opportunities that present themselves from an internal perspective. Say we need to do this heating for this block of flats - actually could you do something a bit different?" [LCC L6]*

The structure of incentives was also identified as influencing the activity of the authority. For example, the FIT was structured into payment tiers, with only the first 25 installations being eligible for the higher tariff. The following interviewee, while noting that the authority had not made the best of the legislation, outlined how they planned to target their actions to ensure that the maximum benefit was derived from the remaining higher tier tariffs available to them:

> *"...there are three different tiers for the first 25 sites in an organisation. So, at the moment we've made a bit of a mistake... really what you want is 25 mega-arrays but we've got eleven sites that are small, and then we've got seven corporate sites and some of them are quite small as well... so for these final seven sites that we've got available to us, we want to maximise the returns..." [LCC L5]*

The final operational influence identified was the role of key actors within the authority. Key actors could work either to increase or reduce the challenges faced by officers trying to deliver energy projects within LCC. Internal policy direction was guided by executive members of the council, and while the overall policy direction remains largely unchanged across electoral cycles due to a stable Labour majority, the ease with which energy projects were implemented was more dependent on individual members:

> *"We had a really, really supportive exec member... can-do around this area, certainly did give us some opportunities. We've got a new portfolio member who's a bit more reserved in a way. He's not anti, but he's not pushing in quite the same way. So, there are subtle differences in the level of support you get from politicians, which doesn't necessarily stop things happening, but it sometimes makes them harder to push through." [LCC L4]*

The positive effect of integration of energy activity within routine activity was described above as a response to declining funding. However, energy activity also had to compete with wider organisational goals within the authority. Referring to the tensions and conflicting demands on increasingly limited funds, one interviewee described how statutory obligations, strategic objectives and routine operational activities all drew on the same budget:

> *"So, in the tower block project for example we're looking at energy efficiency, but that's also competing against the need to kind of modernise the blocks, improve the lifts, be DDA compliant...Disability Discrimination Act, all of that sort of stuff. And then just general maintenance: concrete repairs, structural repairs on some of the blocks, so there's a host of stuff out there." [LCC L4]*

The significance of internal competition between organisational priorities was starkly illustrated in the case of an ongoing rationalisation process occurring within the organisation. Rationalisation is a process of planned withdrawal from, and sale of, assets deemed to be surplus to requirement, both to raise capital funds from the sales and to reduce spending load on an organisation. The rationalisation process in LCC created a particular issue in cases when energy project payback times exceed the rationalisation cycle. If an asset was at risk of disposal prior to payback being achieved, then even a sound business case was unlikely to be enough to stimulate investment:

> *"...where someone says do you want to make an investment that's going to need twenty years payback there'll be a view taken as to whether or not we feel that that is a wise investment. If there's anything that we know that would cause us to think, well actually that property might not ours for the twenty years, or we might need to do something else with it, or do something with the land, we'd cut across the business case." [LCC L9]*

Finally, opportunism was identified as a strategy used across to drive energy activity. Opportunistic activity occurred as a result of authority officers identifying chances to add value to existing operational activities or responding to one-off opportunities that arise. For example, one interviewee explained how changing government policy had benefited the authority by creating a financial surplus. Rather than use the funds to pursue routine activity, they had taken the opportunity to implement a one-off energy project:

> *"Sometimes an opportunity arises, either underspends arise, or grants crop up and you weren't necessarily going to do it but actually everything comes together in a perfect storm, to make that happen. And so that's kind of why we looked at the PV model, start from the political aspiration, we then looked at our business case to ourselves and the customers. It wasn't something we necessarily were going to do, we probably won't do it again." [LCC L6]*

From the example above, it is clear that there are occasions when activity occurs as a direct result of short term, unexpected funding opportunities. However, such opportunities can only be taken advantage of if they coincide with the availability of non-financial conditions required to implement them; the so-called 'perfect storm' of circumstances referred to by the participant.

The example of opportunism as a culmination of a series of interacting influences that shape an outcome is a metaphor for the majority of the influences identified in this section. Interview data suggest that very few, if any, energy projects are conceived and implemented without interaction with other areas of activity and influence from within the authority. Where these influences combined to create a favourable set of conditions, energy activity could be implemented with relative ease. In contrast, where constraints from within the organisation amplified, or were amplified by external influences, activity was unlikely to proceed. However, many of the challenges faced by the local authority in delivering energy-related activities could be addressed at least in part through

collaboration with external stakeholders. As such, collaboration was identified as a key aspect of much of the energy activity being undertaken in the city.

4.4 Collaboration as a means of delivering energy-related activity

In Chapter 2, collaboration was identified as a key, but under examined mechanism for the delivery of energy-related activity by local authorities and argued for the evaluation of collaboration in order to understand its role in delivering energy-related outcomes. Analysis of the case study data showed that collaboration was frequently used by LCC to progress energy projects. Two main purposes for collaboration were identified: reducing the levels of risk associated with the pursuit of an activity; and expanding the areas of operation of the authority through collaboration. Often, a collaborative arrangement would serve both of these purposes simultaneously. Arrangements used to achieve the two types of objective ranged from ad-hoc informal advice, to legal partnerships. In this section, the types of collaboration identified in the case study data are presented, and their purposes discussed.

4.4.1 Types and purposes of collaboration identified in the desktop review

Section 2.6 outlined two possible methods for classifying collaborative arrangements between organisations, focusing either on their structural composition or their purpose. Within literature focusing on local authority energy activity, the structural composition of collaborative arrangements is often less evident than their purpose. Additionally, key terminological differences can arise between local authority literature and inter-organisational literature defining structural arrangements. For example, networks are described by inter-organisational scholars as complex arrays of interdependent firms with one organisation at the centre, in order to co-create a product or service to gain competitive advantage (Barringer and Harrison, 2000). Conversely, networks in local authority literature are generally represented as local, regional or transnational groups of organisations, providing peer-to-peer support, sharing knowledge, or seeking to develop solutions to shared issues. Using Gray's (1996) terminology outlined in section 2.6, networks in local authority literature are advancing shared visions, with knowledge exchange a key outcome of their existence. This description is more instructive than the degree to which the organisations are bound to each other, and enables a range of network arrangements to be consistently classified. This section therefore, classifies the collaborative arrangements identified during the desktop review of literature and policy documents according to Grey's (ibid.) typology; summarised in Figure 4-2. The examples identified represent a wide range of purposes of collaboration by local authorities, and highlight the prevalence of particular forms of collaboration in the data. However, it

should be noted that omission of a collaboration type does not indicate that it is not in use, merely that it was not identified in the data.

		Expected outcome	
		Exchange of information	Joint agreements
Motivating factors	Advancing a shared vision	APPRECIATIVE PLANNING	COLLECTIVE STRATEGIES
	Resolving conflict	DIALOGUES	NEGOTIATED SETTLEMENTS

Figure 4-2: Summary of Gray's (1996) collaboration design typology, used to classify collaborations identified in desktop review

Table 4-5 summarises the collaboration types identified in the desktop review, using the typology outlined in Figure 4-2 (Gray, 1996). Most of the collaborations identified were seeking to advance a shared vision in some way, though the range of arrangements used to achieve this was extensive.

Table 4-5: Summary of collaboration types identified in local authority and policy literature

Type	Examples
Appreciative planning	Local authority networks to share experiences and act proactively for sustainability (Voisey et al., 1996; Kelly and Pollitt, 2011; Argyriou et al., 2012) Translation of national policy to local activity as intermediaries – leading by example, provision of information and opportunities for independent action by stakeholders, raising awareness (Kelly and Pollitt, 2011; Fudge et al., 2016) City-wide partnerships for strategy development and implementation (Bulkeley and Kern, 2006; Webb et al., 2015; Fudge et al., 2016) Technology-specific working groups (Webb et al., 2015) Research partnerships (Trencher et al., 2014; Martin et al., 2014) Partnership prospecting (Bush et al., 2017) Consultation for policymaking (DECC, 2011b; DECC, 2015b; BEIS, 2017) Panels to optimise involvement of local government delivery of Green Deal (DECC, 2011a)
Collective strategies	Alliances, joint ventures & partnerships to deliver specific project solutions, e.g. ESCos, energy generation and supply, municipal utilities (Thorp and Marvin, 1995; CCC, 2012; Webb et al., 2015; Hannon and Bolton, 2015; Webb et al., 2017) Provision of anchor demand or financial guarantees for large-scale projects (Kelly and Pollitt, 2011; Bush et al., 2017) Unified strategies between government and industry for promotion of low-carbon energy measures (DECC, 2011a) Creation of intermediary organisations to develop governance capacity and implement strategy, or promote sustainable activities (Bulkeley and Kern, 2006; Hodson et al., 2013) Pooling resources to obtain services unattainable as individual organisations (Bush et al., 2017)
Dialogues	Sustainable policy development (Chatterton and Style, 2001)
Negotiated settlements	None identified

The desktop review showed that collaboration for appreciative planning purposes is often focused on networking, to share best practice between organisations, or increase the strategic planning aspect of local authority energy activity. Additionally, the review showed that such networking between authorities is not a recent initiative:

> "Networking channels, amongst local authorities and between them and other actors, appear to be highly significant in the dissemination of knowledge and best practice" (Voisey et al., 1996 p. 47)

Networks exist at local, national and international scales, and serve to provide spaces for exchange and development of ideas. The role of local authorities in these networks varied. In some cases, the authority was identified as a protagonist for change within a single geographical location, encouraging other stakeholders to engage with energy-related issues:

> "The programme aimed to raise local awareness, reduce greenhouse gas emissions, improve energy management of buildings and support the business community to work together through a 'green network'" (Kelly and Pollitt, 2011 p. 19)

In other examples, local authorities were identified in both expert and lay-organisation roles. Argyriou et al. (2012) describe a national programme of collaboration between authorities that attempted to mitigate differences in capacity to engage with energy-related activity, through mentoring relationships; in doing so, they are one of the relatively few examples of literature that explicitly evaluate the differences in the capacities of local authorities to act to pursue energy initiatives. International programs such as the Covenant of Mayors discussed in section 2.3.1 also serve to disseminate expertise and support energy activity, though at a larger scale than many of the network examples identified in the desktop review.

Forums for strategic planning and development were also identified, in which local authorities played an equal role with other stakeholders:

> "[Low Carbon Oxford is] a city-wide programme of collaboration between private, public and non-profit organizations with the aim of ensuring Oxford's future as a sustainable and low carbon city." (Fudge et al., 2016 p. 11)

Often strategic planning such as that described above would occur as a pre-cursor to the pursuit of specific projects, with the degree of translation between the two used as a measure of success of the planning stage (Webb et al., 2015). Reflecting the ultimate aim of implementation, Bush et al. identified networks established specifically to enable early agreement of project directions between potential partners, "aligning interests and establishing cooperation between key stakeholders" (2017 p. 142).

Government documentation advocated for appreciative planning in general terms, describing how local authorities could help support the deployment of technologies, or how government could support local authorities in their energy-related activity. To increase support for individual technologies, local authorities were expected to act in their role as trusted advocates to disseminate information to stakeholders:

> "Local authorities can stimulate collective action by marketing and supporting community initiatives that help increase local trust and confidence." (DECC, 2014 p. 29)

Additionally, appreciative planning occurred during policymaking. There is an argument that such engagement may be categorised as dialogue, and multiple consultation documents illustrate the desire of government to collect views from a wide range of stakeholders when formulating policy:

> "DECC will work with industry and local authorities to consider how to publicise and embed new harmonised standards." (Department of Energy and Climate Change, 2013 p. 61)

However, the degree to which the negotiation of a policy position occurs (i.e. mutual resolution of conflicting opinions) rather than simply information gathering to inform a position, is unclear from the documentary evidence. Therefore, this is categorised here as appreciative planning.

Finally, appreciative planning approaches in the form of research partnerships between universities and local authorities were identified, to further research across policy, strategy and technological sectors. Local authority engagement with research occurred at two levels: as co-creators or study participants. In both types of engagement however, participation accrued benefits to the local authority in terms of providing access to interdisciplinary expertise applied to local sustainability issues (Trencher et al., 2014). In the case of Martin et al. (2014) local authorities and other stakeholders participated to shape the design of future academic research itself.

In contrast to appreciative planning arrangements, collective strategies tended to be focused on implementing specific energy-related outcomes. The role of local authorities varied between individual project examples, as summarised by Webb et al. (2017), who identified four main business structures through which local authority energy initiatives were delivered: council direct management, municipal ESCo, private sector ESCo/SPV, and community owned. Irrespective of the structural arrangements, collaborations between local authorities and other stakeholders were evident across each of the four structures listed above. For example, direct management arrangements included energy performance contracting:

> "Peterborough City Council for example developed its own energy performance contracting framework agreement with Honeywell, emphasising the partnership component and ambition to extend the framework to other LAs as a means of income generation."(Webb et al., 2017 p. 25)

Hannon and Bolton identify examples of municipal and private sector ESCo activity by UK local authorities, alongside likely rationales for choosing one arrangement over another. Considering the use of a private-sector led ESCo, the capacity of the local authority was identified as a factor in the decision to pursue a collaborative approach:

> "If the LA is risk adverse but still keen to deliver local energy initiatives, it may instead opt to establish a joint-venture arrangement with a private sector partner... as a means of spreading the risk associated with the ESCo's project and a way of harnessing the resources to deliver these projects."(Hannon and Bolton, 2015 p. 204)

Collective strategies were especially prominent in the literature for CHP-DH technologies, possibly reflecting a long-established presence of CHP in the UK energy system coupled with increasing interest in the use of DH in the UK. In their assessment of the viability of CHP-DH networks in the UK, Kelly and Pollitt claimed that none of the networks they examined were independently delivered (2009). While many of the identified arrangements fell within the four business structures listed above, other examples of collective strategies for DH show local authorities acting as an anchor client and providing certainty of demand to start-up facilities, thereby reducing the uncertainty surrounding the initial business case (Bush et al., 2017). Tweed (2014) illustrated an alternative example of such up-front support by local authorities, in the form of the provision of resources to aid the start-up of community energy schemes, before being taken on by

community groups themselves. Such collaboration could be based on financial or knowledge-based resources, and could be initiated by either party:

> "In Plymouth the city council has presented the community with an offer of resources, whereas in Carmarthen the community sector has presented the local council with an opportunity to invest" (Tweed, 2014 p. 251)

The provision of up-front assistance to community groups and small-scale projects was explicitly advocated in government policy documentation:

> "Government urges all local authorities to fully explore partnership and investment opportunities for community energy in their local area. Investment in community energy projects – not only renewable projects – can provide a financial return for local authorities as well as helping to de-risk and leverage additional private sector investment in them." (DECC, 2014 p. 30)

Provision of up-front assistance by local authorities to community-scale projects mirrored similar support given to local authorities by central government to support the implementation of preferred technologies. For example, the development of a centralised Heat Networks Delivery Unit (HNDU) aimed to provide local authorities with expertise and funding in the early stages of considering heat networks, until the projects were able to continue independently:

> "[The HNDU] will bridge between the local authority and the market, acting as a 'critical friend." (Department of Energy and Climate Change, 2013 p. 57)

Collective strategies were not always structured in terms of one organisation providing resources to another however. Bush et al. (2017) identified the pooling of resources between authorities as a means of accessing services that may not be cost-effective to individual organisations. Resource pooling could occur at local authority level, or through intermediaries such as local enterprise partnerships (LEPs). Soon after their formation, LEPs were advocated by central government as a potential collaborative partner for local authorities seeking to implement energy activity (CCC, 2012).

The final example of collaboration identified in the desktop review was dialogues. Limited direct evidence of dialogues was identified. Chatterton and Style (2001), in examining

sustainable development in Newcastle upon Tyne identified the presence of different groups within a round table for local policymaking. However, they concluded that despite the presence of different groups working together, any resolutions generally favour the dominant stakeholders in the collaboration:

> "In the case of Newcastle upon Tyne and the North-east there are few institutions or mechanisms to encourage debate on the whole spectrum of sustainable development, which results in a lowest common denominator approach to the issue and a sidelining of many of its central messages, especially ethical ones" (2001 p. 446)

4.4.2 Types and purposes of collaboration identified in the case study data

Section 4.4.1 has shown that the practice of collaboration to deliver energy outcomes for local authorities is well-established, common, and used to serve a wide range of purposes. Additionally, the desktop review showed how collaboration is frequently used to overcome the constraints associated with local authorities extending their remits beyond their standard areas of responsibility; often in response to central government encouragement and guidance. Earlier, section 4.3.3 described some of the key influences on the process of delivering energy activity in LCC, and how integration with existing organisational routines, an opportunistic approach to energy activity, and support from internal champions can all enhance the likelihood of a project being implemented. However, in addition to these internal enablers, interviewees spoke repeatedly about how external stakeholders contributed to enabling energy activity. External stakeholders cited by interviewees were from across the public, private, and third sectors. Some of the more commonly cited examples are listed in Table 4-6.

Table 4-6: Examples of collaborating stakeholders cited in interviewees' responses

Sector	Examples cited
Public	Other local authorities, Regional combined authority, Central government departments, Universities, Hospitals, Other NHS organisations
Private	Engineering consultants, District network operators, Housing associations, Finance organisations, Large corporations, Energy utilities, Developers, Landowners, Construction firms, Architects
Third[a]	Community energy groups, Charitable organisations, Residents' panels, Volunteer organisations, Activist organisations

[a]Third sector organisations and groups are those that are neither public nor private. Voluntary and community groups, registered charities & self-help organisations, community groups, social enterprises, and co-operatives are all considered to be third sector organisations (NAO, 2016)

Collaborative arrangements with members of the groups listed in Table 4-6 ranged from informal knowledge sharing to the establishment of joint ventures. In between these two

extremes, a variety of other arrangements from across the collaborative spectrum were evident. However, common to the objectives of collaboration cited by interviewees was a desire to advance a shared vision in the city, rather than a need to resolve conflict. The examples can therefore be classified in two categories shown in Figure 4-2: appreciative planning, and collective strategies. Arrangements identified from the interview data are listed in Table 4-7.

Table 4-7: Collaborative arrangements identified in interview data

Appreciative planning	Collective strategies
Ad-hoc advice and consultation; Networks and forums.	Joint programme; Joint venture; Standard contractual relationships: Public-public; Private finance initiative (PFI).

The following sections discuss the collaborative arrangements identified in the interview responses and the purposes they serve for the authority.

4.4.2.1 Appreciative planning

Informal partnerships were frequently referenced by interviewees as a means of acquiring specialist knowledge to inform the early stages of project activity. Ad-hoc advice and consultation was described as taking place with stakeholders from each of the three sectors shown in Table 4-6. A common theme characterising ad-hoc consultation was an existing relationship between parties. Early enquiries with established partners informed judgements such as the value of pursuing a particular avenue of activity, or possible target audiences for activities. Interviewees described how early engagement could save wasted effort at a later stage of a project. For example, interviewees described how prior to embarking on a mandatory application for multiple installations of solar PV, they would seek strategic advice from the district network operator. By doing so, they reduced the risk of making an unsuitable application [LCC L4, L6]:

> *"...they'll give us a sort of strategic steer before we have to go down the formal G83 applications" [LCC L4]*

Additionally, ad-hoc consultation was used to increase the expertise of council officers, when engaging in new areas of activity either as individuals [LCC L7] or as an authority [LCC L4]. Consultation for knowledge gain was most often described by members of the sustainability and climate change team, reflecting the broad, rather than specialist nature of their roles.

Participation in networks and forums also enabled actors to access specialist knowledge. However, in contrast to ad-hoc enquiries, networks and forums were more structured. Additionally, where informal consultation tended to be described in dyadic terms, networks and forums existed at a range of scales, and as both intra- and inter-organisational groups. Interviewees described how groups were convened to develop collaborative solutions, drawing on expertise from a wide range of stakeholders:

> *"...the idea is we invite a lot of relevant stakeholders to these sessions, and we look at the issues the council is facing... [and] on a workshop basis come up with proposals... And then they're peer tested within the event, so the idea is that you come away... with some ideas or proposals of things that can be done to improve or to help the council solve that particular problem." [LCC L1]*

Internal forums (such as the board from which the initial interviewees were drawn) were also developed to enable cross-departmental collaboration. These internal forums were used to address key strategic objectives, often either building on, or laying the groundwork for external collaborations to enable the authority to engage with some of the most complex issues facing the city:

> *"... [these] are projects characterised by a) they are difficult, so we know these are things we have got to try and get right and b) they require a joined-up approach across the authority and between the authority and its partners. So, it's not like anyone, well the city council is key, but we can't do it by ourselves." [LCC L1]*

4.4.2.2 Collective strategies

In contrast to the informal partnerships for planning described in the previous section, formal collective strategies tended to exist at the delivery stage of a scheme. Analysis of the interview data showed that amongst the variety of energy-related activity described, five projects were repeatedly referenced by interviewees from across the range of departments. Four of these five projects employed collaborative arrangements with external stakeholders for delivery, as shown in Table 4-8. The fifth project, installation of solar PV installations across the LCC corporate estate, was not delivered in collaboration with external organisations. However, earlier feasibility work was carried out in conjunction with the University of Leeds, as outlined in Adam et al. (2016); the partnership enabled the development and testing by the University of methods to assess solar PV and wind generation potential at a city-scale, using LCCs estate and energy use

data. In turn, by providing data for the research, the authority was able to use the results of the research to rapidly assess the viability of potential installation sites across its whole estate.

Table 4-8: Collective strategies for the delivery of energy-related projects cited by interviewees

Project	Project description	Collaborative arrangement
White Rose Energy[1]	LCC not-for-profit ESCo, supplying electricity and gas to domestic customers in Yorkshire.	Public-public: White-label contract arrangement between LCC (as White Rose Energy) and Nottingham City Council (as Robin Hood Energy). Robin Hood Energy provides energy services of behalf of Leeds City Council, badged as White Rose Energy.
Leeds Recycling and Energy Recovery Facility (RERF)[2]	Municipal waste recycling, and incineration for energy generation, with proposed district heating extension.	Public-private: Private Finance Initiative (PFI) contract between LCC and Veolia. Veolia has a 25-year contract to operate the RERF facility on behalf of Leeds City Council. After 25 years the facility will be transferred to Veolia's ownership.
Better Homes Yorkshire (BHY)[3]	Domestic energy efficiency and renewable energy services retrofit scheme covering the Leeds City Region.	Public-private: Joint programme delivered on behalf of the ten Leeds City Region authorities by Keepmoat* and Willmott Dixon** via a framework agreement, and managed by West Yorkshire Combined Authority (WYCA), and the Leeds Enterprise***
City CNG project[4]	(Proposed) compressed natural gas station to service LCC refuse vehicle fleet, with plans for expansion to wider market if the concept is proven.	Public-private: Joint venture between LCC and Northern Gas Networks. Northern Gas Networks provide infrastructure, LCC provide land and anchor load (fleet vehicles).

[1]http://www.whiteroseenergy.co.uk/about-us
[2]https://www.veolia.co.uk/leeds/about-us/about-us/background
[3] https://www.betterhomesyorkshire.co.uk/about-us.html
[4]https://citycng.co.uk/city-cng-project/

*Now ENGIE, ** Now Fortem,
***BHY was in procurement at the time of the interviews. It is described here in its final form.

Interviewees did not always elaborate on the partnership arrangements when discussing the projects, and details of the arrangements were subsequently gathered from publicly available council documentation and the project websites (listed in Table 4-8). However, interviewees did explain how collaborative arrangements for the four projects in Table 4-8 (and other less-frequently cited examples of collaborative activity) benefited the authority.

At the most basic level, the collaborative delivery of the projects in Table 4-8 reflects the fact that each of the projects, while associated with areas of responsibility of UK local authorities, was a voluntary extension of LCC's remit. In seeking to deliver an expanded remit, the authority has a choice either to extend its capabilities through recruitment and development, or to collaborate. Analysis showed that the choice not to expand in-house operations, and to instead collaborate with external stakeholders to deliver major projects, was often described in terms of avoiding or reducing the authority's exposure to risk. Additionally, the authority's involvement in market-based collaborations was often used to provide a degree of stability and certainty to innovative projects, enhancing their financial viability at the outset.

Considering risk initially, in describing the choice to pursue a collaborative delivery model for the (then proposed) ESCo, one interviewee suggested that despite having the experience of buying and selling energy for the corporate estate, the financial risk of taking on such a role for a customer base was considered too serious a proposition. This was largely down to the cost and uncertainty associated within entering a new market, something that partnering with a more experienced organisation could mitigate:

> *"The cost of setting up is multi-million, millions of pounds, so avoiding the risk of setting up and then not generating what we expect and never breaking even is another risk that we're trying to avoid. It feels like we'll get a lot of the benefits by partnering, at a much lower cost and without the same sort of level of exposure." [LCC L4]*

In the case of the Recycling and Energy Recovery Facility (RERF), interviewees described how the use of the PFI contract was expected to reduce the financial risk to the authority, with an agreed unitary charge providing cost certainty to LCC over the contract period [LCC L10].

Direct financial risk was not the only type of exposure mitigated by collaboration. Section 4.3.2.2 explained how the regulatory burden associated with different energy activities could influence the choice of an authority to pursue that avenue of activity or not. However, rather than precluding activity, an onerous regulatory burden can prompt collaboration. This was evident in the case of the ESCo, where it was envisaged that the proposed partnership would reduce the need for the authority to spend time and resources fulfilling requirements that others had already met:

> *"Bristol and Nottingham are doing the fully licenced supplier route - they're not sidestepping it, they're just taking it absolutely head on and taking all the risks and costs of doing that. We decided that a) it was too expensive and b) too risky in a lot of ways to do that, so by partnering with somebody who's got a licence they take all those responsibilities. We would have responsibility for generating customers for the scheme, but we wouldn't have to deal with all of the regulation." [LCC L4]*

Arguably, each of the schemes described in Table 4-8 could be delivered independently, without the involvement of the local authority. However, particularly for the ESCo and Better Homes Yorkshire, the private sector partners benefit from the position of LCC as a trusted intermediary, between the suppliers and the mostly residential customers of the schemes. Additionally, through its involvement LCC was able to provide early certainty for the schemes, thereby reducing the speculative element of the investment by the partnering organisations. For example, in the case of the ESCo, take up of the energy supply tariffs was expected to be driven by utilising the authority's housing stock:

> *"... whenever a flat becomes empty or a house becomes empty we would switch it onto the Leeds energy company" [LCC L4]*

For the Compressed Natural Gas (CNG) filling station, it was anticipated that the authority's refuse fleet would provide a guaranteed initial demand for the facility (the anchor load), to ensure the initial viability of the scheme:

> *"...the commercial side of it is based around us providing the anchor load... but the idea is that the CNG station is scalable... so we are looking at attracting other operators across the city, potentially people in retail, M&S, John Lewis, Morrison's that sort of thing..." [LCC L2]*

Finally, analysis of the interview data showed that reducing resource contributions, whether staff resources or financial resources, was a key aspect of pursuing a collaborative approach, and identified a history of pooling resources across the region [LCC L1, L4, D-11]. In addition to voluntary collaboration, regional planning has been encouraged by central government for some time, with a series of sub-national bodies being established, abolished and replaced (O'Brien and Pike, 2015). One recent incarnation of regional governance is the combined authority, and in 2014 the West Yorkshire Combined Authority (WYCA) was formed. WYCA is a discrete public sector organisation, but its membership includes councillors from six of the Leeds City Region

local authorities, five of whom contribute funds to the organisation[12]. WYCA works with and on behalf of the region's authorities to realise shared outcomes across a variety of areas of activity, including energy-related activity (WYCA, 2018). Consequently, when interviewees were giving examples of recent energy-related activity within the city, several cited activities either wholly or partly under the umbrella of WYCA:

> *"...areas that we're looking at now... the OLEV [Office for Low Emission Vehicles] city bid, that is being led by the combined authority. It's a bid that's being prepared for West Yorkshire, so we are working through what the options are, and looking at the whole issue of vehicle charging... On the park and rides we're the lead, but again, the procurement of the actual bus services is led by the combined authority." [LCC L7]*

As indicated by the quote above, WYCA's role in furthering energy activity was often concerned with administrative activities such as shared procurements. This reflects the fact that WYCA, as with LCC and the other local authorities in the region, is not a specialist energy organisation, despite furthering energy activity in the city being on the organisation's agenda.

4.5 Discussion

The purpose of this chapter was to address research questions one and two, which focus on the influences on local authorities achieving their energy objectives, and the types and purposes of collaborative arrangements they use to do so. The results of the analysis suggest that use of collaboration is, in part, a response to the conditions created through the interactions of influences on a local authority. The two questions are now addressed in turn, first considering the influences, before going on to discuss the types and purposes of collaboration.

> *RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*

The analysis of the Phase One data presented in this chapter shows that multiple institutional, stakeholder and organisational influences interact to shape the energy activities of LCC. However, not all influences were identified across all three areas of decision making examined (the choice to engage, the choice of activity, and the process of delivery). Critically, institutional influences were only identified when considering the

[12] The five West Yorkshire metropolitan district councils: Bradford, Calderdale, Kirklees, Leeds and Wakefield (each of which contribute funding) and York.

choice of which activities to pursue. In fact, when discussing the choice to engage in energy activity in the first place, interviewees highlighted an *absence* of regulative influence. Where institutional influences were identified they affected the choice of activity type pursued. Activities such as large-scale electricity supply that carry significant regulatory constraints were considered less preferable than those with a lighter regulatory burden. Additionally, normative expectations on the authority were associated with the energy performance of domestic residences in their jurisdiction. Together these institutional influences meant that much of the early energy activity undertaken by the authority was in areas of low regulatory burden: within its own estate, or in domestic energy efficiency and heat provision.

In contrast to the limited institutional influence, stakeholder and organisational influences were identified throughout the analysis. Both outward- and inward-acting stakeholder influences affected the choice to pursue energy activities. The presence of an outward influence demonstrated a clear understanding by the authority that its actions could effect the actions of others, thus supporting the pursuit of energy objectives in the city as a whole. Similarly, policy decisions by central government were identified as a key inward influence on the activity of LCC, shaping both the choice of the authority to pursue energy activity, and the type of activity undertaken. The technology-specific incentives provided by central government were a key element in the creation of a viable business case, itself a critical element in the progression of energy activity.

From an organisational perspective, the need for a viable business case identified above can be linked to one of the key drivers for the pursuit of energy activity identified in the absence of an institutional imperative: an opportunity to reduce authority expenditure and increase revenue. These economic opportunities sat alongside the authority's environmental, political and social objectives to drive energy activity, as shown in Table 4-3. The responses of interviewees demonstrated that energy activity taking place within LCC often addressed multiple organisational objectives. The presence of co-benefits as a key opportunity concurs with previous research into drivers for public sector energy investment; Table 4-9 (overleaf) summarises the key findings of three previous broad-scope studies focused on local authority action in energy, climate change, and emissions reduction (Collier and Löfstedt, 1997; Allman et al., 2004; Kelly and Pollitt, 2011). Each of the three studies was published under a different governmental regime: Conservative, Labour and Conservative-Liberal Democrat Coalition Government respectively. Together with the results of this thesis, Table 4-9 shows that despite the changes in political climate over the last two decades, the types of barriers and drivers facing local authorities have

remained broadly consistent, with many of the barriers, and all the drivers evident within the organisational influences identified in this thesis.

Table 4-9: Barriers and drivers for local authority climate change and emissions reduction activities.

Type	Specific examples	1997[a]	2004[b]	2011[c]
BARRIERS				
Capability	Lack of in-house competence or knowledge	✓	✓*	✓
	Lack of appropriate government guidance		✓	
	Lack of quality data			✓
Finance	Lack of funding	✓	✓	
	Large sums of upfront capital required			✓
	Long pay back times			✓
	Hidden costs			✓
Power	Lack of influence or power, policy restrictions	✓	✓	✓
	Political or economic lock-in			✓
	Convoluted or difficult subsidy systems			✓
Resources	Insufficient staff or time		✓	
	Resources required to complete bids		✓	
Coordination difficulties	Internal (between departments)		✓	
	External (between authorities/regions)		✓	
Priorities	Other issues take priority	✓	✓	
	Objectives pursued through other means	✓		
Risk	*Litigation*		✓	
	Financial			✓
Lack of awareness	Public	✓	✓	
	Councillors	✓		
	Business		✓	
External resistance	*To specific schemes (NIMBY)*		✓	✓
	No direct benefit (e.g. landlord)			✓
DRIVERS				
Internal support	Committed individuals	✓		
	Good communication		✓	
	Strong political leadership and support			✓
External support	Working with external parties		✓	✓
	Membership of regional networks		✓	
Co-benefits	Realising additional benefit from projects			✓

[a](Collier and Löfstedt, 1997), [b](Allman et al., 2004) and [c](Kelly and Pollitt, 2011).

*Inferred: described as a need to rely on external guidance.

Italicised barriers were identified as specific barriers for authorities considered "successful", i.e. barriers arising once the initial hurdles had been overcome.

Bold examples align directly with the results of the Phase One data analysis.

The alignment between the list of barriers and drivers in Table 4-9, and the organisational influences identified in this thesis emphasise how multiple individual factors continue to

shape the nature of activity undertaken by the authority. However, in addition to examining the individual influence on activity, the analytical framework presented in section 3.2.3 provides an opportunity to consider how interactions between the individual influences affect the energy activity of the authority at different stages.

Analysis showed that the interactions between the various influences are numerous. While causality cannot be firmly established without a longitudinal study, it is possible to envisage how the cumulative impact of interacting influences is likely to have had an effect on the activity observed. For example, the lack of regulative requirement to undertake energy activity sets the context for the need to justify activity through other means. Combined with a period of austerity and decreasing budgets, the activities the authority chose to pursue were aligned with broader organisational objectives, relatively risk-free, and often associated with financial incentives.

At the process stage, a tension between the desire to deliver energy outcomes and diminishing resources to be able to do so was identified. This tension was particularly evident when examining the internal strategic influences within the organisation, and again resulted in activities being aligned to other organisational objectives, the presence of which could be used to bolster the business case of a proposition. In contrast, viable energy projects were individually at risk of being abandoned if they were in conflict or competition with other more immediate organisational concerns, such as the ongoing rationalisation process (in which assets are sold to raise funds for the authority), or activities to fulfil statutory obligations. Additionally, several interviewees highlighted the fact that there was no spare money available to explore untested approaches, further driving activity associated with known technologies, and consistent with organisational routines.

The internal influences described above were arguably amplified by the activities of central government, a key stakeholder influence on the local authority. Using transitions terminology, incentives implemented by central government created a kind of path dependence (Geels, 2004); by supporting particular areas of activity with easy to access incentives, the capacity requirements for local authorities to pursue those activities were reduced, while the financial reward for doing so was increased. Similarly, technologies that carried a low resource demand for installation, particularly if they fell within the existing expertise of the authority, were more likely to be in use.

The link between the influence of central government as a key stakeholder, the financial implications on the authority of central government's policies, alongside the absence of an

obligation to pursue energy objectives arguably creates an underpinning economic driver for the pursuit of energy activity, and throughout the data it is evident that there is an inherent assumption that a project must be economically viable to justify action. The need for economic viability was in turn reinforced by the effects of austerity, which have reduced the material finance available to local authorities in recent years.

Webb et al. (2015) suggest that the majority of UK local authority energy-related activity is taking place in the areas of energy efficiency and heat provision, with the predominance of these activities reflecting greater governance capabilities held by UK local authorities in areas of housing and welfare; areas of responsibility that benefit from the outcomes of energy efficiency and heat provision. This research, while consistent with their findings, suggests additionally that a lower regulatory burden, and targeted support from central government in the form of incentives further increase the likelihood of particular technologies or approaches being pursued, especially in organisations with limited financial and staff resources. Additionally, a reluctance to engage with experimental or untested technologies was identified, linked to the need to spend a limited budget wisely. Arguably, as an energy leader LCC is better equipped than many authorities to engage in energy activity, yet the activity visible within the authority is highly aligned to central government support. The activity of LCC can therefore be said to be tightly tied to the policy mechanisms of central government, both in general terms as a strategic response to broader policy mechanisms, and more specifically in the choices of activity as a response to particular incentive mechanisms. This supports the finding by Bush et al. (2016) that local governments remain reliant on national government for support to deliver ambitious energy plans.

Thus far, the analysis shows that energy objectives were largely influenced by a combination of stakeholder policy and organisational issues. It can be argued that energy objectives as a standalone goal were therefore non-existent within the organisation. Every activity described by interviewees was linked to a wider goal, and aligned to the authority's day to day activity in some way. When the balance of resource requirements versus benefit from the activity was not met, either through the limited internal resource availability or excessive risk, different solutions were sought. In some instances, different solutions meant shelving projects, reducing project ambitions, or amending project goals. However, in many cases, working with others emerged as a key means by which the authority sought to achieve its energy ambitions.

Much of the earlier energy activity identified within LCC falls within the areas of energy efficiency and solar PV installations. More recently, alternative fuel vehicles, and the RERF

have been implemented, with ambitions for district heating in connection with the RERF, and proposals for a CNG station. A clear progression can be identified in these projects from the early "plug and play" solutions within the extent of the authority's expertise, to more ambitious objectives, matched by an increasingly strategic perspective of energy activity within the city of Leeds. This progression was supported by the use of collaborative approaches to planning and delivery.

> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*

Analysis of the types and purposes of collaboration used by the authority shows a difference between the purpose of formal and informal collaborations sought by the organisation. Informal collaborations were most often used as a means of sharing and acquiring knowledge, either on an individual ad-hoc basis, or through a structured exchange of ideas. The most straightforward reason to seek information from beyond the organisation was to learn about possible methods to achieve desired objectives, to inform the activities of the council. Such activity was often described in terms of learning from others who had undertaken activities being considered, particularly in areas of work that extended the reach and ambition of the council beyond their internal expertise. In seeking to deliver an expanded remit, the authority has a choice either to extend its capabilities through recruitment and development, or to collaborate.

Many of the benefits described by interviewees when speaking about learning from others were practical, supplementing the knowledge and resources of the authority with specialist expertise in order to achieve specific aims. However, a more ambitious purpose to seeking a collaborative approach was the opportunities it presented in terms of increasing the strategic approach to energy activity in the city, and extending the influence of the local authority beyond its own boundaries through appreciative planning. This was particularly evident in examples describing collaborative solution building (such as activities described in section 4.4.2.1) where the strategic direction of the city was developed in concert with stakeholders who would be critical to its implementation. The activities of the informal forums and networks undertake elements of the planning activities that Bale et al. (2012) suggested might be undertaken by a discrete strategic energy agency.

Formal collective strategies, in contrast, were more focused on decreasing the exposure of the authority to risk, or reducing the resources required to deliver an activity. At the same time, formal partnerships for the most part facilitated engagement in activities beyond the

immediate experience of the local authority. Additionally, while the four collaborative projects described by interviewees (and listed in Table 4-8) served areas of the authority's responsibility, in most cases, the projects were structured to realise co-benefits through their delivery. Many of the arrangements held benefits for the partner organisations as well as the local authority, reflecting Chmutina et al.'s (2013) conclusion that local authorities have the means to increase credibility or provide expertise to further energy activity. The use of local authority resources to increase early certainty to projects is an example of how LCC used its resource in this way.

An interesting observation from the analysis of collaboration types observed within LCC that although interviewees described the purpose of networks and forums in terms of identifying and planning strategic activity within the city, much of the energy activity that went on to be implemented was closely connected with central government policies and incentives. This suggests that while there is motivation and engagement within the region for information exchange and innovation, many of the activities that are taken forward by the authority are relatively 'safe'. The inability to determine whether this is because the more innovative activities are falling by the wayside, or whether they are being picked up by organisations outside the authority highlights a limitation of this research; by focusing on local authority energy activity, wider collaborative activity may be missed. This raises an opportunity for further examination that will be discussed in Chapter 7.

Taken together the analysis of the Phase One data builds up a picture of an organisation that has to respond to multiple stimuli, often quite fast, yet operates in a divisionalised, bureaucratic manner, utilising limited resources, and seeking to maximise the relevance of energy objectives to wider organisational ambitions. Project duration was raised as a significant constraint, in particular the intersection of the duration of procedural processes and a rapidly changing policy environment to which the projects are closely aligned. As the 'low-hanging fruit' becomes less plentiful, and the strategic ambitions of the authority develop, collaboration has become increasingly integral to the delivery of energy objectives. However, much of the activity undertaken remains closely aligned with central government guidance and initiatives, likely reflecting the economic imperative facing local authorities in an ongoing austerity climate.

4.6 Summary

This chapter has used a systemic approach to evaluate how institutional, stakeholder and organisational influences have affected the choices of LCC to pursue energy-related activity, and contributed to the use of collaboration as a means of delivering energy

objectives. Research has already been conducted that considers the types of partnership that authorities engage with and the types of energy project that are delivered (Castán Broto and Bulkeley, 2013). However, the issue of how partnerships operate to deliver energy objectives remains relatively unexplored. In the following chapters, the Phase Two research compares two collaborative endeavours to deliver large-scale energy efficiency retrofit across the North East of England and the Leeds City Region. Using the same systemic lens for analysis employed in this chapter, Phase Two focuses on the specific influences acting on collaborating organisations, and considers how factors introduced by the individual organisations interact with the common collaborative context. In doing so the analysis explores the reality of collaboration as a delivery mechanism to achieve local authority energy objectives.

5 Phase Two results: Warm Up North

Chapter 4 identified institutional, stakeholder and organisational pressures on UK local authorities through analysis of a case study focused on a single local authority and a desk review of academic literature and government policy. The analysis showed that despite the long-term development of the role of local authorities in energy activity described in Chapter 2, and short-term political changes, the influences on local authority energy activities have remained relatively consistent. Additionally, Chapter 4 showed that in the case of LCC, collaboration now performs a dual role: as a means of mitigating organisational deficiencies, but also as an enabler for the extension of the authority's ambitions, and a tool for engaging in new areas of activity, such as energy services provision.

As discussed in the literature review (Chapter 2), the process of collaboration itself is rarely evaluated, thus limiting the potential to understand how effective it is as an enabler of energy-related activity. Similarly, the Phase One research, while identifying a number of collaborations in which LCC is participating, did not explore their implementation. The Phase Two research addresses this deficiency, by examining two collaborations in detail. By applying the same analysis framework to analyse the collaborations as was used in Phase One to evaluate local authority energy activity, this phase of research builds on the first. It does this by providing a basis for comparison between the presence and effects of influences on a single organisation compared with multiple organisations acting together. Additionally, it seeks to assess whether employing collaboration for delivery successfully mitigates organisational deficiencies identified in Phase One, such as minimal resource availability and procedural constraints. This chapter, therefore, presents the analysis of Warm Up North (WUN), the first of two in-case analyses of collaborations to deliver energy efficiency retrofit measures in two regions in England. The analysis for the second collaboration, Better Homes Yorkshire (BHY), is presented in Chapter 6.

WUN and BHY are two regional energy retrofit schemes, each comprised of a group of local authorities working in partnership, alongside one or more private sector partners. An introduction and rationale for the choice of case studies was included in the methodology (section 3.4.1). The similar national context, status of the lead authorities, and broad objectives of the schemes provides comparability between the two. The two schemes, while partially concurrent, were independently initiated in response to the Green Deal and ECO legislation described in section 4.3.2.2, primarily to deliver domestic energy efficiency measures through a framework contract arrangement between the

consortium of local authorities and the private delivery partner(s). Opportunities for differences between the cases arose from the fact that the two schemes were operated as two collaborations in two separate regions. A comparative analysis of the two cases and phases of research, and the overall thesis conclusions are presented in Chapter 7.

The results of the Warm Up North (WUN) analysis are presented as follows. Firstly, section 5.1 introduces the WUN collaboration. Then, the institutional, stakeholder, and organisational pressures influencing the choices of organisations within the collaboration to pursue energy-related activity in general are explored in section 5.2. The analysis extends the results presented in the first phase of research (Chapter 4) through its application to a larger number of organisations, further addressing the following research question:

> *RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*

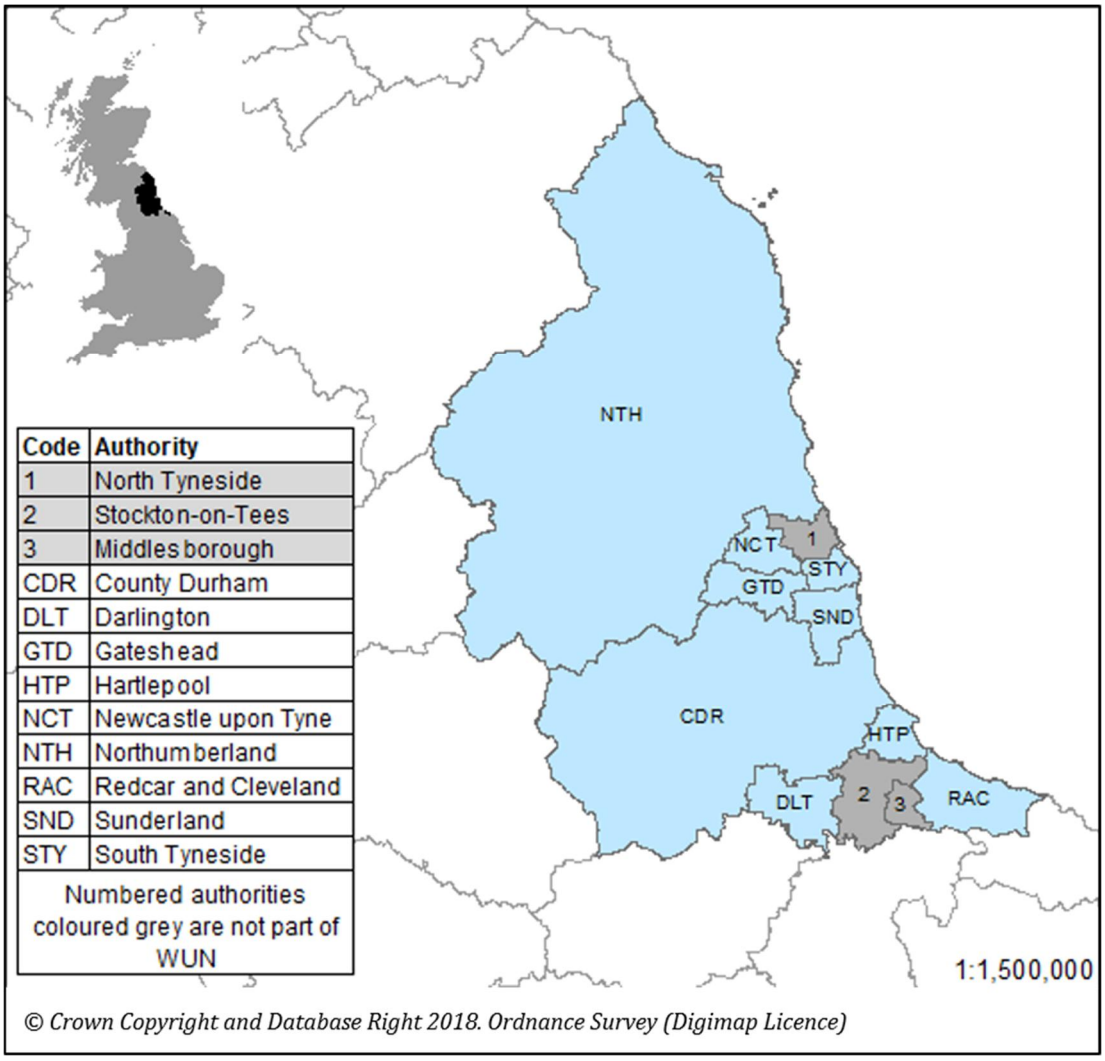
Section 5.3 focuses on the collaboration itself, examining its antecedents (5.3.1) and process (5.3.2), before a discussion of the interactions and outcomes of the collaborations is presented in section 5.4. These sections address the following research questions:

> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*
>
> *RQ 3: How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

As with the Phase One analysis, documentary data sources throughout the chapter are identified using the reference codes [G-xx], and [D-xx], as explained in section 3.3.2.3. Data sources are listed in Appendix B. A summary of the analysis concludes the chapter.

5.1 Introducing WUN

Warm Up North (WUN) was created to deliver energy efficiency retrofit and renewable energy services in nine local authority areas in the north east of England, shown in Figure 5-1 alongside authorities in the region that chose not to participate in the scheme. Analysis includes sub-cases from both participant and non-participant groups.



Code	Authority
1	North Tyneside
2	Stockton-on-Tees
3	Middlesborough
CDR	County Durham
DLT	Darlington
GTD	Gateshead
HTP	Hartlepool
NCT	Newcastle upon Tyne
NTH	Northumberland
RAC	Redcar and Cleveland
SND	Sunderland
STY	South Tyneside

Numbered authorities coloured grey are not part of WUN

Figure 5-1: Geographical location and local authority participants for WUN

Approval to pursue the development of WUN was granted by Newcastle City Council cabinet in July 2011, with the contract award and WUN launch occurring in July 2013. The scheme represented a first-time collaboration between many of the authorities; while some of the neighbouring authorities in the Newcastle region had experience of working together, collaboration with smaller authorities in the wider region had not previously been undertaken [WUN L5]. Table 5-1 shows the key policy and project milestones for the scheme.

Table 5-1: Timeline showing key policy, guidance and development milestones for WUN

Date	Policy and guidance	WUN milestones
May-10	Green Deal first coined in Coalition Programme [G-8]	2010: Approval to develop business case for partnership working for energy efficiency [D-49]
Dec-10	Green Deal Proposals summary published [G-6]	
Mar-11	MOU between LG Group and DECC - how councils can help roll out Green Deal [G-11]	
Jul-11		NCC approval to develop WUN [D-49]
Oct-11	Energy Act 2011 enacted: included provision for Green Deal legislation and ECO alterations [G-69]	
Nov-11	Consultation on Green Deal and ECO [G-14] £200m introductory time limited offer of funding announced [G-9] Local authorities and the Green Deal [G-10]	
Dec-11	Publication of the Carbon Plan - action plan encourages local authorities to deliver EE in their area driving Green Deal [G-43]	
Jan-12	End of Green Deal consultation period [G-14]	Approval granted to procure a GD partner [D-50]
Mar-12		Market Awareness day [D-69]
May-12	CCC publication on how LAs can reduce emissions and manage climate risk [G-1]	
Jun-12	Final Impact assessment published [G-17] Green Deal consultation response published [G-21]	OJEU issued [D-51] WUN procurement starts [D-69]
Jul-12	HECA 1995 Local Authority guidance published referencing Green Deal and ECO [G-18]	Stage 1 Pre-qualification begins [D-69]
Aug-12	£7m Government loan to GDFC announced [G-49]	
Sep-12	Green Deal Go Early Funding awarded to Core Cities [G-30]	Stage 2 Open Dialogue begins [D-69]
Oct-12	Green Deal launched Energy Companies Obligation Order [G-44]	
Dec-12		Stage 3 Continued Dialogue (3 bidders) [D-69]
Jan-13	ECO(1) obligation period begins [G-44] Green Deal 'live' in England, TGDFC publishes interest rates and cash back scheme announced for early GD adoptees [G-49]	
May-13		Stage 4 - Final tender submissions [D-69]
Jun-13		British Gas selected [D-69]
Jul-13		Contract award [D-69]
Sept-13		WUN launch [D-74, D-75]
Dec-13	ECO target reductions announced [G-46]	
Jun-14	GDHIF launch and round one funding [G-35]	
Dec-14	GDHIF funding round two [G-35]	
Mar-15	GDHIF final funding round [G-35] CHF applications invited [G-29]	
Apr-15	ECO(2) obligation period begins [G-61]	
Jun-15	CHF applications closed [G-29]	
Jul-15	All Green Deal funding ceased (Rosenow and Eyre, 2016)	
Mar-17	ECO(2) obligation period ends [G-61]	
Apr-17	ECO(2t) obligation period begins [G-66]	

Dotted lines between rows indicate non-consecutive months

Project development costs were estimated at the outset to be £1.565m, of which £1.1m was funded through the EU Intelligence Energy Europe (IEE) programme, £100,000 as a loan from Newcastle's corporate revenue funds, and the remaining £365,000 divided equally between partner authorities to the scheme [D-63]. Figure 5-2 shows the structure of the WUN collaboration, which was based around a central framework contract between Newcastle City Council and British Gas as the lead authority and delivery partner respectively. A separate inter-authority agreement between the nine authorities set out the roles and responsibilities of the lead and partner authorities, the governance structure, and other specifics regarding liability, termination etc. British Gas performed both the delivery partner and energy company roles in the scheme, and subcontracted installation work out to PH Jones (a subsidiary of British Gas), SMEs and local installers [WUN-, -P2].

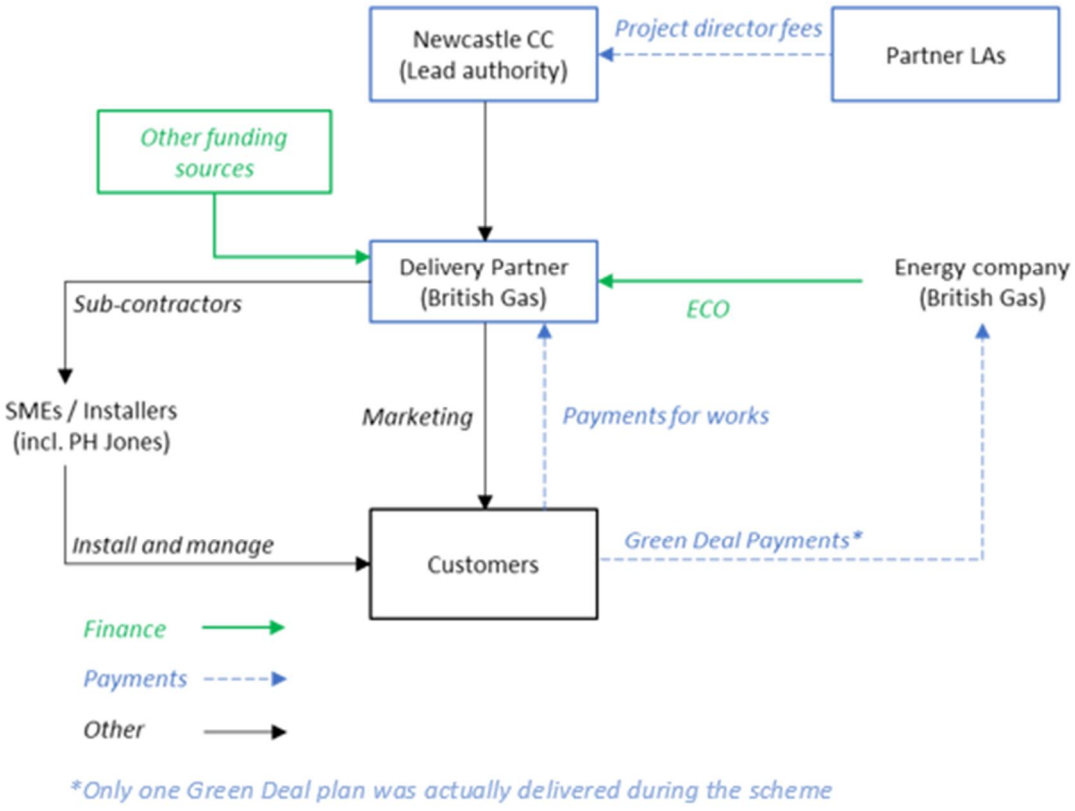


Figure 5-2: WUN scheme structure

WUN was administered by a project director, employed by and on the payroll of Newcastle City Council. Whereas development costs were covered by fixed up-front contributions from the EU IEE programme and local authorities, WUN running costs were paid for through a mixture of profit sharing of British Gas' turnover from the scheme, and partner authority annual contributions linked to activity levels of the scheme. Decision making powers and the governance structure of WUN are each divided in to three groups, represented by the Partner Steering Group, the Liaison Committee, and the Operational

Team as shown in Figure 5-3. Project decisions are categorised according to the decision-makers required to finalise a matter: the least onerous decisions can be taken by the lead authority on behalf of all partner authorities; the Partner Steering Group deals with more serious matters; and the most serious decisions are made at authority level (i.e. outside the project team), and require the unanimous consent from all partner authorities [D-64].

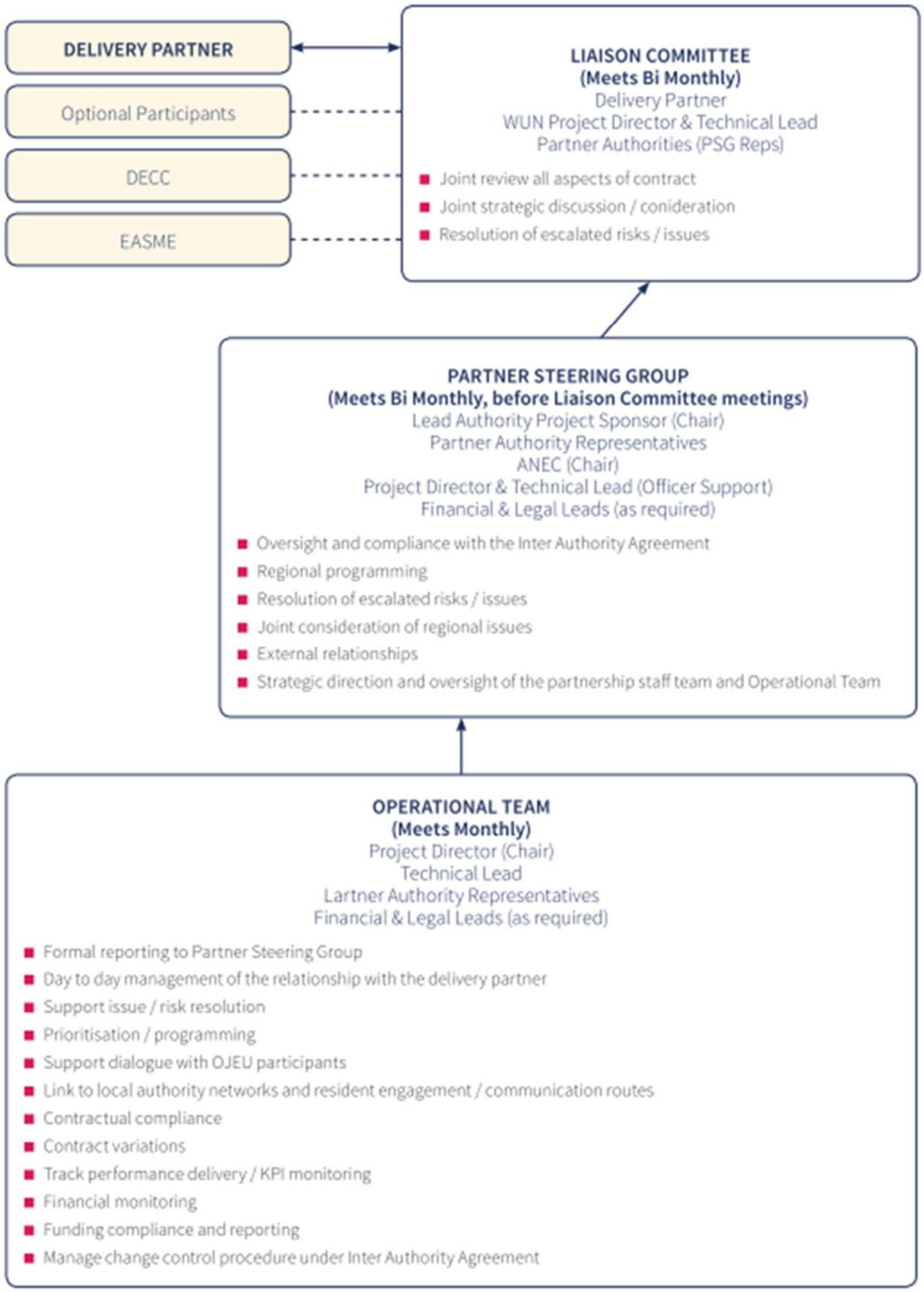


Figure 5-3: WUN governance and decision making [reproduced from D-69]

The primary objective of WUN was to deliver energy efficiency retrofit and renewable energy services in the north east region, in order to improve the quality of life for residents [D-69]. The scheme was initially conceived and developed to deliver measures using the Green Deal private finance mechanism, and ECO funding. However, later in its lifetime, the scheme was used to bid for grant funding from central government's Central Heating Fund (CHF). The successful application for CHF funding enabled the delivery of first-time central heating installations to north eastern residents through WUN, over and above its original objectives. Despite the delivery of several thousands of energy efficiency and central heating measures through WUN, the collaboration as a whole was unofficially set aside in early 2017, with participating authorities free to seek their own arrangements for delivery of further measures thereafter [WUN-L4]. The five-year initial contract period expired in July 2018.

In addition to documentary data sources, the analysis of WUN presented in the following sections is based on the interview responses of WUN actors directly involved with the development and delivery of the scheme, in addition to one actor from a non-participant authority (North Tyneside [WUN L6]). As can be seen in Table 5-2, those interviewed (distinguished by the presence of an interview code after the organisation name) represent a subset of the member organisations of WUN, and of the wider range of groups and organisations that can be considered to be stakeholders to WUN. Stakeholders were defined as those organisations, individual or groups that affect or are affected by the collaboration, echoing Freeman's (1984) classic definition of a stakeholder to an organisation. The use of a broad definition of a stakeholder enabled recognition of those stakeholders involved only in the development of the collaboration, or only affected by its outcomes, in addition to those involved in the operation, management and delivery of the WUN scheme.

Table 5-2: WUN stakeholders, showing stage of involvement (Antecedent, Process, Outcome)

Type	Stakeholders (WUN)	Stage A	P	O
Public	Birmingham City Council, Core Cities Network*, Association of North East Councils (ANEC)	•		*
	DECC*, EU Intelligence Energy Europe Programme, EU Executive Agency for Small and Medium-sized Enterprises	•	•	*
	WUN local and regional authorities, grouped according to join date: *Pre-procurement: Newcastle [WUN L4, L5], Northumberland [WUN L2], Durham, Darlington, South Tyneside*	•	•	•
	During procurement: Sunderland [WUN L1], Gateshead, Redcar and Cleveland		•	•
	After contract award: Hartlepool [WUN L3]		•	•
Private	Financial consultant: Marksman Consulting LLP	•		
	British Gas: *British Gas New Energy (held ECO obligation), British Gas Business Services (bid for and delivered WUN) WUN P1, P2, P3]*		•	•
	Local SME Building contractors, acting for PH Jones (British Gas)		•	
Other	Energy Saving Trust*	•		*
	Housing: Housing Associations, North East Procurement Framework		•	
	General: Citizens Advice, Voluntary Organisations Network North East, Age UK, Fire Services, Council of Voluntary Service, Private Letting Agents/ Landlords		•	
	North East residents			•

Italics indicate WUN partners
[Code for interviewee(s) representing organisation]
*Starred organisations were stakeholders in the dissemination of learning from WUN outcomes, rather stakeholders in the outcomes of WUN itself

5.2 WUN: organisations pursuing energy-related objectives

In Chapter 2, it was argued that to fully understand the collaboration process, it is important to understand both the context in which a collaboration takes place, and the influences acting on individual organisations involved with the collaboration. Therefore, this section examines the institutional, stakeholder and organisational pressures affecting the organisations involved in WUN, in relation to the broad perspective of the pursuit of energy-related activity. The analysis serves two purposes: firstly, it provides additional evidence to address research question one; and secondly, it provides the contextual background against which the more detailed examination of the WUN case study is set.

The analysis is based on the interview responses of WUN actors. Table 5-3 (overleaf) shows the pressures identified as influencing the general pursuit of energy activity (i.e. externally to the collaboration) by individual WUN organisations divided according to institutional, stakeholder and organisational themes. Each of the themes are discussed in turn.

Table 5-3: Pressures associated with the pursuit of energy-related objectives by WUN organisations

Category	Influences	
	Public sector	Private sector
Institutional	Normative: Membership of climate or cities groups.	Regulative: Condition of entry for access to energy retail market.
Stakeholder	Influenced by stakeholders: Austerity changing activity in local authorities. Influencing stakeholders: Leading by example; Seeking to create conditions to attract specific type of stakeholders.	Influenced by stakeholders: Funding by central government shapes investment and activities pursued.
Organisational	Drivers: Goal-centred objectives focused on political, environmental, social and economic outcomes; Key champions within organisations. Barriers: Lack of resources; Risk avoidance; Business model.	Drivers: Value creation and shareholder returns.

In agreement with the Phase One findings, analysis of WUN interview data showed only limited references to institutional influences on the public sector organisations' pursuit of energy-related activity. However, where institutional influences were identified they were normative, and stemmed from local authorities' membership of climate or cities' groups. Interviewees described how exposure to other authorities' activity through the group networks had led to requests for the exploration of similar activity within their own authority:

> *"...some of the things come from the leaders of the council talking to each other, like the Core Cities Group or something and that will be, 'Let's do something because they're doing something, we want to do something'." [WUN-L5]*

In contrast to the local authorities, the business of British Gas is energy. While the structure of the parent company (Centrica) has changed since WUN [WUN-P1], energy production, supply, and management, at large and small scales were part of the business before and after the restructure [WUN-P2, D-24, D-26]. Section 4.3.2.2 described how energy suppliers have been required by law to contribute to the reduction of carbon

emissions since 1994, through their compliance with the supplier obligation. For British Gas interviewees, the institutional influence of compliance with the supplier obligation was the only non-commercial influence cited for their involvement in the type of energy-related activity visible in WUN. However, despite the regulative requirement for compliance prompting activity in energy-efficiency activities, interviewees also described how the organisation sought to achieve commercial benefit from fulfilment of their obligation:

> *"We, as an energy and services business could see a secondary opportunity which was to build a service delivery model from which 1: we could deliver ECO cost-effectively, but 2: it would generate value for us as a services business in its own right." [WUN-P1]*

Stakeholder influences were more readily identified in the analysis. For local authorities, stakeholder influences could be categorised as acting inwardly, or outwardly. Within the WUN responses, the major inward influence on the pursuit of public sector energy-related activity was the austerity measures imposed by central government on local authorities. Interviewees described how austerity measures had influenced activity across all areas of local authority activity, with reduced local authority budgets necessitating a more enterprising approach within their organisations [WUN-L1, -L4, -L6]. A greater focus on enterprise enabled energy-related activities to be pursued as opportunities for reduced expenditure and revenue creation, in addition to more traditional civic outcomes. One interviewee credited austerity with driving sustainability, because of the links between austerity, energy and finance:

> *"With the introduction of austerity measures and the need to save money… we do it for financial reasons but there's a consequence in terms of the reduction in CO_2 emissions. So, it's actually been a perverse good relationship for the sustainability agenda…" [WUN-L1]*

Outwardly-focused influences were largely concerned with the desire by local authorities to use their influence to shape the actions of existing and potential stakeholders in the region. Energy-related activity was described by interviewees as an opportunity to demonstrate a commitment to low-carbon investment. Interviewees' described the necessity of leading by example, to be in a position of authority to encourage others to engage with energy activity [WUN-L1, -L5]. Relatedly, a demonstration of a commitment to energy activity was seen as a means of attracting energy-related stakeholder investments to the region, in order to capitalise on the growing low-carbon economy.

For British Gas, stakeholder influences were tightly coupled with strategic organisational influences. Investment in energy-related activity over and above that required by regulation was linked to the funding focus of central government; the organisation pursued activity in areas where funding was available, or likely to be available. As with the institutional influences however, the associated objective was the commercial benefit that could be realised through engagement with such activities. More generally, organisational influences for British Gas were centred on realising value for the organisation and its shareholders [WUN-P1, -P2, -P3].

In contrast to the narrow commercial focus of British Gas, the organisational influences identified for the WUN authorities reflected both civic and commercial drivers. In addition, a number of the organisational influences identified were associated with barriers to energy-related activity, as shown in Table 5-3. Organisational drivers for energy activity mirrored the range of political, environmental, social, and economic objectives detailed by Phase One interviewees, as indicated in the following quote:

> *"...from our perspective, the benefits are for the energy user really, so it is reduction in fuel bills, health benefits... So it is all around the energy user, but potentially working with local energy providers to create local jobs in the delivery of the scheme as well." [WUN-P2]*

The presence of champions within the organisations as a key objective-centred influence was strongly articulated in the WUN public sector interviewees' responses [WUN-L4, -L6]. Interviewees' described how the presence of such individuals could drive energy-related activity within the organisation, by providing high-level support for energy activity amongst other organisational priorities, through the identification of new opportunities, or by taking forward opportunities identified by more junior officers [WUN-L1, -L4, -L6]. However, one interviewee, who had been explaining the positive effect of having a high-level champion, also acknowledged that individuals were able to create barriers to activity, as well as drive activity forward:

> *"One of the most challenging areas at the minute is the lead cabinet member, who's really good and really enthusiastic and very supportive, but one of the things we disagree on is, for invest to save projects, he has a magic five-year payback period... I find it very restrictive... But it's five years. That's his policy, so that's just [pause] that's how I work." [WUN-L6]*

The final organisational influences identified in the analysis were the barriers to public-sector energy-related activity. As with the organisational drivers, many of the barriers

mirrored those identified in Phase One, with organisational capacity and an unwillingness to take on risk being the two most commonly identified barriers to activity [WUN-L1, -L3, -L6]. One interviewee described how energy-related activity was picked up by non-specialist individuals in disparate departments, due to a lack of organisational capacity:

> *"Energy and fuel poverty I don't think even features in my job description, it's just something that's been added on in the last few years [...]. We don't have a dedicated energy team. We have somebody who looks after the energy issues for the Council buildings... but there isn't a team as such... As far as I'm concerned there isn't a commitment to energy in the authority, we just haven't got the organisational size or capacity to do it." [WUN-L3]*

Finally, the business model of some local authorities was identified as a contributing factor to the way in which they pursued their energy objectives. This was illustrated by one interviewee, who described how a reduction in staff numbers as a result of austerity had created a reliance on partnerships and collaborations to achieve delivery of services across the board:

> *"We used to have a sustainability team in the Council... but with the austerity measures they've gone and they haven't been replaced. [...] We as a Council don't actually do anything directly in terms of service delivery anymore... we don't even outsource any provision anymore, it's a case of actually let's work with partners to make activities happen." [WUN-L1]*

5.2.1 Discussion: energy-related activity within the WUN organisations

Section 5.2 set out to extend the analysis of Chapter 4 to a wider range of organisations, in order to address research question one:

> *RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?*

Analysis of the influences on energy-related activity within the WUN organisations showed that interviewees raised few examples of institutional issues. Local authority interviewees focused primarily on the normative influence on senior members of their authorities arising from organisational networks. The peer pressure from such networks served to prompt a desire to pursue energy activity by some authorities, often through the exploration of a pre-defined solution based on the activities of others. Conversely, British Gas interviewees spoke of a strong institutional obligation to pursue energy efficiency activity.

Conversely, a wide range of stakeholder and organisational influences on local authorities' activities were identified. As observed within the Phase One analysis, many of these influences were interlinked. For example, the austerity measures put in place by central government, a key stakeholder for local authorities, can be linked to the need to pursue a more enterprising approach to business within the local authorities. A more enterprising approach in turn drives the need to collaborate with a range of organisations, as a result of the need to diversify activities being undertaken, while at the same time reducing staff resources and associated expertise within the authorities. The dichotomy of diversifying activity while simultaneously reducing organisational capacity once again raises the importance of co-benefits to support the case for engaging with energy activity.

The analysis shows that while the range of overall influences are markedly different between the public and private sector organisations, there are strong external influences shaping the activities of both. What is also clear from the analysis is that the co-benefits used to strengthen the case for pursuing energy activity within the two sectors are defined from very different perspectives. As with the Phase One results, collaboration was identified as a solution to limited resources, particularly by those authorities which had reduced staff numbers and in-house service delivery.

This section has provided an insight into the contextual background against which the WUN organisations operate, separate to the consideration of the WUN collaboration. The findings concurred with those of Phase One, and identified a small number of additional institutional influences acting on the organisations, and extended the analysis to include influence on private sector organisations. The following section focuses on the collaboration itself.

5.3 WUN: examining the collaboration

In this section, the collaborative approach of WUN to deliver energy efficiency retrofit objectives is examined. The question is addressed using the structure of the analytical framework shown in Figure 3-1. Firstly, in section 5.3.1, the key influences that shaped the structure of WUN, and the choices of the participant organisations to engage are identified. Secondly, in section 5.3.2, the key pressures affecting the progress of the collaboration are presented, and their effects discussed.

Section 5.4 considers the interactions and outcomes of the collaboration. Interactions between individual organisations' motivations for pursuing energy activity and the pressures felt in a collaborative situation are discussed. The results show that institutional, stakeholder, and organisational influences come to the fore at different

stages during the collaborative process. The collaboration was conceived and implemented as a strategic response to pressures arising from both institutional and stakeholder influences. Analyses show that institutional influences constituted the most significant external pressure on WUN during its existence. In turn, stakeholder relationships within the collaboration were demonstrably influenced by the responses of the individual organisations to external pressures.

5.3.1 WUN antecedents

The antecedent influences identified in this section affected two key aspects of WUN: its structure, and its membership. Proposals to explore a collaborative delivery model for energy efficiency retrofit were initially put forward by NCC in response to the planned replacement of CERT and CESP with the Green Deal and ECO [D-9]. As the development of WUN progressed, additional members were sought for the collaboration. Nine of the twelve local authorities in the WUN region formed the final membership of the scheme, alongside British Gas as the private sector delivery partner. The sub-sections that follow discuss the influences on the structure and membership of the collaboration.

5.3.1.1 Structural antecedents

Table 5-4 summarises the key influences that relate to the structural development of the WUN scheme, identified through an analysis of policy, interview and documentary data.

Table 5-4: Summary of influences on the structural development of WUN.

Category	Influences
Institutional	Contextual framing of energy efficiency retrofit: Central government policy documentation demonstrates a preference for market-led demand for low-carbon technologies.
Stakeholder	Stakeholder amplification of institutional context: Local authority buy-in to institutional context; Business case for NCC developed according to market principles, by intermediary consultants subsequently retained to support national roll out of the Green Deal; Diffusion of ideas between local authorities.
Other	Specific situational factors: Relative timing of government policy changes and WUN scheme development timeline.

Institutionally, it can be argued that the market-led narrative within national policy documentation contributed to conception of WUN as a market-driven solution. Repeated and increasingly specific guidance from DECC created an ongoing institutionalised expectation that local authorities had a significant role in facilitating national Green Deal and ECO markets at a local level [G-11], and could fulfil that role through the formation of partnerships with third sector and commercial organisations [G-14]. This was

underpinned by the *Carbon Plan* [G-43], which made the link between local authorities, large-scale retrofit, and the market-led Green Deal and ECO initiatives explicit:

> *"The Government will also be producing guidance to support local authorities and social landlords to cut carbon emissions and maximise the opportunities for energy efficiency retrofit. This will help to drive forward large-scale retrofit of social housing, helping to stimulate the Green Deal and Energy Company Obligation markets." [G-43, p.39]*

Central government's positioning of local authorities as facilitators of market-driven solutions operationalises the continuing incremental trend towards a decentralised model for the delivery of energy objectives described in section 2.2.1. However, there is evidence that the institutionalised context described here was amplified by local authority stakeholders themselves, who emphasised their role in ensuring benefits of the new legislation were felt by the most vulnerable the earliest stages of its development [G-23].

Looking at additional stakeholder influences, the initial development of WUN coincided with the earliest proposals for the Green Deal. Within the case study, the role of intermediary stakeholders in shaping the specific structure of WUN is evident. In section 2.2.3.1 intermediaries were described as organisations engaged in nurturing technological innovation. In this case study, intermediary stakeholders were seen to be nurturing a particular business case: the public-private finance model that supports the institutional market-led narrative. NCC took on a national leadership role as "pathfinders", seeking to promote the market-led context for delivery of energy efficiency retrofit.

> *"...we wanted to be a pathfinder for the country in delivering what we thought was an innovative, challenging legislation programme that the government was going to launch..." [WUN – L4]*

A number of the intermediary organisations that contributed to the development of the public-private finance model for WUN were subsequently involved in developing and promoting the formal sectoral guidance to assist local authorities wishing to support Green Deal and ECO delivery in their areas [D-49, D-206, D-213]. The public-private model used by WUN was prominent within this formal guidance, which emphasised the model's suitability at a range of scales (and thus for a range of local authorities). The guidance also highlighted the potential of the arrangement to generate benefits over and above energy efficiency outcomes, as a counter to the additional risk and complexity faced by local authorities pursuing such an approach [G-10, D-205, D-207].

The institutional and stakeholder influences that shaped the WUN scheme are clearly interlinked. The status of NCC as a pathfinder organisation for a government initiative meant that WUN was structured to demonstrate a particular approach to financing energy efficiency retrofit, at an early stage of policy development. One of the key assumptions in the business case was the need for scale to provide critical mass for financing purposes [D-49]. The financial conditions upon which the business case was based were ultimately superseded, removing responsibility for finance provision from the local authorities [D-37]. However, this policy change occurred after WUN had progressed to the procurement stage, and the need for a large-scale approach by local authorities persisted as a defining factor in the WUN model, and the scale of the scheme was evidently a factor for other authorities in the region when considering their membership of WUN [D-28, D-37, D-63]. The anticipated benefits resulting from a large-scale approach, and other antecedents to membership are described in the following section.

5.3.1.2 Membership antecedents

The business case for WUN was developed as a large-scale public-private model, as introduced in section 5.1. In order to achieve the scale anticipated, local authorities from around the region were encouraged by NCC to participate in the scheme. Concurrently, the process to procure a private sector partner was initiated. This section considers the key motivations for organisations' participation in the collaboration, identified in interview and documentary data. Table 5-5 (overleaf) summarises the identified motivations as institutional, stakeholder or organisational influences. The motivations are split according to sector to enable consideration of the similarities and differences between the two.

Table 5-5: Summary of influences on organisations engaging with the WUN scheme

Category	Influences	
	Public Sector	Private sector
Institutional	Normative: Energy efficiency and fuel poverty responsibilities; Pursuit of climate accreditation activity by regional local authorities.	Regulative: Statutory energy company obligation.
Stakeholder	Legitimacy: Market-led model required public sector organisations to demonstrate their legitimacy as partners in the marketplace; A regional approach to delivery was perceived to increase legitimacy with the public. Power: Collaboration between local authorities was expected to enhance control within a commercial partnership; Increased participation by regional authorities reduced opportunities to pursue an independent approach.	Legitimacy: Increased role of local authorities as facilitators of Green Deal and ECO markets encouraged pursuit of legitimacy by association; Demonstration of positive corporate citizenship.
Organisational	Addressing organisational constraints: Collaborative approach minimises individual organisational liability in terms of risk, costs, and resource use. Adding value: Increased opportunities for co-benefits arising from scale of collaboration; Access to broader expertise and resources of collaboration partners enhances individual organisational capabilities.	Adding value: Increased opportunities in public sector markets; Improved financial returns to stakeholders through efficient discharge of supplier obligation.

Institutional influences on organisations' participation in WUN reflected a sensitivity in both public and private sector organisations to institutional pressures. Minutes included within the data for this case study frequently note the potential for participation in WUN to contribute towards the dual objectives of improving energy efficiency standards and addressing fuel poverty [D-30, D-40]. These objectives are in turn linked to fulfilment of external normative requirements such as HECA [D-37]. However, as described in section 4.3.2.2, although HECA regulations mandate assessment and planning for the improvement of energy efficiency standards, there is no penalty for a failure to act on the improvement plans. This pressure on the local authorities can therefore be considered to be limited.

For British Gas, regulative institutional pressure was significant, and onerous, with financial penalties attached to non-compliance with the supplier obligation. Engaging with ECO was not seen as a choice, and as such, interviewees clearly articulated the role that WUN was seen to have in helping them discharge their obligation as efficiently as possible:

> *"...predominantly the thing that we were interested in from this particular contract was the discharge of ECO and that's clearly an obligation that we had." [WUN-P1]*

Normative pressure arising from a collective expectation of appropriate behaviour by the authorities also encouraged local authority participation in WUN. The collective agreement by north eastern authorities to join the EU Covenant of Mayors provided a strong regional incentive to become involved in the WUN project. The potential for WUN to deliver carbon reductions in fulfilment of the commitments made by member authorities was a key benefit to participation. Such normative reasoning is clear in minuted decisions to participate:

> *"All 12 local authorities in the North East are signatories of the Covenant of Mayors. There is a risk that carbon reduction commitments made through the Covenant of Mayors may not be achieved unless innovative schemes such as this are progressed." [D-63]*

In addition to institutional motivations, organisations participating in WUN sought to use their membership of the collaboration to shape their relationships with external stakeholders. Using the categories of legitimacy and power identified by Mitchell et al. (1997), stakeholder antecedents to participation in WUN were assessed. The analysis highlighted that local authorities' motivations largely centred on increasing their legitimacy and power relative to other stakeholders in the increasingly market-led energy efficiency sector, in order to deliver improved outcomes for local residents. The scale of the collaboration was identified as a key aspect in local authorities' ability to achieve these gains. Analysis of British Gas' stakeholder-related motivations also demonstrated an expectation that participation in the collaboration would improve the legitimacy of the organisation.

Local authority interviewees articulated the belief that a collaborative scheme would be more attractive to potential partners than smaller partnerships with the same organisations. This belief reflects the advice received during the development of WUN that a large-scale scheme was required to attract commercial attention from desirable partners, in part because bidding for WUN would be expensive, and therefore a minimum

contract value would be required for potential delivery partners to justify risking investment in the tender process. Thus, both documented rationales for engagement, and responses from interviewees linked the relative commercial attractiveness of WUN to its scale:

> *".. it was felt as though, to get the best deal for us, was to have the biggest scale to attract the market..." [WUN-L4]*

In addition to legitimacy with potential partners, interviewees cited the ability to offer potential customers and beneficiaries a trusted product in what was expected to become a crowded market as a key aspect of the regional approach [WUN-L1,-L3,-L5]. The desire to ensure a quality offer for local stakeholders was balanced against reservations about the new initiatives, and reflected an understanding that external stakeholders would have a role to play in the new market for energy efficiency, whether or not a local authority chose to be involved:

> *"...we said its coming, it doesn't really matter if we agree with it or not. We need to have a brand that residents can look at and trust because it's endorsed by the Council, rather than worrying... We wanted to avoid that, and have a leading brand for the North East, a go-to brand" [WUN-L5]*

Interviewees from British Gas focused on a slightly different perspective to their public-sector counterparts when discussing issues related to legitimacy. As a result of the supplier obligation, activity in the Green Deal and ECO market was assured, with or without local authority partnership. Therefore, motivations centred on brand enhancement for the organisation through association with the local authorities. This was described in general terms:

> *"...part of running an organisation like [this] is about improving the perceptions of a business and what the corporate identity is and, you know, are we seen as a good corporate citizen?" [WUN-P1];*

And in terms more specifically aligned with the benefits of the WUN model:

> *"...the use of a local authority brand as a trusted brand, to be able to get into people's homes and to promote [our] services." [WUN-P3]*

Power was identified as a key issue in the analysis and was evidenced in two main forms: the power of the collaborating authorities as a whole; and the power that individual authorities could command depending on their choice to participate in the collaboration

or not. Power as a consideration was only identified within public-sector case study data. Power issues in documentary data were represented as increased control over deliverables in the region, with an expectation that participation in WUN would provide authorities with an improved ability to influence project progress and outcomes:

> *"Partnering with a Provider affords the clearest offer to the residents of Sunderland and offers a good degree of influence to the council at a relatively modest cost… The alternatives to the recommended option have… been rejected because they do not offer a deliverable option within the appropriate timescales, or have insufficient levels of control or influence." [D-62]*

For those authorities that committed early to the collaboration, the potential to influence the nature of WUN itself was a factor. Early participation was expected to increase control over the final focus of WUN:

> *"If South Tyneside is unwilling or unable to participate in the scheme prior to the commencement of Phase 1… the Council will not be able to influence this groundbreaking project as a founding delivery partner." [D-63]*

For authorities in the region that were not immediately keen to participate in WUN, the potential competition that WUN would present appears to have been a factor in the decision to eventually participate:

> *"Warm Up North's discussions with bidders indicate that the presence of a critical mass of properties at a regional level will enable more favourable offers of ECO funding to be received than would be available on the open market, or on a one Borough basis. [D-44]*

5.3.1.2.1 *Organisational influences*

Section 2.5.1 explained how within an organisational group, individual organisations may exhibit very different responses to a shared situation. In this section, the motivations for participation in the collaboration arising from within the organisations are considered. While the specific motivations varied, they can be grouped into two objectives: addressing organisational constraints, and adding value to an organisation's activities.

The local authority membership of WUN included organisations across a range of scales and budgets. Nationally, local authorities of all sizes were facing budget reductions, and the need to minimise expenditure was referenced by all local authority interviewees,

whether they were situated in a larger, wealthier organisation or otherwise. However, for organisations with fewer staff resources, minimising resource requirements and risk were also cited as a significant motivating factor for participation. For these organisations WUN represented an opportunity to benefit from the ability of NCC to undertake a large, complex procurement, and access to the resources and expertise of other authorities through the collaboration:

> *"…the Warm Up North partnership gave us that ability in a collective way to benefit from a big project doing things in the city…we don't have the capacity to build those relationships. It's far easier to pool our small resource to create the Warm Up North partnership" [WUN-L1]*

For councils that were slower to join the collaboration, the risk of financial exposure associated with finance provision for the Green Deal was one of the key barriers to entry. As central government proposals for Green Deal financing became more certain, the financial commitment to WUN was limited to a £50,000 joining fee, and an ongoing contribution to the administration costs. The reduction in financial risk, combined with the increased certainty that the collaboration would be successfully implemented, and the increasing number of authorities engaged with the scheme, encouraged additional councils to participate [D-41, D-44].

The final theme identified within the antecedent analysis was that of value creation. Fundamentally, WUN was conceived as an opportunity to engage a trusted Green Deal provider for the region, and attract ECO funding to the region to realise fuel poverty and energy efficiency outcomes. However, the wider benefits of WUN are emphasised across formal and informal documentary data. Section 2.3.2 outlined the importance of co-benefits as a means to justify energy activity by UK local authorities. The stated co-benefits for WUN mirror authorities' objectives for energy-related activity more generally, summarised in section 5.2. Health and wellbeing, and social outcomes are cited in terms of reducing energy bills, tackling inequality and improving neighbourhoods, and are closely linked to the direct objective of installing energy efficiency measures. However, co-benefits relating to the scale of the scheme are also evident, in terms of safeguarding and creating employment. When speaking to the press at the launch of the scheme, senior members of WUN frequently cited the scale and potential of WUN to stimulate local employment:

> *"This is a great thing for the North-east. We have the largest, most encompassing scheme… We are also helping to create high-quality new jobs throughout the region…" [D-75]*

> *"This scheme will help tens of thousands of households with their energy bills, help thousands of people struggling with fuel poverty and create hundreds of jobs in the region." [D-76]*

This section has shown that the value of WUN to its local authorities, while helping them to meet their emissions reduction and fuel poverty commitments, is largely concerned with outcomes for residents in the area. This accords with the findings in section 4.3.2.3 in which the non-political drivers for energy activity in LCC were largely associated with outcomes for stakeholders. In contrast, for private sector partners, the added value identified from WUN was clearly linked to outcomes for the organisation itself. While the primary objective for British Gas was to discharge ECO effectively, one interviewee clearly identified two avenues through which additional value to the organisation could be realised through the partnership. The first of these was profit related:

> *"…if you were to strip it all back the two core objectives for this scheme would have been a good cost-effective discharge of ECO and two, a profit stream from carrying out the work that lowered the costs of ECO" [WUN – P1]*

The second related to wider commercial opportunities arising from the positioning of the organisation with local authorities as a result of their participating in WUN:

> *"Warm Up North… was the biggest consortium of local authorities in the country… and so that gave us senior stakeholders or Chief Executive access, as an organisation that helped on a number of other related initiatives…" [WUN-P1]*

5.3.1.2.2 *Non-participant authorities*

In the WUN region, three of the twelve authorities chose not to engage with the scheme. These authorities were subject to the same institutional pressures as the participant authorities, described in section 5.3.1.2. Critically however, interviewees describing motivations for non-participation demonstrated an alternative framing of the stakeholder and organisational pressures they faced, in which the "bigger is better" rationale evident in the WUN authorities' reasons for participation was rejected.

Participant authorities cited the scale of the project as a key element in achieving legitimacy with commercial organisations, and power over the outcomes of the partnership, while minimising the financial risk to their organisations. However, interviewees describing the rationale of non-participant authorities viewed risk and a lack of power as features of participation in the partnership [WUN-L6, WUN-P3]. Risks to participation were linked to the early development of the WUN structure in a period of uncertainty for the Green Deal and ECO:

> *"...politically [we] were minded to support it because it was the government's flagship scheme, but... no-one could really kind of see how it was going to work. For all the cash you were going to put in, it was just too much risk. And we said quite early on, 'It's not really for us. It's not going to happen. We are going to procure our own partner'" [WUN-L6]*

Power issues were articulated in terms that suggested participation would actually diminish the ability of an authority control outcomes for their area:

> *"...there was fear that any investment in the area would go to the more affluent areas, rather than the areas that needed it, and we would rather focus ourselves on delivering a scheme that we could control..." [WUN-P3]*

Importantly, for both of the authorities represented above, the delivery of a scheme independently was clearly an option.

5.3.1.3 Summary: antecedents

Analysis of the antecedents to WUN suggest strong institutional influences in the earliest stages of the scheme's development, which had a lasting impact on the nature of WUN. For example, one of WUN's defining features is its scale. The scale of WUN can be traced back to a government preference for a market-led approach to energy efficiency at the time of its conception, with intermediary stakeholders emphasising the need for scale to attract large commercial stakeholders to such a scheme.

As the scheme progressed from an initial proposal to a concrete collaboration, stakeholder and organisational influences took precedence over institutional influences for local authorities, with the material benefits of the scheme largely realised externally to the authorities. The presumption for a need for scale was seen to inform the reasoning of participating authorities. For example, stakeholder motivations for participation included descriptions of the increased legitimacy that a combined approach would confer on authorities, and the improved commercial offers that they anticipated being able to secure

as a result. For authorities with fewer resources, the anticipated benefits of engaging with WUN were amplified by the potential disadvantage that these organisations would have in trying to compete with the presence of a regional partnership.

In contrast to the local authorities, a clear institutional narrative underpins British Gas' participation in WUN. This is supported by a narrow commercial objective to create additional value for the organisation while fulfilling their statutory obligations to ECO. The benefits of engaging with a large-scale collaboration were expressed as providing the opportunity for British Gas to achieve both institutional and commercial objectives simultaneously.

In the following section, the influences present during the collaboration process itself are analysed. These are again examined using the structure of the analysis framework, and are categorised as institutional, stakeholder or organisational influences.

5.3.2 WUN process

Section 2.6 identified examples from literature of how structural and relational variables within a collaborative arrangement can contribute to the success of a collaboration process. Such structural and relational variables are classified in this thesis as internal to a collaboration. However, as was argued in section 2.6.3, external influences (which originate beyond the collaborative arrangement, but the effects of which are felt either by the collaborative group as a whole, or individual parties within it) can also affect the collaboration process. Furthermore, such internal and external influences can interact, with the result that individual influences can be either ameliorated or amplified. Influences on an active collaboration are experienced by members of the collaborative group, and therefore, the results in this section are primarily based on analysis of interview data. The key influences identified are shown in Table 5-6 (overleaf) categorised according to their source and type. The subsequent text first discusses external influences, then internal. Interactions are highlighted within the sub-sections, and their combined effects considered in section 5.4.

Table 5-6: Key influences on the WUN collaboration process

Category	External (Origins beyond the collaboration)	Internal (Origins within the collaboration)
Institutional	Regulative: Amendments to ECO and Green Deal legislation during delivery stage of WUN.	Regulative: Contract obligations.
Stakeholder	Legitimacy: Reputation with external stakeholders; Publicity statements.	Legitimacy: Differences in perceived capability and commitment of WUN organisations. Power: Balance of power between WUN members.
Organisational	Organisational constraints: Organisations' resource availability for WUN delivery; Collaborators' organisational autonomy. Adding value: Changing rationales for engagement.	No influences identified

5.3.2.1 External influences on the collaboration process

Analysis of the interview data showed the key external institutional influences on WUN to be regulative. Section 5.3.1.1 described how regulative influences shaped the structure of the collaboration, which was developed based on the earliest proposals for the Green Deal. Members of WUN had explicitly identified and accepted the risk of policy changes or low uptake of incentives on delivery levels during the development stages of the scheme [WUN-L4, D-44]. However, the low uptake and eventual failure of the Green Deal[13], combined with policy changes to ECO announced shortly after the launch of WUN impacted the collaboration from both an institutional and organisational perspective. Institutionally, the changes to ECO facilitated discharge of the obligation by energy suppliers, by lowering targets and increasing the range of qualifying measures. As a result, the large-scale business model on which WUN was founded was undermined. For British Gas, the softening of the ECO regulations weakened the regulative rationale for involvement in the collaboration, which had been expected to facilitate the delivery of area-based measures in collaboration with local authorities. With an increased opportunity to deliver alternative measures, the need for such a collaborative approach was reduced:

[13] The reasons for the failure of the Green Deal are beyond the scope of this thesis. A summary of the major issues is provided by Rosenow and Eyre (2016).

> *"...the focus was moving away from area-based schemes like Warm Up North to try and discharge their obligation elsewhere... and get [it] discharged as cheaply as possible." [WUN-P2]*

Additionally, the lack of uptake of Green Deal measures by private households, followed by the eventual withdrawal of the initiative, reduced the potential for British Gas to derive added value from WUN over and above the discharge of ECO, which had been a key rationale in bidding for the scheme:

> *"...at all points through [the competitive dialogue] we were mindful that this scheme had got to operate as a commercial opportunity and not as a straightforward ECO discharge opportunity." [WUN-P1]*

For local authorities, the co-benefits that were expected to accrue to the region as a result of the scale of the collaboration had been a key influence in its formation. The local authorities' procurement as a consortium had been considered critical in attracting a delivery partner with the capacity to deliver the scale of the proposed scheme, as shown in section 5.3.1. However, after procurement, realisation of the anticipated co-benefits was dependent on the value of the scheme to British Gas. Therefore, as regulatory changes weakened both the institutional and organisational rationale for British Gas' involvement in the scheme, the intrinsic value of the collaboration was reduced.

The key external stakeholder issue identified in the interview responses was that of legitimacy. One of the antecedents to membership of WUN identified in section 5.3.1.2 was an anticipation that regional buy-in to WUN would increase the legitimacy of the scheme with the public. However, analysis revealed a less positive framing of legitimacy in the process stage, which centred on avoiding reputational damage arising from the uncertainty created by ongoing policy changes [WUN-L1,-L3,-L4]. For some authorities, the potential for reputational damage was enough to prompt a reduction in their active promotion of the scheme:

> *"...we were sending letters out to people telling them about this great offer and within a matter of weeks it had been changed... It makes us look pretty stupid I think... I was reluctant... to go ahead with the mailers because the message was changing all the time." [WUN-L3]*

Concern over legitimacy with external stakeholders was also linked to media statements made at the time of the launch. Much was made of the fact that WUN was the first of its kind in the country, and the scale of the measures that would be delivered by the scheme

[D-74]. Despite the reduced delivery rates, one interviewee for British Gas suggested that the collaboration had successfully met its original objectives of creating value for the organisation, and contributing to the discharge of ECO:

> *"Against the original objectives it was pretty successful actually" [WUN-P1]*

However, despite apparently satisfying organisation goals of British Gas, there was a recognition that the lack of delivery presented a reputational risk both to the authorities and British Gas, arising from the diminished scale and benefits of the scheme compared to those advertised at its launch [WUN-P1, -P3].

In addition to the influences linked to policy changes, constraining effects arising from within individual organisations were identified as external influences on the collaboration. Two main constraints were cited by interviewees: the ability of individual organisations to engage with the collaboration, which was linked to the availability of organisational resources; and the degree of organisational autonomy available to collaborating parties.

Most local authority interviewees recognised the efforts made between authority partners to mitigate differences that existed between them in capacity and expertise, either through advice, or by carrying out work on their behalf [WUN-L1, -L3,-L4,-L5]. Nevertheless, authorities with fewer resources or limited specialist expertise suggested that their lack of capacity was a barrier to fully engaging with WUN. For some authorities the difficulties compromised their contribution to the governance of WUN, with operational-level officers required to attend the higher tier meetings shown in Figure 5-3 [WUN-L3]. For others, a lack of resources limited the possibility to maximise opportunities from the scheme. Furthermore, in describing the challenges, interviewees revealed a lack of clarity surrounding the expected contributions of organisations within the collaboration:

> *"We didn't expect to do as much work as they wanted us to do…" [WUN-L1]*

> *"I think they were waiting for us to set something up when actually we felt they should be doing [that] for us because they were the ones that had the capacity…" [WUN-L3]*

However, the effect of external organisational resources was not limited to availability. Within British Gas, frequent changes to the senior staff allocated to support WUN impeded the potential to form a lasting collaborative relationship with local authority actors:

> *"There hasn't been a constant person in the role of project manager, the changes have been so frequent that it's been very difficult to keep up [...] there'd be a change and the new lead would have different ideas to the previous lead. Sometimes they could be quite scathing of things that had gone on before." [WUN-L3]*

In addition to resource limitations, analysis highlighted autonomy as a key influence on the collaboration process, or the ability of individuals within the collaboration to act in the interests of the collaboration, independently of their organisations. Autonomy was reduced when the procedures and routines of individual organisations impinged on the activity of WUN. Autonomy issues identified in the case study data were largely associated with the structures and procedures in place within British Gas [WUN-L4, -P2, -P3]. The arrangements within British Gas were cited by several interviewees as impinging on the smooth operation of WUN, both in terms of carrying out tasks within the collaboration, and in terms of the activities of the scheme as a whole. A lack of task-based autonomy was clearly illustrated by one British Gas interviewee describing the challenges they faced in publicising WUN in a council newsletter:

> *"The marketing team would take it, run it through Clockwork and they'd come back and say, 'you can't say this, you can't do that, and you're not allowed to promote it that way'... Just because you're Warm Up North doesn't mean to say you're... exempt from Clockwork approvals and the marketing team. And, of course, the marketing team was based in Edinburgh." [WUN-P2]*

More significantly, interviewees described a situation in which the collaborative actions of WUN were dependent on external decision making at British Gas. This belief was held by local authority interviewees:

> *"...there could always be a decision made nationally in British Gas headquarters that would override anything that was agreed as a partnership." [WUN-L4]*

Importantly however, the tensions between the interests of WUN and the interests of British Gas were not solely cited by local authority actors. The following exchange not only demonstrates the issues faced, but also the importance of informal relationships within organisations in facilitating collaborative outcomes:

"Interviewee: I used to walk a tightrope between the commercial interests of British Gas on the one hand, and the duty of care responsibilities... on the other hand...

Candidate: And do you feel like you managed to balance them out?

Interviewee: Yeah, I managed to set things up in the North East which if British Gas knew I was spending – they were paying me to set those up. They would have probably stopped us. I had a supportive manager who knew what I was trying to do." [WUN-P2]

5.3.2.2 Internal influences on the collaboration process

As with the external influences, analysis of influences arising from within the collaboration showed that institutional issues were closely linked to other influences. In the external analysis, institutional and organisational issues were connected by the impact of the regulatory changes on participation rationales. In the internal analysis, institutional influence can be linked to the power balance evident within the collaboration.

As with the external analysis, the institutional influence identified was regulative. While regulative issues were only cited by a few interviewees [WUN-L4, -P2], one discussed the combined effects of contractual clauses in the collaboration procurement, and European funding conditions at length, and linked them to a lack of power within the collaboration [WUN-L4]. The key points from the discussion are summarised by the candidate in the following quote:

"Candidate: Okay, so I'm going to summarise that back to you to make sure I've understood it right. Because you had the European funding and therefore obligations under that funding to deliver a number of measures, and because you had the clause in the contract that allowed [British Gas] flexibility if [government] policy changed, when the policy changed, British Gas were then able to deliver what they liked using that flexibility and you had to say 'yes' because you had to [deliver a minimum] number of measures?

Interviewee: Yes, that's exactly right" [WUN-L4]

While evidence from other interviewees suggests that the absolute imperative to accept the actions of British Gas is overstated in the quote above [WUN-L1], further analysis of stakeholder influences within the collaboration revealed a consistent narrative of authorities having limited control in the collaboration process [WUN-L1, -L3, -L4, -L5, -P2,

-P3]. In contrast, while British Gas was beholden to the external regulative influence of ECO, the services nature of the WUN contract (where endorsement, rather than payment was committed) diminished the ability of the local authorities to lever its regulative effect.

Internal regulative constraints were therefore more constraining to the local authority stakeholders in the collaboration, in part because of the knock-on effect they had on the power balance within the partnership. The quote below clearly articulates the feeling by some local authorities that they were largely impotent within the collaboration:

> *"[We said] we will no longer be proactively involved in this until you can give us some credibility and that never happened. There wasn't an attempt to even make that happen, British Gas just carried on delivering what they wanted to do and that's when we realised this relationship's junk." [WUN-L1]*

The balance of power between members of a collaboration is identified in section 2.6.2.2 as a key contributor to the success of otherwise of a collaboration. In the case of WUN, analysis shows that power was unevenly distributed. The imbalance in power, and an associated lack of (perceived or otherwise) control by the local authorities, created tensions between organisations within the collaboration.

However, analysis also revealed one element of WUN that was framed in clear contrast to the scheme as a whole: the delivery of Central Heating Fund (CHF) measures as a sub-project within the collaboration. In contrast to ECO and Green Deal funds, CHF funding was granted directly to the WUN authorities, who administered its payment to the private sector partners as work was delivered. Interestingly, where most actors spoke of tensions between partners, one interviewee who was solely focused on the CHF element of the collaboration described a more balanced relationship:

> *"...we work together as a partnership, and that's what it's all about. I'll go out on site visits as well, make sure the quality is correct on site. Any customer queries, British Gas will come to me... So, it's just working in partnership, and making sure the properties are getting done correctly." [WUN-L2]*

Beyond power, analysis also revealed internal legitimacy influences within the collaboration. Legitimacy issues could be linked to the external organisational resource capability, described in section 5.3.2.1. While efforts were made between partner authorities to support authorities with fewer resources, one British Gas interviewee

described a situation where authorities with more resources and specialist knowledge attained greater legitimacy with other members of the collaboration than those with less expertise. This led to a situation of selective engagement within the collaboration:

> *"... we actually got to the point about 18 months down the line when [management] was saying, 'I don't want to work with [them] because they never do anything, they never bring anything to the table, they've got no money, they've got no ideas, they haven't got a constructive approach at all...'" [WUN-P2]*

5.3.2.3 Material outcomes of WUN

After a very public launch in August 2013, the WUN contract was unofficially set aside nearly two years ahead of the end of its initial five-year contract term. Since early 2017, while contractually still in existence, stakeholders to the collaboration have been free to seek other mechanisms for delivery of energy efficiency services [WUN-L4]. During the lifetime of the scheme, a total between 3,257 [D-25] and 4,500 [D-69] measures were installed in the WUN region, with total installations for individual authorities ranging between 108 and 1,011 measures [D-25]. This compares with statements at the time of WUN's launch that 12,000 households across the region would be helped in the first three years [D-74].

WUN interviewees from both the public and private sector described how, after an active start, policy changes initiated a gradual reduction in its ambitions, eventually resulting in the redundancies of staff employed by British Gas to deliver the scheme, and minimal ongoing activity [WUN-L4, -P2]. While the reduced levels of delivery were undoubtedly in part due to the lack of uptake of the Green Deal, and changes to the ECO regulations, the narrative from interviewees suggests that the reductions in activity occurred alongside an increasingly dysfunctional collaboration.

The project director role was full-time during the period of major activity on WUN, acting on behalf of all the participating authorities, but situated within the lead authority. As activity reduced, the role was reduced to reflect the lesser workload, thereby decreasing the contributions required from the partner authorities. Since spring 2017, while contractually still in existence, the scheme has been dormant with the project director returned to NCC projects, negating the need for further contributions from the partner authorities. The following section discusses how the influences identified during the antecedent and process stage of the analysis may have interacted to result in the outcomes reported here.

5.4 WUN discussion

In the analysis presented in section 5.3, a range of influences originating within and beyond the boundaries of the collaboration were identified that affected the structure, membership and process of the WUN collaboration. The identified influences were divided into categories and presented according to the stage of collaboration where they were identified. However, the analysis revealed the process of collaboration to be a complex web of interwoven actions and events. In this section the findings are discussed so as to answer the research questions posed at the beginning of the chapter. While direct causality cannot be concluded from the case study, the retroductive analysis approach used in this research and described in section 3.1 allows for the inference of links between the influences and outcomes observed within the collaboration. The discussion proceeds on this basis.

> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*

The WUN scheme was an example of a public-private framework agreement, procured through the Office Journal of the European Union (OJEU) and administered through a central 'services' contract between Newcastle City Council and British Gas, in which exclusive endorsement by a consortium of local authorities was exchanged for minimum levels of service by the delivery partner. The consortium approach taken by the WUN authorities was based on a finance model that required a critical mass of over 10,000 domestic properties in order to be considered viable. The financial model reflected an institutional context that placed market-driven solutions at the centre of energy efficiency retrofit in the UK, served through the Green Deal and ECO. WUN was therefore closely modelled to reflect policy proposals, but contract negotiations during procurement were undertaken during a period of policy uncertainty.

Analysis of the WUN antecedents showed that institutional and organisational influences present at the outset informed differing individual goals for the organisational groups that sought to collaborate. For the local authorities, normative and organisational pressures shaped goals focused on maximising the social, economic, and environmental benefits in the region, while minimising political and financial risk to their organisations. Conversely, the overriding objective for the delivery partner was to minimise the cost of fulfilling a regulative requirement. Therefore, from the outset the fundamental purpose of the collaboration to the two organisational groups was mismatched: authorities sought to add value, while the energy supplier sought to minimise costs. Thompson and Perry (2006)

suggest that a successful collaboration is more likely if at the outset there is a shared vision between partners. The fundamental differences in framing between the goals of the public and private sector partners in WUN was entirely at odds with this criterion. The close alignment of organisations' perceptions of the purpose of the collaboration with their individual environmental contexts was a critical factor when examining the pressures affecting the delivery of the collaboration.

> *RQ 3: How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

Interactions between institutional influences and stakeholder influences impacted on the structural aspects of the collaboration in several ways. Stakeholder attributes of legitimacy and power were a consistent theme throughout the antecedent and process stages, however, operationalisation of stakeholder influences changed over the course of the collaboration. At the antecedent stage, organisations sought an increase in legitimacy and/or power through their participation in the collaboration, either in response to, or to encourage stakeholder activity. The choice to seek additional power and legitimacy can be linked to institutional influences, present at the outset and reinforced by wider stakeholders. For example, as members of a pathfinder scheme for the delivery of the Green Deal, the collaborative arrangements and contract between the parties were necessarily based on early policy proposals. Responding to the original proposals for the Green Deal and advised by government intermediaries, the lead authority sought to convene a large-scale collaboration on the basis that it would increase the relative legitimacy of the local authority group within a commercial marketplace. During the collaboration process, stakeholder issues were primarily identified in terms of relationships within the collaboration, with the relative legitimacy and power of individual organisations determined by external institutional and organisational pressures.

The differences between the original organisational goals described in response to RQ 2 were an important factor in determining responses to subsequent influences on the collaboration, and the relationships between the collaboration stakeholders. The changes to the external institutional context during the course of the collaboration emphasised differences in organisational perspectives. For example, private sector actors described how the weakening of the regulative requirements of ECO, combined with a lack of uptake of the Green Deal, meant that the residual commercial value of the collaboration was insufficient to justify the resources required to sustain the scale of the operation in its original form. Conversely, the local authorities' organisational goals were founded on the

principle of a large-scale approach; local authority actors perceived the withdrawal of private sector resources from the scheme in terms of a partner demonstrating a limited commitment to realisation of wider benefits in the region.

From a stakeholder perspective, analysis suggests that power imbalances between stakeholders within the collaboration had a significant impact on of the process stage of the scheme. Bryson et al. (2006) suggest that when parties are not united by a shared purpose (a situation observed in the WUN collaboration) the significance of power imbalances is increased. However, the effects of the power imbalances were activated through their interactions with institutional and organisational influences. For example, the reduced commercial value of the scheme to the delivery partner placed resource-weak authorities at a disadvantage, because they were less able to facilitate the cost-effective delivery of measures. Without expertise to contribute, any hidden costs of collaboration with these authorities fell predominately on the delivery partner. This prompted a reluctance on behalf of the delivery partner to engage with such authorities, as it contravened its cost-minimisation goal. Conversely, authorities within the partnership that had more resources to contribute held greater legitimacy with the delivery partner and were preferentially sought out to deliver measures in the region. This supports the suggestion by Lasker et al. (2001) that power differentials within a collaboration create conditions in which weaker members can be side-lined from the process.

The effects of the procedural and contract arrangements implemented in response to the policy proposals also introduced new constraints into the collaboration. Firstly, the scale and complexity of the procurement placed a financial burden on authorities already subject to ongoing austerity measures. European funding for the procurement eased the financial burden but introduced a minimum delivery requirement to avoid claw back of the funds, effectively introducing regulative pressure on the local authorities. Secondly, the contract between the authorities and delivery partners was a services contract, in which exclusive endorsement was provided in exchange for guaranteed levels of activity. Clauses to reduce minimum activity requirements were included in the contract to protect the delivery partner in the case of significant changes to the policies on which the contract was based. Changes to ECO shortly after the launch of WUN triggered the reductions, meant that the regulative pressure on the delivery partner was reduced from within the collaboration as well as in the national context. Claw back clauses for the authorities in the European contract were unchanged however – this had the effect of reducing the power of local authority group, in turn increasing the burden of financial risk carried by the local authorities as a result of the funding contract.

Overall power imbalances within the collaboration were identified at multiple levels: between the public and private sectors, between individual organisations within sectors, and between actors and their organisations. Beyond the boundaries of the collaboration, central government was identified as a powerful external stakeholder, shaping the institutional conditions which, while common to all parties within the collaboration, created further imbalances between them. Additionally, the analysis showed that motivations for participation in WUN in the first place informed the responses of organisations to the process influences. While the practical objective of delivering as many energy efficiency measures within the region was concordant with both public and private sector goals for WUN, the fundamental difference in the underlying motivations for participation in the scheme created conflict in the response to the changing policy environment. This, combined with the lack of regulative power on the part of the local authorities, was arguably the biggest source of discord within the collaboration. Where the policy response aligned with the underlying motivations for both parties, as in the case of the CHF funding, in which the local authorities as holders of the funding also held the balance of utilitarian power, the partnership was considered to be effective, both in meeting organisational objectives, and mitigating barriers to activity such as the mobilisation time that would have been required to set up such a scheme without the existence of the framework.

5.5 Summary

This chapter has applied the same systemic approach used in Phase One to evaluate how institutional, stakeholder and organisational influences affected the development and progress of the WUN regional energy efficiency scheme. The findings show that while many of the pressures on the collaboration mirror the situation for general energy activity considered in Chapter 4, additional pressures were introduced specifically as a result of the size and structure of the collaborative response to the Green Deal and ECO proposals, affecting decisions made in both the antecedent and process stages of the scheme. Many of the influences associated with conflict between the collaborating parties were amplified by conditions present at the outset of the collaboration, particularly the difference between the underlying motivations for participation evident between public and private sector organisations. In the following chapter, a similar analysis is undertaken for the BHY scheme, which set out with similar objectives to WUN. A comparison between the two is made in Chapter 7.

6 Phase Two results: Better Homes Yorkshire

This chapter presents the results of the analysis of the Better Homes Yorkshire (BHY) scheme. Following the same pattern as Chapter 5, section 6.1 introduces the collaboration. The institutional, stakeholder and organisational pressures affecting the energy-related choices of the BHY organisations are examined in section 6.2, further addressing RQ 1. Section 6.3 and 6.4 focus on the collaboration to address RQ 2 and 3. The presentation of the analysis is divided into the antecedent influences (section 6.3.1), and the process influences (section 6.3.2). The interactions and outcomes of these influences are discussed in section 6.4, before a brief summary of the analysis is presented in section 6.5. Documentary data sources are identified using the reference codes [G-xx], and [D-xx], as explained in section 3.3.2.3, and are listed in Appendix B.

6.1 Introducing BHY

Better Homes Yorkshire was created to deliver energy efficiency retrofit and renewable energy services in ten local authority areas in Yorkshire, as shown in Figure 6-1.

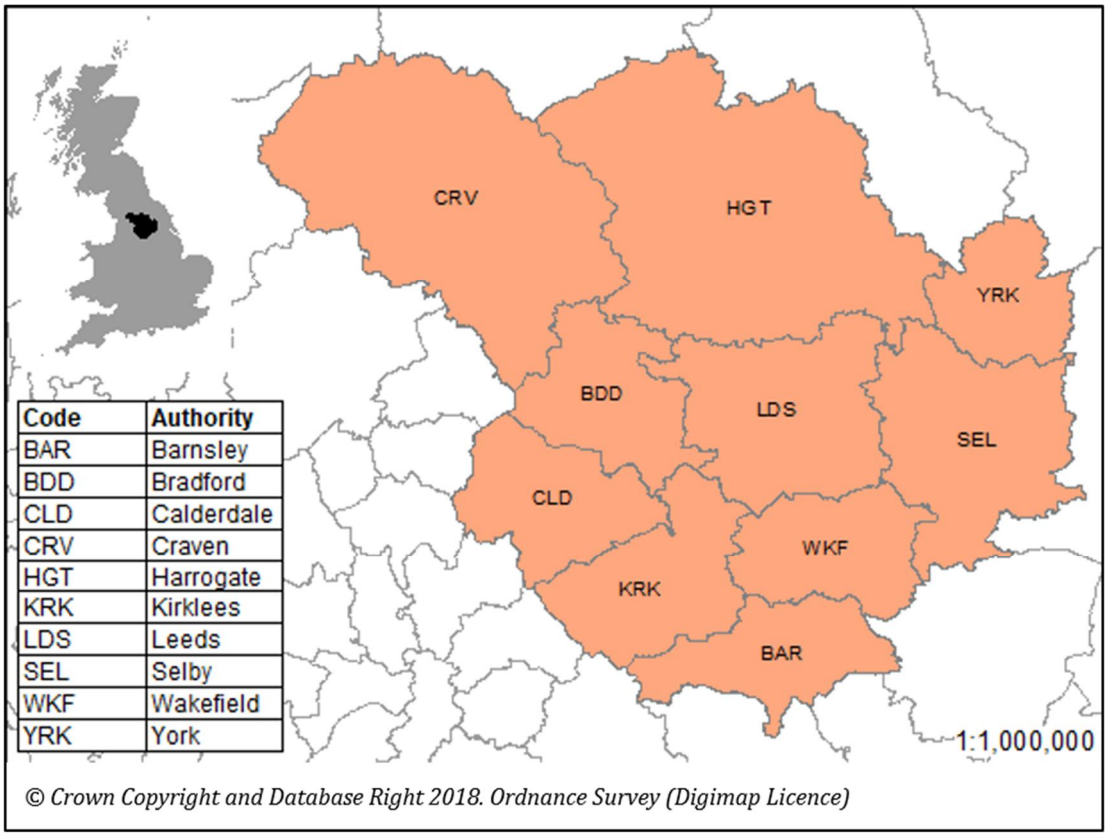


Figure 6-1: Geographical location and local authority participants for BHY

The project development lasted three years from the decision to pursue the business case to the launch of the scheme in March 2015. Procurement costs were originally estimated

to be no more than £1.75m, but changes to the financing structure of the Green Deal announced by government during the course of the BHY development reduced the procurement cost estimate to £0.6m, funded by contributions from each individual partner authority according to the size of their housing stock [D-100, D-144]. The timing of key BHY policy and development milestones are shown in Table 6-1 relative to both central government policy and WUN.

Table 6-1: Timeline showing key policy, guidance and development milestones for WUN and BHY

Date	Policy and guidance	WUN milestones	BHY milestones
May-10	Green Deal first coined in Coalition Programme [G-8]	2010: Approval to develop business case for partnership working for energy efficiency [D-49]	
Dec-10	Green Deal Proposals summary published [G-6]		
Mar-11	MOU between LG Group and DECC - how councils can help roll out Green Deal [G-11]		
Jul-11		NCC approval to develop WUN [D-49]	
Oct-11	Energy Act 2011 enacted: included provision for Green Deal legislation and ECO alterations [G-69]		
Nov-11	£200m introductory time limited offer of funding announced [G-9] Local authorities and the Green Deal [G-10] Consultation on Green Deal and ECO [G-14]		
Dec-11	Publication of the Carbon Plan - action plan encourages local authorities to deliver EE in their area driving Green Deal [G-43]		
Jan-12	End of Green Deal consultation period [G-14]	Approval granted to procure a GD partner [D-50]	
Feb-12			LCR decided to pursue local Green Deal scheme [D-144]
Mar-12		Market Awareness day [D-69]	
May-12	CCC publication on how LAs can reduce emissions and manage climate risk [G-1]		
Jun-12	Final Impact assessment published [G-17] Green Deal consultation response published [G-21]	OJEU issued [D-51] WUN procurement starts [D-69]	
Jul-12	HECA 1995 Local Authority guidance published referencing Green Deal and ECO [G-18]	Stage 1 Pre-qualification begins [D-69]	
Aug-12	£7m Government loan to GDFC announced [G-49]		
Sep-12	Green Deal Go Early Funding awarded to Core Cities [G-30]	Stage 2 Open Dialogue begins [D-69]	
Oct-12	Green Deal launched Energy Companies Obligation Order [G-44]		Green Deal Demonstrator scheme launched [D-145]
Dec-12		Stage 3 Continued Dialogue (3 bidders) [D-69]	LCC agreed to be anchor authority for procurement [D-153]

Table continues on next page

Table 6-1 (continued): Timeline showing key policy, guidance and development milestones for WUN and BHY

Date	Policy and guidance	WUN milestones	BHY milestones
Jan-13	ECO(1) obligation period begins [G-44] Green Deal 'live' in England, TGDFC publishes interest rates and cash back scheme announced for early GD adoptees [G-49]		
May-13		Stage 4 - Final tender submissions [D-69]	
Jun-13		British Gas selected [D-69]	
Jul-13		Contract award [D-69]	OJEU issued; Procurement for BHY begins [D-180] Interim ECO-based scheme launched [D-150]
Sept-13		WUN launch [D-74, D-75]	
Dec-13	ECO target reductions announced [G-46]		
Apr-14			Planned launch date for BHY [D-90] WYCA created [D-153]
Jun-14	GDHIF launch and round one funding [G-35]		
Oct-14			WYCA take on authority for BHY contract [D-183]
Nov-14			BHY partnership framework contract signed [D-183]
Dec-14	GDHIF funding round two [G-35]		
Mar-15	GDHIF final funding round [G-35] CHF applications invited [G-29]		BHY launched [D-156]
Apr-15	ECO(2) obligation period begins [G-61]		
Jun-15	CHF applications closed [G-29]		
Jul-15	All Green Deal funding ceased (Rosenow and Eyre, 2016)		
Mar-17	ECO(2) obligation period ends [G-61]		
Apr-17	ECO(2t) obligation period begins [G-66]		

Dotted lines between rows indicate non-consecutive months

BHY is a framework agreement between the West Yorkshire Combined Authority (WYCA), the ten local authorities in Yorkshire, and a delivery provider comprised of a consortium Keepmoat, Willmott Dixon[14], and SSE. LCC acted as lead authority for BHY during its development and WYCA took over the strategic programme management when it was formed in 2014. The BHY collaboration is based around a central framework contract between WYCA and the delivery provider, with individual call-off contracts between each of the authorities and the provider that cover activity in the individual districts. During the development of BHY, changes to policy arrangements influenced the final structure of the scheme, as well as the make-up of the active parties. Keepmoat and Willmott Dixon continued to act as the delivery partner, while SSE opted to step back from a delivery role

[14] Keepmoat is now ENGIE, and Willmott Dixon is now Fortem

and reduce their involvement to one of a silent partner, fulfilling the energy company role shown in Figure 6-2.

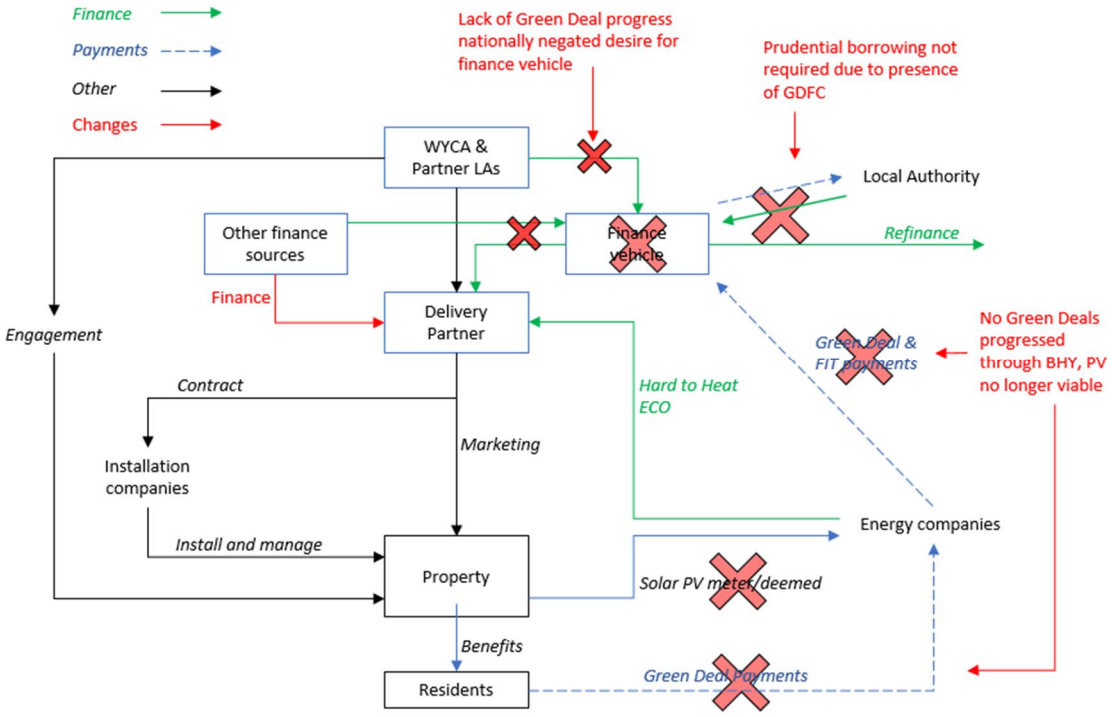


Figure 6-2: BHY structure, showing proposed and final scheme arrangements [D-159]

Decision-making and governance for BHY is arranged across three levels, shown in Figure 6-3. The Programme Board and Better Homes Officers' Groups respectively deal with the strategic, and operational aspects of the project at a regional level. Members of the Board are expected to be senior officers within each authority, while members of the Officers' Group have a more operational role. A third level operates locally, with individual local authority meetings held between an authority and its respective provider as necessary, to drive forward the day-to-day progress of projects in their areas, and minimise the discussion of authority-specific business in the Officers' Group. A dedicated full-time programme manager employed by WYCA manages the BHY scheme, and chairs the Better Homes Officers' Group. Funding for the programme manager post comes from the dividends accrued by the delivery partner through the provision of the scheme [D-101].

Communication within the structure shown in Figure 6-3, occurs between the three levels and beyond the collaboration, with key messages from board-level reports being communicated to wider stakeholders in each authority and WYCA. Progress reports are also provided to funding stakeholders [D-189]. In addition to the formal meetings at both regional and local level, regular ad-hoc communication between authorities and their providers occurs.

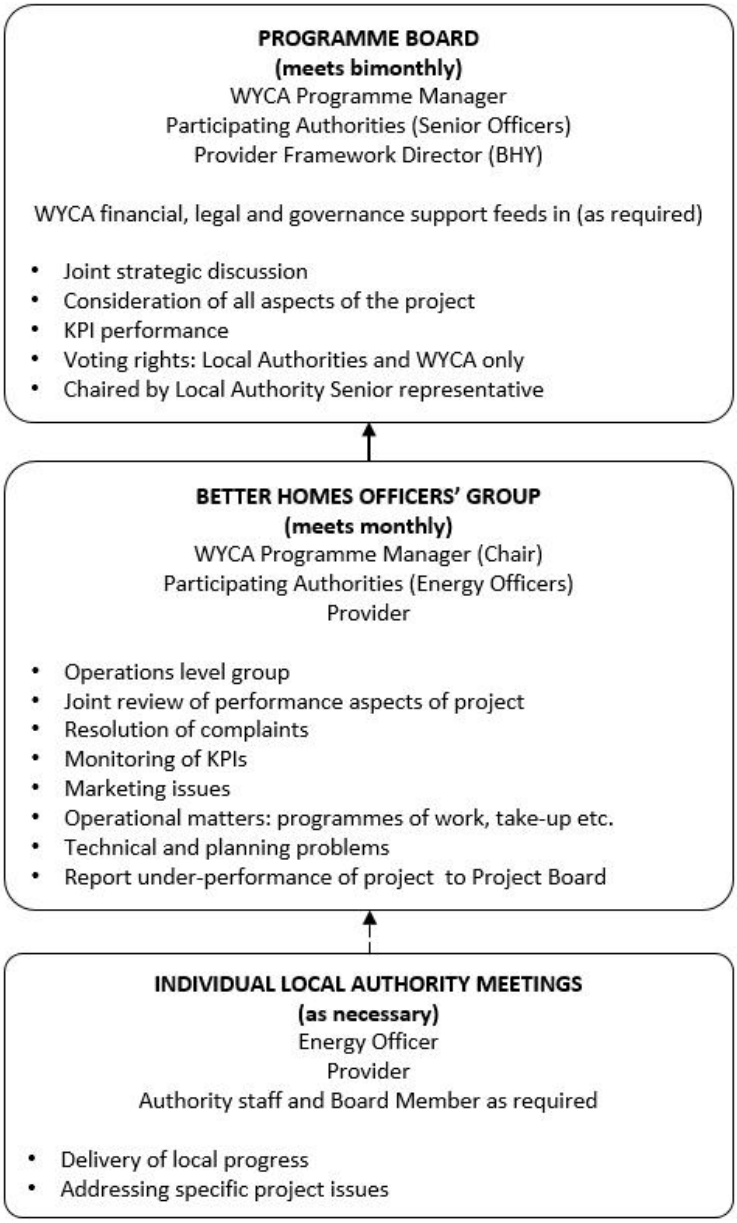


Figure 6-3: BHY governance and decision making [D-189]

BHY built on previous individual arrangements between local authorities in the area and the BHY private partners, to deliver energy efficiency retrofit and renewable energy services. Additionally, and unlike WUN, many of the LCR authorities had previous experience of working together on issues of regional interest, through initiatives such as regional business rates pool [D-147]. As with WUN, it was initially anticipated that measures would primarily be delivered using the Green Deal private finance mechanism, and ECO funding. However, Green Deal and ECO funding options were becoming less robust even at the outset of the scheme; alternative funding opportunities were sought, including grant funding from central government's Central Heating Fund (CHF). A successful application to the CHF fund enabled LCR authorities to use BHY to provide first

time central heating measures for eligible houses in the region. Additionally, applications by BHY to WYCA for local growth funding have enabled BHY activity, despite the declining viability of the Green Deal and ECO funding. The BHY scheme as a whole has not met its original delivery targets, but continues to operate and seek alternative funding, with Wakefield Council opting to join the scheme in October 2016, despite the challenges faced by the scheme in its initial two years of operation [D-169].

As with the WUN analysis in the previous chapter, interview data was used alongside documentary data sources to inform the analysis of BHY. Interviews were conducted with actors drawn from the BHY member organisations as shown in Table 6-2. While the member organisations formed the core stakeholder group for BHY, Table 6-2 demonstrates the range of additional stakeholders identified; each of the stakeholder groups identified either affected, or was affected by, the stage of the scheme indicated. Codes in brackets within the table identify the organisation(s) represented by the interviewees.

Table 6-2: BHY stakeholders, showing stage of involvement (Antecedent, Process, Outcome)

Type	Stakeholders (BHY)	Stage		
		A	P	O
Public	Newcastle City Council, Birmingham City Council, Core Cities Network	•		
	DECC	•	•	
	BHY local and regional authorities: *Barnsley [BHY L5], Bradford, Calderdale, Craven [BHY L2], Harrogate [BHY L2], Kirklees, Leeds [BHY L1, L4], Selby [BHY L2], York [BHY L2], Wakefield, West Yorkshire Combined Authority [BHY L3, L6]*	•	•	•
	NHS: Hospitals, GPs		•	
Private	Financial consultant: Marksman Consulting LLP	•		
	BHY firms: *Keepmoat [BHY P2], Wilmott Dixon [BHY P1], SSE [BHY P3]*	•*	•	•
	Local SME Building contractors		•	
Other	Energy Saving Trust	•		
	Housing: Groundwork, Care and Repair, Housing Associations		•	
	General: Citizens Advice, LCR LEP		•	
	LCR residents			•

Italics indicate BHY scheme partners
[Code for interviewee(s) representing organisation]
*While not directly involved in the development of the scheme, each of the firms were engaged individually with LCR authorities during the antecedent stage

6.2 BHY: organisations pursuing energy-related objectives

The focus of the analysis in this section is on the pressures on individual organisations within the BHY collaboration to pursue energy-related activity in general. The analysis is

based on the interview responses of BHY actors. Table 6-3 demonstrates that while many of the pressures identified in the analysis were shared with those identified in section 5.2 of the WUN analysis, several issues were unique to the BHY organisations. The subsequent commentary will focus more closely on these unique pressures, with a brief recap of the main pressures that have been discussed in the previous chapters.

Table 6-3: Summary of pressures associated with the pursuit of energy-related objectives by BHY organisations

Category	Influences*	
	Public sector	Private sector**
Institutional	Normative: *Membership of climate or cities groups.*	Regulative: *Condition of entry for access to energy retail market (ES);* Indirect impact of obligations (BC).
Stakeholder	Influenced by stakeholders: *Austerity changing activity in local authorities;* *National political priorities.* Influencing stakeholders: *Leading by example;* *Seeking to create conditions to attract specific types of stakeholder.*	Influenced by stakeholders: *Funding levels by central government shapes investment and activities pursued (ES, BC);* Governing party informs activities pursued through incentives offered (ES, BC); Stakeholder expectations (BC).
Organisational	Drivers: *Goal-centred objectives focused on political, environmental, social and economic outcomes;* Energy infrastructure as catalyst for economic growth. Barriers; *Lack of resources;* *Risk avoidance;* *Business model.*	Drivers: *Value creation and shareholder returns (BC);* Organisational growth (ES, BC).

*Italicised entries are shared with WUN organisations
**Energy Suppliers (ES), Building Contractors (BC)

The institutional influences identified in the BHY analysis were largely the same as those experienced by the WUN organisations. For the public sector organisations, membership of organisational networks was again cited as a driving factor to pursue particular types of energy activity, as actors within organisations looked to the actions of others when considering the types of activity that they could pursue [BHY-L1, -L5, -L6]. For the private sector organisations, regulative influences again centred on the energy supplier obligation. As expected, the energy supplier's obligation to comply with the legislation was cited as one of the driving factors for pursuing particular types of energy activities [BHY-P3]:

> *"I mean we genuinely see this as an obligation, it is something we would rather not have. But being regulated, we can accept the various obligations put upon us." [BHY-P3]*

However, the effect of the supplier obligation was also cited by the contractor interviewees, who described how the risk of non-compliance was passed down the supply chain, which in turn informed their activity:

> *"...you've got to decide whether it's worth taking an energy company obligation on board as a contract, whether you can deliver it or not... If... I've got 3,000 homes and they're all going to give me roughly 30 tonnes of carbon each, I can take a contract on with an energy company confidently because I've got an order from the client which says I can deliver all those over three years. I wouldn't be prepared to take on 1,000 homes worth of carbon for an energy company on the off chance... [because] I've got nothing to bank my carbon on." [BHY-P1]*

The example above illustrates again how stakeholders can reinforce the effects of institutional influences, in this case by replicating the regulative pressure on one organisation in the contractual conditions between two collaborating parties.

A second example of stakeholders amplifying institutional influences was identified when energy supplier and building contractor interviewees described how, as was evident in WUN, investments and activities by their organisations were informed in part by the technologies and activities for which central government provided funding or incentives. Each of the private sector interviewees described how the majority of ECO activity undertaken by their organisations was delivered in Scotland, as a result of the Home Energy Efficiency Programmes for Scotland (HEEPS). Funding provided to councils and homeowners through HEEPS facilitates uptake of ECO measures, easing the discharge of the obligation by suppliers and contractors alike [BHY-P1, -P2, -P3]:

> *"...effectively they've got the match funding so they can fully fund all households, so energy companies put in half and the Scottish government puts in the other half, making fully funded programmes. In the UK we've got half, we've got to try and find the other half from somewhere and there's no natural pot, apart from English government and that makes it very difficult down here." [BHY-P2]*

The power of national government to influence commercial activity was underscored still further by the same interviewee, who described how their organisation had planned for a possible change in the elected party:

> *"...we did a bit of work last year around if we had a Conservative government we felt that the funding in the market would be very low. If we had a Labour government, we expected to get back up to sort of £2 million plus a year market." [BHY-P2]*

In addition to the government stakeholders, private-sector interviewees also described how other stakeholders influenced their activity. All of the private sector interviewees described the need to provide a return to their shareholders, and the financial opportunities available to their organisations in pursuing energy (and particularly energy efficiency) activities. However, for the building contractors, interviewees' cited a wider range of stakeholders as influencing the activities undertaken, from prominent board members to vulnerable clientele:

> *"...we've always had sustainability at the heart of the business. One of our nonexecutive directors... he's been on our board for about 5 years now. He's really influenced the way we think..." [BHY-P3]*

> *"...there's quite a strong moral ethos around the works we do are there to improve the lives of people [...] I guess it comes from the areas we work in and the clients we work for, I guess, so we tend to say work in quite deprived areas..." [BHY-P2]*

For the public-sector interviewees, many of the stakeholder influences identified echoed the WUN analysis. Interviewees again described austerity measures imposed by central government as a catalyst for enterprising activity within the authorities, and made the link between energy-related activity and the need to pursue opportunities for enterprise in response to austerity [BHY-L1, -L3]. Similarly mirroring their WUN counterparts, BHY interviewees' described energy activity as a means to demonstrate engagement with the low-carbon agenda, and promote investment by stakeholders with low-carbon credentials into their regions [BHY-L1, -L5, -L6]. Additionally, and echoing (albeit weakly) the BHY private sector responses, the effect of national political decisions on the activities of local authorities was identified by one interviewee, who described how trends in the focus of central government could influence how energy activity was promoted locally:

> *"...government policy has moved a bit, it kind of strengthened on environment for a while, and now maybe that is waning a little bit, the government says not but we will see. So we are looking for other things that we can latch on to, there is a little bit of that." [BHY-L2]*

The final set of influences identified were organisational, and as with WUN these could be divided into drivers and barriers to energy-related activity. For the public-sector organisations, objective-focused drivers could be divided into political, environmental, social and economic objectives, continuing the theme of energy-related activity realising co-benefits that has been present throughout all phases of this research. However, within the wider discussion of co-benefits as drivers for energy related activity, the framing of energy activity as a catalyst for a future focus on low-carbon economic growth within the BHY region was emphasised by several of the interviewees [BHY-L3, -L4, -L5]:

> *"I think it's fundamentally energy as infrastructure to support economic growth first and foremost when you're talking about what does it mean at city region level [...] I would say that for anybody who really wants to get others to sit up and take notice, other movers and shakers... the fundamental driver is the opportunity... to support ongoing, sustainable economic growth, that's got to be the key driver." [BHY L5]*

The emphasis on the economic potential that could be realised through the pursuit of energy-related activity, and the public sector as a key stakeholder in driving such growth, provides further evidence of the move of local authorities towards a more enterprising model of operation. However, as described in section 5.2.1, enterprise, austerity, and reducing budgets are interlinked, with enterprising activity described by some as a result of austerity and budget cuts.

Analysis of the BHY data demonstrated that as with their northern counterparts, the BHY authorities were faced with limited resources and tight budgets. Additionally, some of the authorities operate a service management business model, resulting in a tiny staff capacity with limited specialist knowledge for addressing complex issues [BHY-L2]. The use of external parties as a way to overcome organisational barriers and implement public-sector energy ambitions was identified in all public-sector responses, with external parties used to leverage funding, provide strength to co-benefit arguments (e.g. through partnering with health authorities), or in the design and delivery of specialist energy activity.

The organisational influences for the private sector were focused on two primary commercial objectives: value creation, and growth. However, analysis showed that it was interviewees from the building contractors that cited profit and returns for shareholders as a driver for their activities, in line with the general objectives of the majority of private-sector organisations [BHY-P1, -P2]. For the building contractors, while the recent economic climate has meant that original expectations may not have been met, interviewees' described energy activity as initially providing their organisations with an opportunity for growth, before becoming more embedded in the business model as a whole:

> *"...it was seen as an important area for growth, it's now seen as more of an important area for underpinning the general work we do and helping us across the work we do... So [energy-related work is] more of an added value proposition... across everything we do rather that it being a specific programme of works just doing that..." [BHY-P2]*

Where the building contractors described a relatively simple relationship between their business objectives and energy-related activity, the interviewee from the energy supplier described a rather more complex situation. Across the organisation, generation, transmission, supply, and innovation form four elements of energy activity. Of these, generation provides the most profit to the organisation, but it is the retail aspect of energy activity that provides the organisation with customer visibility, and an opportunity to bring added value to the organisation:

> *"The fact that we sell energy is our reason, our foot in the door, while we also sell other services to the home as well." [BHY-P3]*

However, the retail arm of the organisation brings with it the requirement to fulfil the supplier obligation. For their own organisation, the interviewee suggested that the cost of the obligation was sufficiently offset by the benefits accrued through the presence of the retail business. However, they were clear to deny a commercial driver when referring to the activity linked to the ECO itself:

> *..."profit isn't the consideration, it is seen as a cost." [BHY-P3]*

6.2.1 Discussion: energy-related activity within the BHY organisations

Section 6.2 once again extends the analysis used to answer RQ2 below, incorporating data from a regional combined authority and building contractors in addition to additional local authorities and a second energy supplier.

RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?

Energy-related activity within the BHY organisations was shown by the analysis to be subject to many of the influences identified both in Phase One and the WUN analysis. The presence of two types of private organisation in BHY resulted in greater variety of private sector influences being identified compared with WUN. However, the regulative influence of the supplier obligation was evident across all three private sector organisations. Furthermore, the influence of central government as a key stakeholder in a wider sense extended to both the energy suppliers and building contractors, as a result of the links between funding, incentives and energy activity more generally. For example, differences between the government funding model for energy efficiency in Scotland and England have resulted in a bias towards delivery of energy efficiency measures in Scotland, in fulfilment of UK ECO targets. From an organisational perspective, a key influence for the BHY private sector organisations was the pursuit of energy activity to realise business growth. This was in addition to the more direct commercial objective identified across all private sector organisations, both in WUN and BHY.

The main area of difference arose in the organisational influences, with the BHY analysis suggesting a stronger regional strategy focused on the use of energy activities for regional economic growth. Despite a more cohesive regional approach to activity, differences between the resources of each authority remained evident, and mirrored the findings in section 5.2.1.

This section has provided an insight into the contextual background against which the BHY organisations operate. The analysis has shown that there are numerous interacting influences on the organisations, independent of the collaboration process. Some of the additional influences identified in the analysis can be attributed to the greater number, and types of organisation involved in the BHY collaboration. The following section considers the influences acting on the collaboration itself, before section 6.4 discusses the interactions of the influences at work on the BHY case study as a whole.

6.3 BHY: examining the collaboration

In this section, the collaborative approach of BHY to deliver energy efficiency retrofit objectives is examined, once again applying the analytical framework shown in Figure 3-1. Section 6.3.1 presents the key influences that shaped the structure and membership of BHY. Section 6.3.2 identifies influences on the collaboration process.

The results show that as with WUN, institutional, stakeholder, and organisational influences come to the fore at different stages of the collaborative process. Both WUN and BHY were faces with similar contextual challenges, but key differences are evident between the schemes at both antecedent and process stage. The BHY collaboration is found to be more cohesive, with stakeholder influences working to diminish, rather than exacerbate regulative pressures on the collaboration. A full comparison of the findings of the two case studies is provided in Chapter 7.

6.3.1 BHY antecedents

The multi-authority regional collaboration of BHY was a successor to a series of similar smaller collaborations in the region that had been developed to deliver energy efficiency measures. Earlier incarnations of a regional scheme delivered energy efficiency measures initially under CERT and CESP, and then the Green Deal Go Early initiative [D-144]. The development of BHY replaced existing individual delivery arrangements, bringing the Leeds City Region (LCR) authorities together to collaborate in a single scheme, with a single consortium partner comprised of organisations that had previously partnered independently with authorities [D-100]. In the following sub-sections, an analysis of the antecedent influences and their effects on the structure and membership of the collaboration are presented.

6.3.1.1 Structural antecedents

Table 6-4 (overleaf) summarises the key influences that relate to the structural development of BHY, identified through an analysis of policy, interview and documentary data. BHY was initiated at a later date than WUN, but many of the structural antecedents identified in the BHY case study are consistent with those identified in the WUN case.

Table 6-4: Summary of influences on the structural development of BHY

Category	Influences*
Institutional	Contextual framing of energy efficiency retrofit: Central government policy documentation demonstrates a preference for market-led demand for low-carbon technologies.
Stakeholder	Stakeholder amplification of institutional context: Local authority buy-in to the institutional context; *Regional focus on economic benefits of carbon reduction;* Diffusion of ideas between local authorities, *including business case for LCR developed according to market principles, by Green Finance framework consultants used to develop WUN.*
Other	Specific situational factors: *History of collaborative working in LCR;* *Active regional authority.*
*Many of the themes identified in the BHY analysis mirror WUN. New or differing themes are represented in italics.	

The market led-narrative present in national policy was a key factor in shaping BHY scheme, mirroring the institutional influence seen in WUN. The role of local authorities in supporting the roll out of the Green Deal continued to be emphasised both by national policy documentation and local authorities themselves [G-1, G-21]. Alongside support for the role of local authorities, guidance increasingly suggested means by which their role should be fulfilled, including strong support for partnerships between local authorities and energy suppliers [G-14]. Furthermore, proposed changes to wider legislation indicated that engagement by local authorities with the new mechanisms would be overtly linked to fulfilment of their broader responsibilities:

> *"Ministers announced… the intention to retain the Home Energy Conservation Act (HECA) 1995 in England… the new HECA guidance is likely to ask Local Authorities to report on how they plan to engage with the Green Deal and the future Energy Company Obligation (ECO)" [G-14, p.184]*

The benefits of large-scale, area-based delivery models were mutually recognised by central government and local authorities. English Core Cities were key early actors for the Green Deal and ECO, proposing and implementing pilot demonstrator schemes, and citing the scale of cities' economies as beneficial to develop the demand and supply chain volume required to deliver the Green Deal nationally [G-23, G-30]. Nationally, the early engagement of Core City authorities (which include LCC and NCC) with the Green Deal demonstrates that they were receptive to the proposals and pro-actively seeking a role in their development. Within the LCR, stakeholder influences for the specific structure of

BHY were underpinned by the region's framing of low-carbon initiatives as an economic opportunity. The use of energy activity as a catalyst for green growth was part of several of the Core Cities' City Deal proposals [G-45] but locally a "mini-Stern" commissioned for the LCR and conducted by the Gouldson et al. (2012) emphasised such a perspective, and provided additional impetus to pursue a large-scale regional solution:

> *"LCR published a "Mini Stern" report on the economic opportunity arising from implementing carbon reduction measures within the region and from developing renewable energy potential. This highlighted the value of the domestic energy efficiency retrofit market." [D-102]*

The intention for BHY to act as an economic vehicle, driving the leverage of ECO funds to the region, alongside promotion of the Green Deal is also evident within the BHY interview data [D-153]:

> *"It was set up to respond to the Green Deal, and then ECO … it was going to bring millions of pounds worth of ECO funding in and do loads of stuff to people's homes." [BHY-L1]*

A final stakeholder theme shows a diffusion of ideas between authorities, both directly, and via intermediaries. Analysis shows that the presence of key WUN intermediaries were also instrumental to the development of BHY as a large-scale enterprise [D-102, D-136]. As with WUN, these intermediaries proposed a public-private partnership model based on a minimum number of properties. Mirroring proposals for WUN, the business case suggested that a minimum of 12,000 domestic properties were required for a scheme to be viable. It was suggested that the volume of properties required could be achieved through a consortium of LCR authorities [D-153]. Furthermore, throughout the development of the scheme, LCR actors engaged with colleagues in Newcastle and Birmingham, where similar schemes were more advanced in their development:

> *"…they were following very closely what was happening with Birmingham and what was happening with Newcastle." [BHY-L6]*

The combined institutional and stakeholder influences resulted in the business cases for both WUN and BHY being developed around a common large-scale, public-private model. As shown by Figure 6-4 (overleaf), the public-private structure was recognised as high complexity, high risk, and requiring a larger degree of private sector involvement, even by those involved in advising the authorities to pursue such a model [D-205].

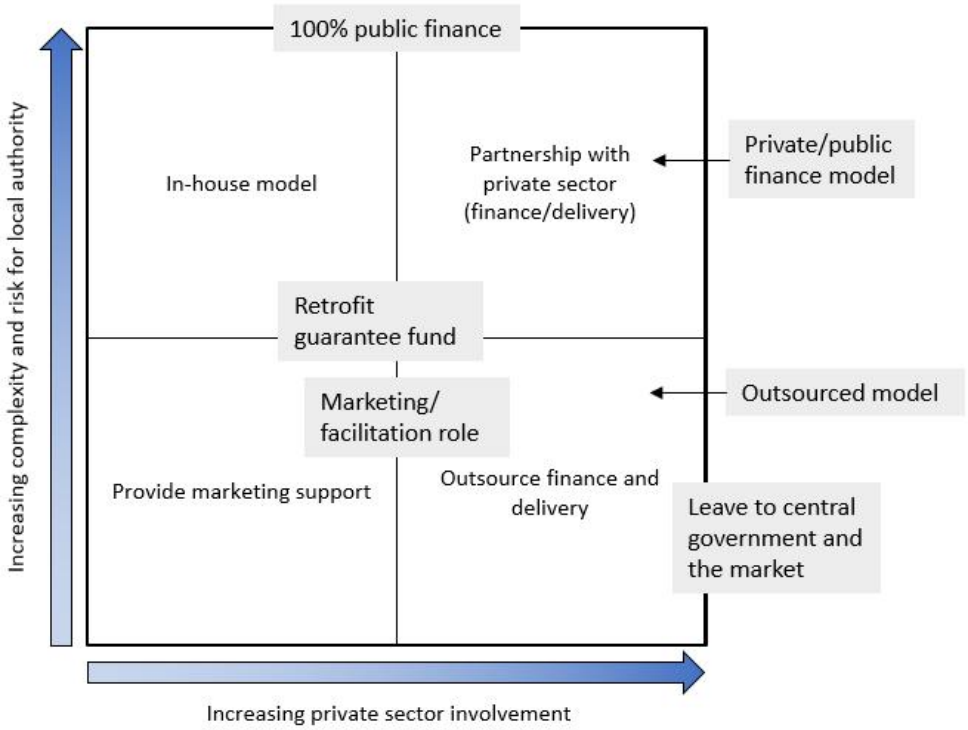


Figure 6-4: Summary of finance and delivery models and how they correspond to risk, complexity and private sector involvement. Developed from [D-205].

In addition to the institutional and stakeholder influences, a well-established history of collaboration between LCR authorities (both generally, and with respect to energy efficiency retrofit) provided a firm basis upon which to pursue a collaborative model for the Green Deal and ECO [D-101, D-147]. Changes to the Green Deal funding proposals which had informed the financial model upon which the BHY business case was based occurred prior to the publication of the procurement notice, removing an element of the large-scale rationale, but also reducing the up-front financial risk to the LCR authorities [D-126]. Despite these changes, procurement of BHY continued on a large-scale, collaborative basis [D-180]. The choice to continue with the scheme as proposed despite the weakening of the rationale on which it was based suggests that other benefits to the model were anticipated by those seeking to participate. Antecedents to BHY membership are described in the following section.

6.3.1.2 Membership antecedents

This section presents an analysis of the motivations for organisation's' participation in the BHY scheme, identified in interview and documentary data. Table 6-5 summarises the identified motivations as institutional, stakeholder or organisational influences. The motivations are split according to sector to enable consideration of the similarities and differences between the two.

Table 6-5: Summary of influences on organisations engaging with the BHY scheme

Category	Influences*	
	Public Sector	Private sector
Institutional	Normative: Energy efficiency and fuel poverty responsibilities.	Regulative: Statutory energy company obligation.
Stakeholder	Legitimacy: Market-led model required public sector organisations to demonstrate their legitimacy as partners in the marketplace; *National deployment of similar schemes created competition between regions;* A regional approach to delivery was perceived to increase legitimacy with the public. Power: Increased participation by regional authorities reduced opportunities to pursue an independent approach, *but this was coupled with organisational consideration of scale versus ceding control.*	Legitimacy: Increased role of local authorities as facilitators of Green Deal and ECO markets *enhanced legitimacy by association.*
Organisational	Addressing organisational constraints: Collaborative approach minimises individual organisational liability in terms of risk, costs, and resource use; *Minimising temporal procedural barriers.* Adding value: Increased opportunities for co-benefits arising from scale of collaboration; *Equalising opportunity between large and small authorities;* *Direct and indirect revenue generation through regional ECO leverage.*	Addressing organisational constraints: *Collaborative approach minimises individual organisational liability in terms of risk, costs, and resource use.* Adding value: Increased opportunities in public sector markets; Improved financial returns to stakeholders through efficient discharge of supplier obligation; *Expansion of existing activities in public sector markets.*

*Many of the themes identified in the BHY analysis mirror WUN. New or differing themes are represented in italics.

As with WUN, institutional pressures were evident in both public and private sector responses. The potential for BHY to contribute to HECA measures was cited by several local authorities in minuted recommendations to join BHY, and the 2013 HECA further reports. This may have been influenced by the presence of the first HECA further report deadline (31st March 2013), which coincided with the development of BHY [D-109, D-163]. Additionally, the potential contributions to HECA and domestic property standards are

more closely associated with the energy efficiency activity undertaken by BHY than with the reason to be part of a collaborative arrangement to do so. The normative influence of the policies is therefore considered to be weak.

For the contractors involved in the BHY scheme, institutional influence played very little part in the decision to engage. In contrast, a strong regulative pressure was identified by the energy supplier, who explained that one of the attractions of the BHY proposals was the access to a large volume of properties in one region; a proposition that facilitated their fulfilment of their ECO obligations:

> *"When we got the ECO obligation... we wanted to get volume and so... the best thing is to go to an aggregated local authority with a large housing stock, and previously the various arms of Leeds city [region] had contracted independently, and they had decided to pull it all together... and put the framework out to tender. It was attractive..." [BHY-P3]*

However, shortly before the planned contract award, changes to ECO legislation weakened the rationale that underpinned the energy supplier's interest in BHY, as described by the same interviewee:

> *"...when agreements were being signed, we were already at the stage of ECO policy being cut. Our targets had moved on... and so the attractiveness of the venture was reducing. And so we then took a step back..." [WUN-P3]*

As shown in Table 2-1 normative pressure arises out of expectations of moral appropriateness, inducing an organisation to conform to demonstrate legitimacy. The weak normative influence of HECA and housing responsibilities, although a strong factor in pursuing energy efficiency itself, was a limited influence on the choice to become a member of the collaboration. However, motivations linked to stakeholder-focused legitimacy were clearly evident. Both public and private sector organisations anticipated that participation in the collaboration would enhance their commercial legitimacy with external stakeholders, but the 'stakeholders' differed between the two sectors. Local authority interviewees expressed the belief that a collaboration between authorities was likely to realise a better result in a commercial market:

> *"...it meant that we could bring a more attractive- a bigger offer to the market if you like. So, I know we felt that we could get a better show of interest from would-be bidders so that was another reason." [BHY-L5]*

The commitment to the large-scale approach in the region can be partially linked to LCC's endorsement of the model, as discussed in section 6.3.1.1. However, national promotion of private-partnership models, and the proposals for similar schemes around the country also raised a competitive aspect to demonstrating legitimacy with commercial stakeholders:

> *"Without this programme, it is highly likely that utilities with significant amounts of ECO funding to invest will look for other authorities with more ambitious programmes to partner with." [D-144]*

For BHY as a whole, its external stakeholders are the potential customers. Public and private interviewees identified a mutually beneficial effect on their legitimacy with the potential customer group [BHY-P2, -B5]:

> *"I think that people are reassured when they see that it's very much sponsored by the local authority." [BHY-L5]*

Unlike legitimacy, motivations associated with power were limited to the public sector. Where power issues were identified, they centred on expectations of the relative power between authorities in the region if the BHY scheme were implemented. In general there was an expectation that local authorities would be afforded greater power over regional outcomes through collaboration [D-90, D-114, D-124]:

> *"Participation in the scheme would allow the Council to influence how the Green Deal was delivered and at what price, where work was targeted and how marketing was carried out." [D-126]*

However, greater power through collaboration was not a universal expectation, with one interviewee describing how the material benefits of participating in the collaboration such as economies of scale had to be weighed up against a perception that power (in the form of local control) may be diminished:

> *"...they believed it was a better option to go with the scale of Better Homes, rather than the comfort and local control..." [BHY-L2]*

A secondary power consideration identified was the power that local authorities held with regard to external stakeholders. During negotiations, documentary evidence suggests that local authorities were in a position of weakness compared to potential commercial partners, with bidders indicating that the offer being put forward was contingent on all the authorities in the region participating in the framework. The bidder's stance placed

increased pressure on local authorities to participate for the sake of the region as a whole [D-99]. However, the proposition of a large-scale operation in the region itself provided an additional motivation for participation:

> *"[If Barnsley MBC does not participate] the Council could not prevent Barnsley residents from arranging Green Deal funded works through the Leeds City Region scheme, but… the ability of Barnsley businesses to become part of the supply chain activity would be severely undermined." [D-90].*

6.3.1.2.1 *Organisational influences*

Within BHY, four different organisational types and scales can be identified: tier 1 and 2 local authorities (the distinction between which is described in section 2.1), a regional authority, and private sector firms. Arguably therefore, the potential for differing responses to a common context is high. This section considers organisationally-centred motivations for participation in BHY. Themes of addressing organisational constraints, and adding value to an organisation's activities were again evident in the analysis.

For both public and private participants, organisational constraints were centred on resources and risk. Analysis of the documentary data showed that the reduced cost, risk, and resources burden required compared to an independent option was cited as a justification for local authority participation in BHY, in both tier-1 and tier-2 authorities [D-90, D-101, D-126]. The scale of BHY introduces its own administrative requirements. However, across the collaboration, measures were introduced to minimise the impact of the new scheme. For the tier-2 authorities, the burden was further reduced through a sub-collaboration with the City of York Council (CYC), to employ a shared project manager [D-161]. However, one interviewee suggested that a secondary, power-related motivation was associated with the appointment:

> *"…historically there is a feeling… that left to itself, any programme will focus on West Yorkshire… so that is why [they] joined up, it is just a case of having somebody who will fight the corner for those smaller authorities…" [BHY-L2]*

The high-level administrative burden of managing BHY itself was reduced for all of the authorities, by West Yorkshire Combined Authority (WYCA) taking on the framework-level management:

> *"...it was the right model for WYCA to provide a programme management function and do some of that facilitation and framework management, that would then leave the local authorities free to do more of the call-off management and project management" [BHY-L6]*

The framework approach was also expected to ease the temporal aspect of local authority organisational procedures, the effects of which were discussed in section 4.3.3. While requiring a lengthy process at the outset, the upfront procurement reduced both time and resource pressures later in the process:

> *"...your procurement is done... which then leaves you free to... spend more time attracting more funding and in delivering measures. And it breaks you out of that cycle of having to constantly keep procuring." [BHY-L6]*

Risk and resources issues were framed slightly differently by the private sector interviewees compared with their public sector counterparts. The framing of some local authorities suggests that collaboration enabled them to access an otherwise unattainable business model (the private-public partnership). However, there was no suggestion from any of the private sector interviewees that their organisations would be unable to engage with BHY independently. Rather, they cited an excess of opportunity as the reason for forming a consortium to bid for the BHY contract, so those opportunities were not lost:

> *"...we thought rather than one of us struggle to service ten local authorities, let's the three of us go forwards..." [BHY-P1]*

> *"...we thought the volume of work that would come from [the authorities] would be too big for one company..." [BHY-P2]*

As with WUN, a final theme of value creation was identified in the antecedent analysis. Themes of co-benefits were again evident, with the anticipated health, equality, economic and social outcomes of WUN mirrored in the BHY data [BHY-L4, -L5, -L6]. In both WUN and BHY, the stated co-benefits reflect the potential benefits of a large-scale scheme suggested in central government guidance [G-15]. While co-benefits arguments were generally centred on value for residents, a specific opportunity for value creation for the local authorities was identified in the BHY analysis. Through the collaboration, authorities with lower density housing were able to benefit from economies of scale that would otherwise accrue to authorities with high density housing, reducing the financial resource they would have to commit to the scheme:

> *"We benefit then from [them] turning over hundreds of properties in streets, and that enables us to work in slightly more disparate areas, at a reduced cost. Whereas not working with them means, or would have meant, working in a group which was largely rural and the costs there are generally bigger." [BHY-L2]*

Private sector value creation was also focused on realising value for the organisations, however, value was defined differently by the energy supplier and building contractors. For the energy supplier, the primary value of the collaboration was discharge of the supplier obligation at least cost [BHY-P3]. However, changes to ECO during procurement reduced the potential to realised additional value through BHY (as discussed in section 6.3.1.2), prompting the partial withdrawal of the organisation from the scheme. In contrast, the value proposition for the building contractors was based on a market logic, in which participating in BHY enabled the potential for market growth. Growth was anticipated both as a direct result of the volume of properties within BHY [BHY-P1, -P2], but also through auxiliary opportunities arising as a result of the BHY collaboration:

> *"...it was case of not wanting to be locked out, but also looking to unlock any opportunities that would arise from being on the framework." [BHY-P1]*

6.3.1.3 Summary: antecedents

Analysis of the BHY antecedents identified support for the institutional position of a market-led approach to energy efficiency retrofit in the LCR. While it is not clear from the case study data if this support came from a position of belief or necessity, there is a history of public-private collaboration to deliver energy efficiency in the LCR, which pre-dated the Green Deal and ECO. In contrast, there is evidence that the advent of the Green Deal and ECO prompted the aggregation of individual collaborative efforts across the region. As with WUN, intermediary stakeholders were instrumental in the development of a regional approach, through the development of the BHY business case.

The institutional rationale for a large-scale approach was weakened by changes to ECO during the procurement of BHY. The changes had the most direct influence on the energy supplier, and the organisation chose to adopt a silent role in the partnership. However, the remaining organisations chose to maintain their involvement in BHY, suggesting that influences other than institutional had a greater role in their decisions to participate. Analysis of the antecedents to membership identified the presence of strong stakeholder and organisational influences. The scale of the scheme (as with WUN) formed the basis of

many of the stakeholder-focused expectations of BHY; these extended to national as well as local considerations. For example, the potential for BHY to enable the region to outcompete other regions for ECO funding through the pursuit of the partnership was used to encourage participation. Organisational motivations to collaborate both within and between sectors existed for both the public and private sector partners. While the potential for BHY to address organisational constraints was clearly identified, there was also significant emphasis on the potential of the scheme to create value for both private and public sector partners. In the following section, the influences present during the collaboration process are analysed. Once again the analysis framework structure is applied, with influences categorised as institutional, stakeholder or organisational.

6.3.2 BHY process

Analysis of the process stage of BHY showed how internal and external influences combined to create a unique set of conditions to which the BHY organisations responded. While the experience of collaboration is down to the perceptions of the parties involved, documentary records for the delivery period of BHY are available to provide additional detail. Therefore, this section of analysis is based on both documentary and interview data. Table 6-6 introduces the influences on the collaboration and the key interactions between them.

Table 6-6: Key influences and interactions during BHY collaboration process

Category	External (Origins beyond the collaboration)	Internal (Origins within the collaboration)
Institutional	Regulative: Amendments to ECO and Green Deal legislation during procurement stage of BHY.	Regulative: Contractual conditions.
Stakeholder	Legitimacy: Reputation with external stakeholders; Publicity statements.	Power: Balance of power between BHY members.
Organisational	Organisational constraints: Organisations' capacity for engagement with BHY. Loss avoidance: Sunk resources, and financial and political investments; Potential future return on investment.	No influences identified.

6.3.2.1 External influences

As with WUN, the primary external influence on BHY was the regulative effect of the changing Green Deal and ECO policy. However, unlike WUN, many of the ECO policy changes occurred prior to the final contract agreement, providing flexibility in the organisational responses to the changes. Section 6.3.1.2 detailed the response of the energy supplier to the policy changes during the development period of BHY. The withdrawal of the energy supplier from active participation in the scheme effectively created a collaboration between public sector organisations and building contractors. For both of these groups, the rationale for a collaborative approach had been reaffirmed from during the development stage of the scheme, as discussed in section 6.3.1.2.1. Therefore, the regulative changes that occurred shortly after the launch of BHY were framed from a shared perspective by both sets of organisations:

> *"...we had the rug pulled from under us and none of use wanted to give up. So all ten authorities and the contractor could quite easily have said let's call it a day, it's not working for all of us, but we said lets carry on, let's not make it dormant, let's keep going with this framework and lets do what we can to improve as many houses as we can via current funding needs or local initiatives." [BHY-P1]*

During the process stage there was limited evidence of external stakeholder influences in either the documentary or interview analysis. Weak evidence shows that legitimacy considerations were centred on the need to ensure the success of the scheme, in order to preserve the reputation of the authorities involved [BHY -L2]. This is in contrast to the antecedent analysis, which showed that potential risks to organisations' reputation prior to joining the scheme were considered from the point of view of inappropriate behaviour of the delivery partners [D-90, D-127, D-136, D-181]. The lack of legitimacy concerns identified in the process stage was despite the publication of numerous statements to the press at the launch of BHY, which stated time-limited targets for properties improved in the first few years of the collaboration [D-195, D-197]. However, indirect evidence of the need to preserve the legitimacy of BHY was identified in press articles following the closure of the Green Deal scheme:

> *"Representatives of Better Homes Yorkshire, a major retrofit project in the North of England, have announced that its progress will not be affected by the closure of Green Deal... Project officials have stated that 'from inception the scheme has never been reliant on Green Deal or Energy*

Companies Obligation (ECO) funding and is fully committed to achieving its targets.'" [D-201]

Aside from the relatively weak regulative and stakeholder influences, two key external organisational influences were identified: individual organisational capacity constraints, and loss avoidance. Section 6.3.1.2.1 outlined how project management capacity differences between the local authorities in BHY were pro-actively addressed in the early stages of the scheme. However, differences in the ability (or willingness) of authorities to collaborate with their private sector counterparts through BHY were identified by one private sector interviewee, who described how a lack of engagement impeded the successful realisation of collaboration goals:

"...[what] has become very evident from the outturn of work in different authorities is that where we have worked together hard and we have managed to source funding and work on the marketing and other bits and pieces it's been successful. In other areas authorities haven't put any in from their side, we haven't able to do the work as a result..." [BHY-P2]

The beneficial effects of active collaboration was echoed by several of the local authority interviewees [BHY-L2, -L5]. One described how limitations in their organisation's expertise were compensated for through active collaboration with the delivery partners:

"I think a lot of it is down to forging personal relationships with the specific delivery team... I think that local authorities are probably slightly behind the curve when it came to making full and best use of social media when it comes to promoting goods and services but... [they] have supported us in that." [BHY-L5]

The final external influence identified was the avoidance of loss. Both public and private sector organisation interviewees highlighted the fact that a significant amount of financial, political, and resource capital had been invested into the procurement and launch of BHY [BHY-P2, -P2, -L2, -L6]. For both groups therefore, there was a keen desire to ensure that the sunk investment was not wasted, coupled with an awareness that the alternatives were unattractive:

"The councils put in... between £200,000 and £500,000 worth of development work to get the contract, so they need it to work so they don't get a loss. This project as a whole, multi-year thing, we have committed to it, we have abandoned almost everything else that we had. If

we are not making Better Homes work, what else are we going to do?" [BHY-L2]

"...it had cost us a lot of money to put Better Homes Yorkshire in place. Massive investment over a 12, 18-month period and there is no way we'd recover that investment by just shutting up shop and just calling it a day. At that point we had to continue with regard to trying to get return on investment." [BHY-P1]

6.3.2.2 Internal influences

Contract obligations were identified as the sole internal institutional influence in the BHY scheme. The BHY framework was set up to be a services contract, in which money for goods are not exchanged, but rather, the right to exclusive endorsement for particular services in return for minimum levels of activity [BHY-L4] . Where exclusive endorsement was applicable, authorities were contractually constrained from seeking alternative provision and partners from the open market. From the private sector partner's perspective, performance measurement clauses within the contract had the potential to be a key influence on the success collaboration. Performance indicators were developed during the competitive dialogue process, prior to the changes to ECO. One of the functions of the indicators was to set the minimum level of activity required from the private sector partners in order to fulfil their part of the contract. Changes to the Green Deal and ECO created a significant barrier to achieving the required delivery levels [D-102, D-39, D-181]. However, the regulative influence of contract conditions was strategically reduced through the actions of the BHY actors, which changed the nature of the interactions between collaborations, as described by one interviewee:

"...what probably would have been more of a contractual well why have you hit this KPI, what haven't you hit that, we've had to kind of go by brave new world, it's a very different world to what we'd expected how to make this work." [BHY-P2]

The easing of contractual clauses described above is a good example of how the main internal stakeholder influence, the power balance between the organisations, was experienced by the organisations within BHY. Interviewees presented a picture of co-dependency between their organisations, based on a common goal of maximising the return in their investment in the partnership. In section 2.8.1 it was suggested that a stakeholder in possession of utilitarian power (linked to control of resources) would be the most influential. Analysis of the antecedents and external influences clearly identified

differences in resources and capabilities between the organisations involved in BHY. Therefore, and crucially for the BHY partnership, analysis suggests that it was the absence of the leverage of power that was important for the continued functioning of the scheme. Rather, at the same time as recognising the difficulties, a consistent characterisation of the organisations within the scheme as co-dependent on each other, and with a common goal to make the best of the difficult conditions was presented by the interviewees [BHY-P1, -P2, L2, -L5, -L6]:

> *"I mean I feel as though they are a trusted delivery partner. Yes, they've got to make a return, but you know the first year was very, very tough and I suppose it did test all parties to the contract, but you know we've come through it." [BHY-L5]*

6.3.2.3 Material outcomes of BHY

BHY launched in March 2015 as a consortium of nine local authorities and two active delivery partners. The announcement of the reductions to ECO funding was made shortly before the BHY contract was due to be finalised, resulting in an extension to the procurement process as parties considered the implications of the announcement and responded accordingly. During this consideration process, the energy supplier chose to reduce their involvement to that of silent partner, citing the lack of ongoing commercial attractiveness as the reason for the decision. The reduction of the active partners from three to two was seen as beneficial those remaining, in light of the anticipated reduction in contract size as a result of the ECO amendments [BHY-P1, -P2,-P3].

As of July 2018, 3,107 homes had been improved though the scheme, of which 1,733 were completed in Year 1, and 747 in Year 2 [D-190]. The levels of delivery are significantly lower than the original target of 12,000 homes in the first three years, but also fall short of revised targets implemented in response to the reduction in ECO funding upon which the original targets were based. The target for 2018/19 is 1,320 homes to be improved [D-186, D-190]. Both public and private sector interviewees attributed BHY's lack of activity against original expectation to the policy changes to ECO that were made during the procurement period.

The numbers of measures quoted above include those delivered using CHF funding, for which WYCA submitted a successful application on behalf of the LCR authorities in 2015 [D-190]. One of the organisational antecedents to participation identified in section 6.3.1.2 was the hope that the existence of the scheme would help circumvent temporal procedural

barriers. The successful realisation of this objective was evident, as described below in relation to the CHF funding secured:

> *"…the big thing they had to secure it was they already had the delivery vehicle in place. So the framework was there, the contractor was there, and we could hit the ground running with marketing with canvassing with installs. Whereas some other authorities that secured that funding had to go out to procure contractors: it ended up being late and they gave money back to the government because they didn't fulfil the whole scheme." [BHY-P1]*

In addition to actively seeking alternative funding, and reduced delivery targets, the BHY programme board have repeatedly chosen to set aside or amend a number of other contractual conditions in response to the changing external environment [D-169, D-188]. Despite the low levels of delivery which were already evident at the time of the interviews, participants spoke positively about the scheme. Additionally, in October 2016, Wakefield Council signed a call-off contract to become the tenth and final authority in the Leeds City Region to participate in the scheme [D-169]. At the time of writing, the BHY scheme continues to operate, both in its original guise as a vehicle for improving private sector housing in the region, but also as a vehicle to support the delivery of a wider range of fuel poverty and energy efficiency initiatives [D-191].

6.4 BHY discussion

Section 6.3 has presented a compartmentalised analysis of the influences acting on the BHY collaboration. This section considers the interactions between the influences, and in doing so addresses RQ 2 and RQ 3. As with section 5.4, direct causality cannot always be inferred from the data and their analyses; retroductive reasoning is again applied in the discussion.

> *RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?*

BHY is a public-private framework agreement procured through OJEU, and administered by WYCA on behalf of the ten LCR authorities. The 'services' nature of the contract provides the consortium of private sector delivery partners with exclusive endorsement from the public sector organisations in the framework. The large-scale area-based approach advocated in the original business case for the scheme was developed around a finance model aligned with central government proposals for the Green Deal and ECO.

Changes to the Green Deal and ECO in the procurement period altered the roles of organisations within the collaboration, however, the collaborative structure was preserved.

Analysis of the BHY antecedents shows that the influences present before and during the development of the scheme shaped a variety of expectations for the collaboration. The degree of overlap between the expectations differed depending on the organisational groups considered. For the energy supplier, the primary purpose of the collaboration was to deliver its ECO obligation. When the institutional pressure on the energy supplier was eased during procurement the relevance of the collaboration was diminished, and it withdrew from active participation. For the local authorities, the normative pressures of HECA and the Housing Act aligned with a regional belief in energy activity as an opportunity for economic growth, which along with social and environmental objectives, could be maximised through a regional approach. The goal of value maximisation in turn aligned with the central purpose of the collaboration for the building contractors. By the launch of BHY, the withdrawal of the energy supplier meant that the remaining partners shared broadly consistent views as to the purpose of the scheme.

At a practical level, structuring the collaboration as a large-scale enterprise opened up possibilities to realise economies of scale in the region. For authorities with fewer resources, the cost-levelling effects made possible through the scale of the scheme were a key benefit to participation. Additionally, the shared procurement of the contract minimised risk, cost and resource liability for each of the individual authorities. Finally, the framework approach was chosen in order to negate the need for further procurement later in the delivery stages.

> *RQ 3: How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

The analysis of the BHY collaboration process suggests that while the external institutional influences continued to shape the context in which BHY operated, it was external organisational influences, and internal stakeholder influences that had the greatest impact on the response of the collaboration to challenges presented. This can be attributed in part to the shared market-based rationale of the remaining partners to the collaboration in the process stage after the withdrawal of the energy supplier in response to the weakening regulative rationale for participation. The shared rationale between the

remaining authorities and their partners was evident in the response to the policy changes described by the interviewees.

The changing regulatory environment interacted with stakeholder and organisations influences to shape the collaboration process. From a stakeholder perspective, the participant organisations had sought to participate in BHY to gain legitimacy in the market-driven energy efficiency sector, either with potential delivery partners in the case of the local authorities, or potential customers in the case of the building contractors. Organisationally, the complexity of the procurement arising from the business model (which was proposed based on central government policy proposals) had required significant investment in the scheme during the procurement phase from both sides. Subsequent policy changes had significantly undermined the original purpose of the collaboration. However, particularly in the case of the local authorities operating on reduced budgets in a climate of austerity, the need to make a success of the flagship scheme was a necessity to maintain political legitimacy. For the building contractors, a more straightforward driver of a return on the significant investment in tendering for the scheme nevertheless resulted in a similar vested interest in its continuation. The language of loss avoidance evident in the process stage contrasts to the descriptions of value creation identified in the antecedent stage and demonstrates how influences during the process stage of a collaboration can have a significant impact on its outcome.

As a result, for the active partners in the collaboration maximising delivery where possible in order to minimise the risk of wasted investments became a shared purpose. A flexible approach to the contract conditions in the face of the changing external environment was described by interviewees from both the public and private sector, alongside an acknowledgement of mutual dependence to realise value from the collaboration. With contract obligations identified as the sole internal institutional influence, the choice by the partners to amend the obligations to reflect changing conditions reduced the potential for conflict between the organisations. Bryson et al. (2006) assert that the effects of power imbalances are more significant where a shared purpose is absent. The findings here support this assertion by illustrating its converse; the mutual dependence to achieve a shared purpose described by interviewees suggested that while there were material differences in the resources and capabilities of the organisations, activation of potential power differentials and subsequent conflict between the public and private sector organisations was limited.

Despite a collaborative environment overall, there is evidence that discrepancies between levels of engagement within the partnership existed. The discrepancies arose in part due

to a change in the burden of responsibility for elements of the scheme, with local authorities expected to take on a greater role in promotion than was originally envisaged. As a result of the change, authorities with greater resources to commit to promoting the scheme were more likely to realise the benefits of its existence. Both previous research (Webb et al., 2017) and the motivations for participation identified in this thesis have suggested the use of collaboration as a means of addressing resource deficiencies within organisations, and enabling the delivery of city- or region-wide activity. However, the analysis presented here suggests that barriers to activity due to resource limitations may be perpetuated into a collaboration, even if the collaboration is considered functional.

6.5 Summary

In this final empirical chapter, the analytical framework was applied to the case of the BHY energy efficiency scheme to evaluate how institutional, stakeholder and organisational influences affected its development and progress. As with Chapter 5, many of the influences identified have been previously observed in both the Phase One research and the WUN case study. However, while many of the influences identified in this chapter were similar to those affecting WUN, the response of the BHY organisations differed somewhat from those involved in the WUN scheme. Notable for its differing response to the majority of organisations within the BHY case was the energy supplier. In the following Chapter, the cases of WUN and BHY are compared, alongside a synthesis of the two phases of research, integrating the individual answers to the research questions presented thus far into a comprehensive consideration of each in turn. Possible explanations for the similarities and differences observed in the two cases and phases are made, to draw conclusions regarding the role of collaboration in achieving local authority energy objectives. The findings are situated in relation to existing theoretical and applied literature, and the contributions and opportunities for further work arising from the thesis are discussed.

7 Discussion and Conclusions

This thesis set out to explore the role of collaboration in realising local authority energy objectives. A review of existing literature demonstrated that studies with a focus on local authority energy activity have largely been concerned with how contextual and technological issues limit energy activity. Additionally, it showed that collaboration is often cited as a mechanism used by 'successful' local authorities to overcome barriers to energy-related activity, or suggested as a means for local authorities to implement energy objectives. However, the review also demonstrated that while collaboration is held up as a solution to advance local authority energy ambitions, to date there has been limited examination of the process of local authority energy-related collaborations. The lack of examination of collaboration in an applied context provided the overarching rationale for the thesis, which drew on organisational and collaboration-focused literature to examine the institutional, stakeholder and organisational influences on collaboration in the context of local authority energy-related activities.

The thesis comprised two phases of empirical research. The first phase examined the influences on energy-related activity and the broad range of collaborative activities within a single local authority. The second phase extended the analysis of the influences on energy-related activity to a wider group of organisations participating in two ostensibly similar collaborations to deliver regional energy efficiency retrofit. The second phase of research included a detailed analysis of two cases of collaboration examining how institutional, stakeholder and organisational influences interacted to shape the nature, progress, and outcomes of each.

In this chapter the three research questions are revisited in turn in 7.1, 7.2, and 7.3, drawing together and considering the implications of the findings from the individual phases and cases. Section 7.4 summarises the applied and theoretical contributions of the thesis. In section 7.5 the strengths and limitations of the thesis methods and findings are considered, alongside opportunities for further research in light of the limitations. Finally, the overall conclusions of the research for local authorities pursuing collaboration to realise energy objectives are summarised in section 7.6. In doing the overall thesis research question is addressed:

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

7.1 Influences on local authority energy activity

RQ 1: What are the institutional, stakeholder, and organisational influences on local authorities achieving their energy objectives?

The answer to this question can be broken down into two parts, as it concerns both the choice to act, the types of activity delivered. The Phase One case study (Chapter 4) used the analytical framework developed in Chapter 3 to identify the institutional, stakeholder and organisational pressures present in research interviews, and public documentation from LCC, and understand how these pressures influenced the choices made by LCC before and during their pursuit of energy activities. In Phase Two (Chapters 5 and 6) the analysis was applied both to local authorities and their private sector partners, representing organisations participating in (and in the case of WUN, choosing not to participate in) the WUN and BHY collaborations. Doing so extended not only the range of organisations, but also the range of local authority types canvassed, as shown in Table 7-1.

Table 7-1: Organisational make up of Phase Two case studies

		Number of each organisation type	
		Warm Up North	Better Homes Yorkshire
Local authorities	Tier 1*	6 (1) Unitary 5 (1) Metropolitan District	1 Unitary 6 Metropolitan District**
	Tier 2*	-	3 District
Regional authorities		-	1 Combined Authority
Private organisations		1 Energy supplier	1 Energy supplier 2 Contractors
Total organisations		12 (2)	14

*For a description of the tiers and types of local authorities see section 1.2.1.
**Including LCC, which was the primary focus of the Phase One case study
Figures in brackets show nos. for non-participant authorities in case study data

Systemic categorisation of the influences in the first phase of research (Chapter 4) showed that in the absence of any meaningful institutional pressure to do so, the choice to pursue energy activity within LCC is largely a strategic response to the dual influences of external stakeholder activities, and internal organisational drivers. It was shown that the decision to pursue energy activity by local authorities as a means to generate revenue and limit expenditure is consistent with an economic context created by central government policymaking. LCC's internal organisational framing of energy as an economic activity reflected the economic-centred context, and created an underlying logic for the decisions of the authority in choosing the activities they wished to pursue and the way in which they

pursued them. With a very few exceptions, such as the desire to inspire energy-related ambition in local stakeholders by leading by example, the influences identified in this thesis as encouraging energy activity within LCC have an underlying economic context. The use of punitive policies such as the CRC (for larger authorities) coupled with austerity meant that the economic drivers stemming from external stakeholder influences were substantial.

When the systematic analysis was extended to a wider range of authorities and organisations in Chapters 5 and 6, the importance of central government as a key external influence, creating conditions in which energy activities are beneficial in economic terms was highlighted. Where energy activity was actively pursued the pattern of influence for local authorities continued; energy activity was pursued as an economic activity, in response to an economic context.

The strong economic impetus revealed in both phases of analysis challenges some of the assumptions in recent research. There has been an increasing focus on the role of local authorities as drivers for local energy governance, and change within the energy system through their unique position linking national policies with local activity (Morris et al., 2017; Webb et al., 2017). LCC's recognition by Webb et al. (2017) as a UK energy leader suggests they are an organisation driving such change. The availability of funding has been shown to be a factor in the capability of authorities to fulfil their roles as changemakers. However, this research shows that while authorities are aware of their potential to influence the wider system, economic influences remain a core driver for the choice and ability to pursue energy activity: both at LCC and across the wider authority group. This is more aligned with the findings of Fudge et al. (2016), who suggest that while local authorities may have been identified as potential niche actors in the energy system, they are in reality concerned with ensuring economic growth in the face of reducing budgets. The findings in this thesis support this suggestion, but demonstrate that even relatively routine energy activity remains largely driven by economic practicalities. Interestingly, and in contrast to the arguments of Morris et al. (2017) and Webb et al. (2017) that austerity disrupts the potential of local authorities to pursue energy objectives, one interviewee suggested that austerity had enhanced the drive to pursue energy activity by providing a stronger economic impetus to reduce the cost of energy use.

This thesis extends the focus of earlier studies to include organisations beyond local authorities. In doing so, the research revealed differences in the types of influence driving the pursuit of energy activities between the organisations, but demonstrated that the underlying economic drivers remained. In contrast to the local authorities, it was shown

that a strong regulative influence drove the involvement of the energy suppliers in energy activity beyond their core commercial interests; actors emphasised the obligatory element of their promotion of energy efficiency activities, reinforced by meaningful penalties for non-compliance. However, beyond the need to fulfil their obligations, energy suppliers sought to minimise the cost of compliance; developing their businesses to offer services consistent with market opportunities stemming from their obligatory activities. Actors from the building contractors also described how energy technologies and services had become an integral element of their commercial model. Activity within these organisations had progressed from standalone opportunities to enhance individual projects to the development of roles and departments to capitalise on the growing low-carbon and sustainability markets. In examining the role that middle actors may play in advancing energy transitions, Janda and Parag (2013) suggested that there is a need for energy activities to become part of the professional goals of building professionals and practitioners. While a small number of examples, the examination of the motivations of the non-authority actors in this research suggests that such integration is occurring, albeit underpinned by different logics for participation in the first place.

Local authority actors in both phases of research demonstrated that energy activities can be seen as an opportunity for enterprise, and one means of mitigating the effects of wider budget cuts. In engaging with energy activity for economic gain, local authorities are exhibiting behaviour aligned with a firm-orientated view of an organisation, in addition to civic responsibility. When considering the types of energy activity to pursue, the Phase One results (Chapter 4) showed that as with the choice to engage in the first place, an underlying thread of economic viability could be identified, alongside issues of organisational capacity and expertise.

The major projects described by the LCC actors in the first phase of research were predominantly centred on incentivised technological solutions; supported through grants and subsidies including FITs, the RHI, and OLEV. Therefore, while local outcomes remain a key element of local authorities' energy ambitions, interactions between the constraints of organisational priorities, limited resources, and stakeholder decisions to incentivise particular technological solutions suggests that the solutions pursued nevertheless reflect national government priorities. This supports the findings of Webb et al. (2015), who noted the importance of government funding in supporting projects in the transition from proposals to implementation. However, examination of the activities pursued by the building contractors participating in BHY (Chapter 6) extends this finding by demonstrating that the influence of central government as a key stakeholder is not

restricted to those organisations with which it has an institutional link. The geographical and technological range of activities described by the building contractors demonstrated that they too are influenced by the decisions of central and regional government, and the policy pathways that pave the way for ease of delivery for particular technologies.

As with the choice to act in the first place, organisational capacity acted with the stakeholder incentives to shape the nature of activity being undertaken. Where energy activity could contribute to the broader responsibilities of the authorities with little additional resource demand, it was more likely to be implemented. However, while energy activity represented an opportunity to diversify income streams, it nevertheless sat within a hierarchy of priorities, in which statutory responsibilities took precedent. While there was not enough evidence to correlate the tier of an authority with its choice to act, those authorities that had adopted an outsourcing approach to service delivery had fewer resources to engage in complex energy activities, and were likely to rely on other actors in the region (both public and private) to pursue such objectives.

The findings concerning decision making over viability of individual schemes are consistent with previous research (Allman et al., 2004; Kelly and Pollitt, 2011), and demonstrate that while the issues facing local authorities have been clear for some time, the constraints on their activities remain stubbornly persistent. However, this research extended the work of these earlier scholars by showing that that despite an easing of the institutional barriers to energy activity, in particular the removal of long-term constitutional arrangements that prevented local authorities from acting beyond their statutory duties, the interactions between internal organisational constraints and the decisions of central government as a key stakeholder continue to shape the types of energy activities being pursued.

In summary the research in this thesis finds that the overwhelming influences on local authorities achieving their energy objectives are the interactions of the funding and incentive decisions made by central government as a key local authority stakeholder, and the individual requirements of local authorities and wider organisations. Overall, the pursuit of energy objectives is underpinned by an economic logic, around which other priorities are arranged; it is the relative importance of these remaining priorities that varies between the different types of organisation.

7.2 The types and purposes of collaborative arrangements employed by UK local authorities

RQ 2: What are the types and purposes of collaborative arrangements employed by UK local authorities for energy objectives?

A key response to the internal and external constraints on energy activity identified in research question one was the use of collaboration. Using a desktop review of academic literature and policy documents, followed by an analysis of the interview and documentary data from LCC, Chapter 4 built on the findings of research question one to examine the types and purposes of collaboration used by local authorities in more detail. The collaborations identified were categorised according to Gray's (1996) typology, shown in Figure 2-1. Use of the typology recognises the fact that a key factor in understanding the role that collaboration can play in realising local authority energy objectives is understanding the intentions behind collaboration. In examining the antecedents to participation in the collaborative schemes in the second phase of research, case studies 2 and 3 (Chapters 5 and 6) provided additional evidence as to the purpose of collaboration for local authorities.

Current research suggests that collaboration is employed by 'successful' local authorities (Kelly and Pollitt, 2011), and collaborative delivery can be used as a to provide "a route from initial projects to a more systematic area-based programme."(Webb et al., 2017 p. 46). The question of success is addressed in RQ 3. However, the Phase One analysis (Chapter 4) suggests that there is a disconnect between the motivations for the two main types of collaboration identified in LCC: appreciative planning (in which collaborating parties exchange information to advance a shared vision), and collective strategies (in which collaborating parties forge joint agreements to advance shared visions).

Analysis of the LCC case study and desktop review (Chapter 4) identified examples of strategy- and delivery-focused collaborations. Broadly speaking, appreciative planning was used as a means of exchanging ideas to develop strategies to address the 'wicked' issues facing the city. In both the case study data and desktop review, appreciative planning occurred at intra-organisational, local, and national scales, to share knowledge and engage in strategic planning and solution-building. Local authority actors demonstrated a clear understanding that while there were in a position to catalyse activity, they could not realise strategic visions independently. However, the transition between strategy and reality was shown to be somewhat more pragmatic. While appreciative planning is used for strategic purposes within LCC, the collective strategies

identified were more closely aligned with operational practicalities than strategic ambition. The Phase Two analysis (Chapters 5 and 6) illustrates this disconnect further: while the development of the WUN and BHY schemes was a strategic response to policy developments, individual organisational motivations for participating in the schemes were largely pragmatic.

Across both phases of research, authorities engaging in collective strategies for delivery described motivations associated with minimising exposure to risk and resource demand, in addition to mitigating deficiencies in expertise or technical competencies. This is in contrast to the strategic objectives associated with appreciative planning. For example, in Phase One (Chapter 4), strategic activities included wide ranging city-wide scenario creation. However, collective strategies within the LCC were focused on the delivery of individual projects chosen for their achievability, funding availability and relevance to internal organisational objectives. While these projects stemmed from and were commensurate with the broader strategic objectives for the city, analysis showed that the determinants of project delivery remain rooted in practicalities. Austerity appears to have exacerbated this situation, with opportunism and integration with internal routines providing the stimulus for much of the activity being pursued in some areas, particularly energy efficiency and domestic energy opportunities. These findings suggest that while LCC is continuing to identify "critical parties and bring them into the process of setting a clear local strategy for energy and investing in its implementation", as advocated by Webb et al. (2017 p. 46) more generally, pragmatism remains a key factor in moving such strategies forward.

The examples of appreciative planning identified in Phase One demonstrate that collaboration for strategic purposes is present in LCC. Additionally, the desktop review identified examples of collective strategies for strategic purposes, in the form of intermediary organisations which were created to develop governance capabilities or promote sustainable activity. Intermediary support for energy activities was identified in the BHY case study (Chapter 6), in the form of WYCA. The dual role of WYCA is to manage the regional transport network, and drive economic development for the West Yorkshire LEP region. Activities undertaken by WYCA such as facilitating energy project development, funding provision through local growth funds, and lobbying central government work to support the development and implementation of energy activities across the West Yorkshire region are some of the strategic, financial, and project management roles that Bale et al. (2012) suggested an independent strategic energy body might fulfil. Coupled with the appreciative planning occurring in the city, which fulfils

further strategic functions such as the identification of areas for low-carbon development, and technical solution-building, this research suggests that the high priority functions that Bale et al. (ibid.) suggested for an independent strategic energy body are being implemented within the region by existing organisations.

WYCA's involvement in bridging between strategic planning and implementation of energy-related objectives further highlights the economic and growth focused perspective from which energy activity is viewed, which was articulated in the discussion of RQ 1. Overall, WYCA performs its role in the region as an intermediary organisation, despite its direct involvement in the BHY collaboration. This suggests that while local authorities are key to developing strategic visions, independent organisations without the responsibility of the wider day to day priorities are arguably better placed to facilitate the less immediately practicable solutions. Webb et al. (2017) include the availability of regional support as a key mechanism in supporting strategic implementation; this research would suggest that the role of WYCA demonstrates the value of such an approach.

The balance between strategy and pragmatism was also evident in the Phase Two research (Chapters 5 and 6). In considering the implications of their assessment of the national state of energy engagement by local authorities, Webb et al. suggest that collaborative delivery could provide "a route from initial projects to *a more systematic area-based programme.*" (ibid. p. 46, emphasis candidate's). The collective approach to energy efficiency retrofit in WUN and BHY, enacted across large geographical regions with diverse housing characteristics, illustrates a move towards a systematic approach for each of the regions as a whole. However, this research moved beyond identification of the potential for collaboration, and examined the influences that shaped the nature of the collaborations at the antecedent and process stages. Analysis of the Phase Two cases showed that in each case the aggregate nature of the schemes (multiple local authorities coming together to collaborate as a group with one or more private sector partners) was developed in response to the policy proposals of central government, and on the advice of key intermediary consultants. Therefore, while the energy efficiency objectives underpinning WUN and BHY fulfilled the strategic ambitions of the individual participating authorities, many of the reasons put forward for participation in the schemes as they were developed were linked to the greater economic potential that was expected from a large-scale approach, and the associated expectation that such an approach would realise greater benefits for the organisations and their stakeholders than smaller-scale arrangements. However, for the non-participating authorities in WUN, the large-scale approach was seen as a threat to their ability to control outcomes in their areas,

suggesting that area-based delivery has the potential to lose some of the local focus widely held to be critical to the justification and facilitation of local authority energy activity (Kelly and Pollitt, 2011; Dulal and Akbar, 2013).

In summary, the research presented in this thesis shows that local authorities are actively engaging in collaboration to develop shared visions, such as in the examples of appreciative planning in Phase One (Chapter 4) to develop broad agreement of energy strategies at a variety of scales. However, it was found that while local shared strategies could be developed, centrally-determined funding was still a key to delivery. The cases of WUN and BHY (Chapters 5 and 6) represent examples in which the one of the aims of the collaborative approach was to add value through scale. While the responsibility for the early development of the schemes fell to the lead authorities, the procurement proposals represented a regional vision for delivery. However, despite buy-in to the strategic objectives of the regional schemes, and the value-related aims of the collaboration, overcoming organisational constraints remained a key influence in the decisions of individual authorities to participate in the collaborative delivery approach, as will be discussed in RQ 3. Additionally, the Phase Two analysis shows that while the collective collaboration of local authorities with private sector partners was seen by many authorities as an opportunity to add value or overcome constraints, this was not universally the case. All the local authorities consulted in the two cases were collaborating with partners to deliver energy efficiency retrofit. However, the authorities choosing to operate outside WUN perceived the aggregation element of WUN to be a problem, and a potential barrier to an individual organisation's agency within the collaboration.

7.3 Influences on collaborative delivery

> *RQ 3: How do institutional, stakeholder, and organisational pressures influence the activity of organisations' engaging in a collaborative approach to delivering energy objectives?*

This question is answered by considering the findings of Chapters 5 and 6, which focused on the two individual cases of WUN and BHY. Many of the influences identified were common to both cases, however, several key differences in the actions and perceptions of the collaborating parties were found. The specifics of the influences and their interactions were discussed in the relevant case study chapters (5 and 6). This section considers the findings as a whole.

Across the two phases of research, institutional influences on local authority energy activity are largely limited to trends towards localism, a market-led energy sector, and the normative influence of global schemes such as the Covenant of Mayors, rather than any explicit institutional pressure relating to energy activity itself.

However, the Phase Two findings suggest that interactions between two key stakeholder groups and the institutional market-led environment effectively initialled a critical characteristic of the WUN and BHY collaborations at the antecedent stage: their large-scale nature. The framing of national energy efficiency retrofit within a market-led Green Deal narrative, and the expectation that delivery of the Green Deal would be closely associated with ECO was endorsed by the Core Cities group, which comprises some of the largest local authorities in the UK, including both LCC and NCC who were the lead authorities for the two schemes. Just as the overall market-led narrative was amplified by the Core Cities group, the need for a large-scale approach to engaging with the market was promoted by intermediary consultants; retained by central government to advise local authorities engaging with the Green Deal and ECO.

For BHY, the emerging presence of WUN and an earlier example of a similar scheme in Birmingham further reinforced the rationale of a large-scale approach. The interactions between the institutional market logic and the intermediaries and Core Cities group demonstrate a process of stakeholders amplifying institutional influence, a phenomenon identified by Lee (2011), in his examination of the effects of external influence on firms' corporate social responsibility (CSR) strategies.

Lee (2011) suggests that where pressures from institutional and stakeholder sources reinforce one another, organisations' CSR actions will be proactive, either to reduce uncertainty, or maintain legitimacy. Examination of the interactions of institutional and stakeholder influences in the local authority context revealed some differences in the effects of their interactions compared to the CSR cases examined by Lee (ibid.). The desire of the WUN organisations to be seen as national pathfinders, to support an emerging policy in order to ensure its success, aligns with the motive of reducing uncertainty. The second motivation for proactivity suggested by Lee (2011) is that of maintaining legitimacy. The Phase Two case studies identified the pursuit of legitimacy, alongside power, as a common motivation for participation in the collaborations. Importantly however, the pursuit of legitimacy and power was not always proactive, and was instead associated with the choice by the lead authorities to pursue a large-scale approach. In making such a choice, 'suitable' delivery partners were limited to large-scale providers able to meet the anticipate scale of delivery, and able to afford the initial cost of the

bidding for the schemes. Arguably the need for a large-scale partner initiated a form of feedback loop; in order to attract such a partner, there was a need to demonstrate a legitimate offer to the market, which required the participation of the majority of the local authorities in each region. Therefore, those authorities which had made an early choice to participate set out to encourage participation in the remining authorities. Furthermore, the looming scale of the proposed collaboration was seen by some authorities as a potential barrier to their ability to deliver similar activity independently. As a result, they chose to participate; for these authorities, participation in the schemes can be considered a reactive response to the emerging regional situation. The reactive approach to participation was mitigated in BHY somewhat by the presence of historical collaborations in the region between the LCR authorities, and between individual authorities in the region and the BHY private sector partners.

Related to the pursuit of legitimacy and the reduction of uncertainty, the need to ensure the availability of a trusted product in the marketplace was also cited by many as a reason for local authorities engaging in the provision of energy efficiency retrofit in the first place; by securing a reputable supplier, authorities hoped to reduce the uncertainty for consumers in an open Green Deal market. This is a further example of the reactive response described above; through a need to operate in a market-based environment, local authorities sought to achieve legitimacy. The reactive responses illustrated in the pursuit of legitimacy by the local authorities show that the interactions between stakeholder and institutional pressures observed by Lee (2011) do not always result in proactive activities.

Examining the motives of the wider organisational groups in the WUN and BHY revealed that the most significant differences in the motivations for participation were evident when comparing the local authorities and the energy suppliers. The motivations for the three different organisational types present in the schemes are shown in Table 7-2.

Table 7-2: Comparison of motivations for participation in schemes by organisation type

Primary motivations		Energy supplier	Building contractor	Local authority
Institutional	Regulative	X		
Stakeholder	Increased legitimacy	x	X	X
	Power			X
Organisational	Adding value	x	X	X
	Overcoming constraints			X

Smaller checkmarks indicate subsidiary motivations

While causality cannot be inferred, similarities and differences in the actions of organisations during the delivery of the two schemes broadly correspond to the variations evident in Table 7-2. These are now considered.

In their assessment of the contribution that middle actors can make to improving energy efficiency in buildings, Janda and Parag (2013) note that a major driver for such professionals is organisational survival, rather than a commitment to advancing low-carbon solutions. The actions of the private sector firms and the local authorities in each of the cases examined in this research is largely reflective of this reality, with each acting in a manner consistent with self-interest for their organisations. However, the different rationales for involvement in the schemes between the two types of private sector organisation was reflected in their respective responses to the challenges faced during their delivery.

In both WUN and BHY, when faced with changes to the national regulative context that weakened the rationale for involvement in the schemes, British Gas and SSE re-evaluated their national priorities, and reduced or withdrew their involvement in the schemes. However, while the timing of the policy changes that prompted this refocus meant that SSE were able to withdraw from active partner status prior to the contract signing, British Gas were already contractually committed to WUN. Within BHY, the building contractors' rationale for participation was grounded in a desire to deliver as many measures as possible through the scheme, underpinned by an organisational rather than regulative motive. Even though policy changes made this objective harder to realise, it remained unchanged; both building contractors framed their continued involvement in BHY in terms of short-term difficulties against long-term gains, along with a more immediate need to recoup sunk investment.

The responses to the changing policy context were consistent with organisational survival for all the private sector firms. However, the interactions of the survival responses of the energy suppliers with the different structural arrangement of WUN and BHY created different outcomes. Whereas the actions of British Gas as the sole partner were critical for the delivery of WUN, inherent redundancy within BHY as a result of the presence of the two building contractors mitigated the effect of the withdrawal of SSE. This raises implications for practice; structuring a large-scale collaboration around a single critical partner introduces avoidable risk of failure into the process.

For the local authorities in both schemes, delivery of as many measures as possible was the self-interested outcome they pursued throughout, driven by a combination of environmental and social motivations. Within BHY therefore, the self-interested outlook of the two organisational groups were largely aligned, whereas in WUN they conflicted. The dominant narrative of the WUN collaboration process from many interviewees was one of a disingenuous delivery partner, with little regard for other stakeholders within the collaboration. In contrast, and despite the withdrawal of SSE, BHY participants largely expressed satisfaction with their delivery partners. The assessment of satisfaction is subjective, and participants' experienced realities are valid. However, the relative satisfaction of the BHY participants compared with the WUN participants reflects the degree to which the self-interested motives of individual organisations within each scheme aligned with each other. Further, the differing origins of the aligning interests of BHY demonstrate that the pursuit of organisational survival does not necessarily run contra to collaborative success.

For the active private sector organisations in both WUN and BHY (i.e. excluding SSE) maximising commercial value from their participation in the schemes remained a priority, despite differing underlying motivations (Table 7-2). Possibly as a result of this, in both schemes private sector participants described a preference for working with those authorities perceived to be more competent. Competence was not explicitly defined but broadly, authorities with a (pro)active approach to engagement with their partners were discussed in positive terms, whereas there was an implicit reluctance to engage with authorities that expected a greater level of guidance from their private sector partners. While such differences in competence were expressed by the BHY partners in general terms, specific authorities were cited by the WUN private sector partners as examples of competent partners or otherwise. Within WUN, authorities described by the private sector actors as more competent correlated with greater numbers of measures delivered in their areas. Similarly, authorities that described themselves as having less access to in-house expertise and resources to deliver energy ambitions correlated with lower levels of delivery in both WUN and BHY.

Lasker et al. (2001) assert that strong working relationships between partners are necessary to achieve synergy in a collaboration. Synergy is defined as "the extent to which the perspectives, resources, and skills of its participating individuals and organizations contribute to and strengthen the work of the group" (p.187). In examining the conditions for synergy, they note that "partners who are more active in partnerships perceive that they gain significantly more benefits than partners who are less active" (p.191). However,

this research suggests that the choice to be active is not always self-determined. Significantly, authorities with fewer staff or outsourced service delivery were more likely to have described their motivations for participation in the collaborative delivery in terms of mitigating in-house capacity or expertise limitations, yet these were the organisations less likely to be considered legitimate partners within the collaboration.

A key consideration to be drawn from the two cases is the major difference in perceptions of the value of collaboration between the two actor groups. Overall, across the two schemes, while the delivery volumes were comparable, the relationships between the parties in each collaboration were markedly different. As can be seen in Table 7-2, local authorities expressed a wide range of motivations for engaging in the schemes. Greater alignment is evident between the active BHY partners (authorities and building contractors) than between the WUN partners (authorities and energy suppliers). In both cases, the local authority motivations of power and overcoming constraints were not shared by the private sector firms. The pursuit of power by the local authorities was related to the need to operate within a market-based context; authorities anticipated a better chance of influencing the nature of delivery of the Green Deal and ECO in their areas by seeking to collaborate with private sector partners as a collective, rather than as individual organisations.

Bryson et al. (2006) assert that the effects of power imbalances are more significant where a shared purpose is absent. This appears to be borne out by the different responses to the challenging delivery context exhibited in the two collaborations. In the WUN collaboration, local authority actors from the scheme expressed a clear sense of frustration at their impotence compared to British Gas. In contrast, while the BHY organisations were subject to similar power differentials, actors described how as a collaborative group they chose to disregard the original contractual obligations and re-frame the collaboration in light of the changed environmental context. The differences in response between the two schemes suggests that the converse of Bryson et al.'s (2006) assertion may also be true: that the potential effects of power differentials within a collaboration can be mitigated through a shared purpose.

As has already been highlighted, it is not possible to infer causation from this research. However, across the two cases, the arguments associated with the activation of power differentials are supported by the specific example of CHF delivery through the schemes. In both cases, participants expressed positive sentiments regarding the value of the collaboration for delivering CHF. For BHY, this sentiment was broadly in alignment with the overall feelings of actors towards the scheme, and additionally validated actors'

motivations for participation centred on the benefits of collaborative arrangements to circumvent lengthy procurement process for individual projects. For WUN however, the degree of satisfaction expressed in the CHF element of the scheme runs counter to the general perception of the collaboration. A critical difference in the CHF sub-scheme was that funding was awarded to the local authorities; they then used their delivery partners to implement the activities they had bid to deliver. For WUN, this arrangement arguably increased both the power of the local authorities, and the shared interest between the two organisational groups, thus diminishing the effects of the power differential observed in the wider scheme.

7.4 Implications for theory and practice

The findings of this thesis have several implications for theory and practice: they have shown the value of the application of an integrated framework for analysis; they have raised a note of caution over the pursuit of large-scale initiatives; they have demonstrated that collaboration is not an all-purpose panacea to address a lack of organisational capacity or expertise; and they have raised questions about how best to support the varying needs of heterogenous local authorities in collaborative activity.

Considering first the theoretical implications, the development of the analytical framework in Chapter 3 has provided a means to systematically identify the institutional, stakeholder and organisational factors influencing both general energy activity and collaborative delivery arrangements, and the stages at which they act. Through the use of such an approach, the research demonstrates that in addition to the presence of the various influences, the interactions between them are an important factor in determining the actions of organisations. Institutional theory is well suited to facilitate the examination of the contextual situation informing organisational actions, but has been criticised for its lack of focus on agency. While previous studies have uncovered the interactions of institutional factors with organisational factors (Delmas and Toffel, 2004), integrating stakeholder and institutional theories into a single analytical framework in this research contributes to the reintegration of agency within institutional theory, long called for by organisational scholars (Hirsch and Lounsbury, 1997). Additionally, application of the theories to the local authority context provides a new perspective on a well-examined issue. Through the application of the integrated analytical framework, the significance of interactions between individual influences on the perceived success of the two collaborations was identified; something that would not have be identified if viewing the collaborations through a single analytical lens.

From a practice perspective, two key implications for local authority energy activity can be drawn from the research, both related to the scale of the arrangements examined. Firstly, the insights into issues that can arise from the pursuit of a large-scale approach provide local authorities (and other organisations) with the opportunity to consider the potential impacts of such issues at the antecedent stages of a scheme. Secondly, insights into the varying engagement between delivery partners and different authorities within the schemes raises questions about the usefulness of participation in a large-scale regional collaboration for smaller, lower capacity local authorities in a region, and suggests a need to seek alternative solutions to the problem of organisational capacity issues.

This research has demonstrated that the choice of local authorities to pursue a collective, and therefore large-scale approach to collaboration with the private sector introduced constraints to the collaboration process from the outset. The aggregated value of the contracts dictated the route to procurement, and limited the pool of private sector organisations that were able to tender for the opportunities to large delivery providers. However, despite an aggregated tender, and collaborative management of the resulting framework arrangements, individual authorities worked on a one-to-one basis with the private sector partners to realise their own individual delivery goals. Therefore, within the two collaborative schemes, examples of significant mismatches in scale between individual local authorities and the private sector organisation(s) were evident, coupled with variations in authorities' expertise and need for guidance. The presence of such mismatches created conditions within the collaborations for preferential relationships between the private organisations and individual authorities to develop, thereby undermining one of the ideological motivations identified for the collective approach, which was the opportunity for smaller authorities to benefit from the presence of the larger authorities within the schemes.

While the large-scale approach limited the success of collaboration between some of the individual authorities and the private sector organisations, there was a greater level of success observed in both schemes regarding the level of interaction between local authorities. Two distinct mechanisms for inter-authority support were identified, each of which were positively described by local authority actors. Within WUN, those authorities with lower capacities for activity tended to expect a non-specialist officer to extend their remit to engage with the scheme; such officers were at times supported by specialist staff from other authorities, either through practical actions or knowledge sharing. However, while this helped with the completion of individual tasks, it did not solve the constraint to collaboration arising from a lack of capacity to engage with the private sector partners. In

contrast within BHY, four of the authorities that identified a potential issue with organisational capacity, and a lack of specialist expertise within their staff, chose to recruit a single specialist individual to represent them collectively within the collaborative group. In doing so, the recruited individual was able to engage effectively with the private sector partners, and further their activity within the collaboration as a whole.

The two solutions for a lack of organisational capacity illustrate two conclusions arising from the research. Firstly, membership of a collaborative group alone is not enough to remove organisational constraints arising from capacity issues; a local authority with few, non-specialist staff remains as such when part of a larger collaborative group, particularly if that group has an instrumental focus such as cost-effective delivery. However, the solution exhibited by the sub-group of BHY authorities illustrates the second conclusion: resource pooling can be an effective mitigation measure for individual organisational capacity issues, and can reduce mismatches in scale between collaborating organisations. Relatedly, the concept of large-scale, area-based delivery itself should be challenged, to evaluate if it is the most appropriate solution for the context. Webb et al. (2017) include the need to support the identification of shared project delivery between local authorities, and the development of management structures to help scale up delivery as two actions that can help to realise long-term capacity building for energy engagement. With public sector activity increasingly involving private sector input as a result of the UK public sector landscape, the question of how to enable scale-appropriate collaborations should be considered alongside any new policies designed to encourage such a delivery mechanism.

While this research does not challenge large-scale delivery in principle, it highlights the different experience of the heterogeneous organisations participating in two large-scale schemes. The implications described in this section thus far suggest that it would be valuable to explore approaches to collaboration within different local authorities more generally, particularly with a view to resourcing. The different solutions within WUN and BHY to mitigate organisations capacity issues cannot at present provide anything other than a descriptive conclusion. By focusing more closely on the sub-cases of individual organisations within a wider range of collaborative groups, future research may be able to identify and evaluate further solutions for capacity issues, and compare their efficacy across a wider range of situations.

7.5 Strengths, limitations, and future research directions

This section discusses the strengths and limitations of the research conducted for this thesis, and the implications for the findings overall. This section serves to set out the

context in which the findings of this thesis should be considered, and suggests opportunities for further research.

This research uses a multiple case study approach (Stake, 2005; Yin, 2009). It focuses initially on a single case to contextualise and corroborate existing research into the choices and challenges facing UK local authorities, by re-examining and reframing the issues using the novel analytical framework developed in Chapter 3. In contrast, the findings of the Phase Two research are based on application of the framework to a new applied situation, but a single type of collaborative arrangement. Findings from the three studies are then compared.

A detailed justification of the choice of a case study methodology was presented in section 3.2.1, and the potential limitations of case study research in 3.5. The advantages and disadvantages of case study research are centred on the capacity for rigour in the approach. This research has employed several techniques to ensure rigour in the findings. These include the use of multiple cases, and triangulation with those cases ensures an accurate representation of the phenomena being investigated (Yin, 2009). The use of a single country focus enhances the comparability between the cases, due to the similar regulatory context in which they were implemented, thus minimising the number of variables that can exampling differences between the two cases (Kaarbo and Beasley, 1999).

However, limiting the research to a single country also limits the opportunity to enhance the validity of the conclusions by seeking alternative explanations for the observed phenomena. Despite the focus in Phase Two on a single type of collaborative arrangement, the research in this thesis has highlighted both benefits and potential drawbacks for local authorities engaging in collaboration for the delivery of energy efficiency retrofit. In particular it has identified issues that can challenge the effectiveness of a collaboration, drawing parallels with issues identified in different contexts, such as Lasker et al.'s (2001) framework for evaluating partnership synergy, based on health care examples. The parallels with wider studies suggest that the findings of this research may be applicable in a wider context. Further research, such as evaluation of similar energy collaborations in a different country, or in a non-energy context may reveal alternative conditions that induce similar actions within a collaboration. Similarly, application of the analytical framework to a broader range of collaborations offers the opportunity to develop generalised conclusions, which could be used to support future collaborative delivery.

The majority of participants were local authority actors, or direct participants in the collaborations under examination. The initial selection through the use of targeting provided a pragmatic starting point for selection of participants. Further interviews were generated through the use of the snowball technique. Interviews were not sought from those indirectly involved in the collaborations, for example, members of the intermediary organisations supporting the initial development of the schemes, or customers engaging with their products. The omission of these groups is an example of indeterminacy (Lincoln and Guba, 1985); in omitting these groups, the possibility of missing influences on the collaboration is raised. Therefore, while the existing findings have identified some important consideration for future collaborations, the findings should not be considered a comprehensive evaluation of all the possible factors that could affect a collaborations outcome. Additional data collection, extending the scope of participation to include actors solely involved in the antecedent stage would provide an opportunity to assess the robustness of the current findings, and extend knowledge to include the motivations and influences on intermediary actors.

Additionally, Chapter 5 identified a small number of authorities that chose to abstain from participation in the WUN collaboration, citing reservations centred on a dilution of control as part of a larger consortium, compared to being an independent operator. Similarly, both Chapter 5 and 6 identified evidence that the potential presence of an area-based collaboration was perceived by some authorities to be a threat to the degree of control they would hold over local activities if they remained outside of the collaborative group. The differing responses illustrated here suggest that it would be valuable to explore the experiences of authorities that choose to abstain from multi-authority collaborative delivery. Understanding the characteristics and motivations of abstaining authorities in more detail would provide an opportunity to evaluate the factors that enable them to make such a choice. Similarly, examining the impacts of large area-based collaborations on neighbouring jurisdictions would further inform how they are promoted and employed.

Importantly, while the findings are described in the context of local authority-led activity, this is an artefact of the cases chosen for comparison. The findings of the research relating to the significance of policy antecedents could be further strengthened by considering collaborations between local authorities and the private sector in which the private sector was the initiator. Doing so could provide the opportunity to examine whether different antecedent conditions have an impact on the interactions between public and private sector organisations during the collaboration process. Alternatively, it may demonstrate

that collaborations initiated by the private sector but in partnership with local authorities are in fact subject to similar antecedents.

The interviews in both phases were semi-structured in nature. The semi-structured approach provides freedom to response to the unique context of each interview (Braun and Clarke, 2013). Interview questions in both phases were phrased in such a way that participants were not specifically asked to list or quantify the relative importance of different types of influence. The purpose of the approach was to ensure that interviewees described their experience of the collaborations in terms that were important to them, minimising researcher-led indeterminacy (Lincoln and Guba, 1985). However, this approach also raises the possibility that the absence of an influence in the interview responses does not correlate to its absence in reality. The use of triangulation through documentary evidence provided opportunities to identify missed influences, but additional follow-up questions, or a more structured questioning approach may enable stronger conclusions to be drawn about the presence and significance of different influences to each organisation.

Finally, as noted in section 3.3.2.1, the Phase One data were originally collected with a different purpose in mind. Analysis of the data prompted a re-evaluation of the thesis focus, and the data were re-analysed accordingly. The fact that data were collected in advance of the re-evaluation of the thesis focus raises the possibility that opportunities to explore the influence on energy-related activity within LCC, and the role of collaboration were missed. The use of the desktop review in conjunction with the re-analysed data mitigates this limitation somewhat, however, the Phase One results should be considered with this in mind.

7.6 Final conclusions

> *How does the use of collaboration contribute to English local authorities realising their energy objectives?*

This thesis was motivated by a desire to understand how collaborative arrangements can help UK local authorities in realising their energy objectives. Examination of the extant local authority energy literature identified a consistent suggestion that collaboration (in the sense of working with other organisations) can address authorities' oft-identified lack of organisational capacity, expertise and finance to enact energy activity. Despite the asserted benefits in literature of collaborative delivery as both a means of addressing the constraints to activity, and a way of extending the reach of local authorities, there remains

a lack of focus on the use of collaboration by authorities, and how the process plays out in practise. Therefore, this work undertook to examine the use of collaboration to realise energy objectives by local authorities; Phase One identified examples of collaborative activity used within a single local authority, while Phase Two compared two similar collaborative arrangements across three stages to examine their antecedents, process and outcomes. The research considered how influences from institutional, stakeholder and organisational sources interact to shape the nature of such collaborative endeavours.

Overall, the research has shown that many of the influences on local authorities seeking to realise energy objectives have been present, and identified, for several decades. It has shown that engagement with external organisations by local authorities can successfully address constraints to local authority activity, by providing access to missing expertise, or mitigating organisational capacity issues. The focus on the large-scale collaborative arrangements in Phase Two of this research demonstrates that done successfully, such arrangements can simplify the procedures for individual projects, mitigate procedural delays, and raise the engagement of smaller, less well-resourced authorities with energy activity. However, the research has also shown that while less well-resourced authorities may be more engaged, this does not necessarily translate into realising objectives. In general, large-scale collaborations appear to be more beneficial to larger local authorities.

The research has also shown that there is a difference between a collaborative arrangement in the structural sense of working with external organisations, and a true collaborative relationship. Of the two schemes examined in Phase Two, one (WUN) can broadly be considered as collaborative in structure, but not in process; while sharing an interest in the material outcomes of the scheme, the local authorities and their private sector partner had distinct, and differing motivations for participation. When the rationale for participation was weakened for the private sector partner, the lack of a true collaborative relationship between the organisational groups was exposed, resulting in discord, mistrust, and ultimately, early disintegration of the scheme. In contrast, the BHY case exhibited characteristics associated with successful collaborative relationships: complementary motivations, constructive interactions, and decision-making that resulted in benefits for both the public and private sector organisations in the scheme.

Importantly, when measured in terms of material outcomes, both WUN and BHY can be considered failures against their original objectives, with each scheme delivering approximately one-third of the anticipated measures in the first three years of operation. The objective failure of the WUN scheme was coupled with a failure to effectively collaborate. However, the BHY scheme demonstrated that there is a difference between

project and collaborative success, and that success (or failure) in one does not guarantee success (or failure) of the other.

Across the two cases, the relative success of the collaborative endeavours can be tentatively linked to two dichotomies: proactive versus reactive, and flexible versus inflexible. In general, WUN can be characterised as reactive and inflexible, while BHY can be characterised as proactive and flexible. Historical relationships between the collaborating organisations, fortuitous timing compared to policy changes, and greater alignment between the public and private sector interests within BHY may have contributed to the proactive nature of the collaboration. In contrast, although the WUN organisations undoubtedly started with proactive intentions of becoming the first regional collaboration of its kind to deliver ECO, the collaboration itself was subject to externally imposed inflexibility. Reactive behaviour of the participating organisations ensued, and the collaboration failed. A key conclusion therefore is that collaboration is more likely to play a useful role in helping local authorities meet their energy objectives when it is proactively sought, and developed to allow flexibility within the collaborative process, that enables the potential for ongoing adaptation to the contextual influences experience by the individual organisations within collaborative group.

Finally, one of the arguments put forward at the outset of this thesis for taking an organisational view was the potential to identify heterogeneous responses to common influences. In both phases of research, heterogeneous behaviour was identified within common policy contexts. Coupled with such observations was the finding that decisions taken at a national level can have profound implications on local collaborative activities. For local authority collaboration to progress from a reactive measure to overcome organisational constraints, to a proactive mechanism for systemic changes to local energy activity, careful consideration of the policy context in which it is encouraged is likely to be needed, alongside an increased focus on creating the conditions for collaborative success.

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Appendices

Appendix A: Phase One Ethical Consent Information

UNIVERSITY OF LEEDS

Consent to take part in Decisions on Energy Infrastructure Investment: Stakeholder Interviews

Please initial next to the statements if you agree:

I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.	
I understand that the interview will be recorded in audio format only, and that the recordings will be used only for analysis. No other use will be made of them without my written permission, and no one outside the project will have access to the original recordings.	
I understand that I have the right to request that data already provided be excluded from the research if it has not already been anonymised and amalgamated with other data.	
I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. I understand that my responses will be kept strictly confidential.	
I agree for the data collected from me to be stored and used in relevant future research in an anonymised form.	
I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	
I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change.	
I would like to be kept informed as to the progress of the research.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	
Signature	
Date	

Decisions on Energy Infrastructure Investment: Stakeholder Interviews

This sheet provides information on the research project and interview process in which you have been invited to participate. Please take time to read the information, and seek clarification if there is anything that is not clear or if you would like more information before you make a decision on whether or not you wish to take part.

These interviews are being conducted as part of a wider piece of research into Distributed Energy Investment in Cities, for a PhD by Katrina Adam of the EPSRC funded Doctoral Training Centre for Low Carbon Technologies at the University of Leeds.

The interviews are designed to give insight into the methods used for assessing the viability of distributed energy generation projects within cities and the criteria upon which decisions surrounding energy infrastructure investment are made. It is anticipated that the results from these interviews will be used to inform the development of spatially referenced decision support resources that will identify distributed energy (electricity) generation opportunities within a city. In the first instance, these will be applied to a case study of the City of Leeds, but will be applicable to other cities where data is available. Therefore, to ensure a wider applicability of the methodology for the resources, interviewees do not have to be based within the city of Leeds. It is hoped that the creation of the resources will in turn provide insights that can inform policy development within the arena of distributed energy investment.

Interviewees would be expected to work in a role in which they are making decisions about distributed energy investment, overseeing the strategic direction of distributed generation in cities in the UK, or working on projects related to assessing the technical viability of distributed energy generation, or associated enablement technologies. Interviewees may also be invited to participate because they work within an organisation which owns and manages a large number of assets where there may be potential for distributed generation. You have been invited to take part because of your involvement in one or more of these aspects.

Interviews will take the form of a loosely structured conversation lasting approximately one hour. These will be at the workplace of the participant, except in the case of community energy groups, in which case a mutually convenient location will be agreed. All interviews will be recorded (audio only) and transcribed for use in the research.

It is up to you to decide whether or not you wish to take part. If you do decide to take part you will be given this information sheet to keep, and be asked to sign a consent form at the start of the interview. You are entitled to withdraw from the process at any time.

Personal data collection will be limited to the participants name and organisation, and will be kept strictly confidential. Transcript information will be anonymised, used and stored according to the University of Leeds data protocols. Anonymised data may be shared in due course according to EPSRC public-funded research data rules. In these circumstances your written approval will be sought, and you will have the right to withhold consent to share any or all of your contributions. Confidential information will not be shared beyond the project team under any circumstance.

If you require any further information please contact Katrina Adam, email: pmkla@leeds.ac.uk

Example Stakeholder Questions

Introduction

Aims of project

Consent – including signing consent form

Interest in urban energy

1. What is your position in the organisation?
    - Can you tell me about what your role involves in relation to urban energy?
2. What are the opportunities presented by your work?
3. What is the specific motivation behind *your work/teams work/organisation/project* in urban energy?
4. What are the challenges?
5. *Is there a good project example that illustrates the things you have described?*

Interest in strategic planning

6. Is your *project/work* part of a wider strategic ambition for the organisation?
    - How is the strategy developed?
    - Can you see a place for strategic planning in *your work/the organisation*?
7. What are the particular opportunities presented by strategic planning?
8. What are the challenges?

Knowing the resource

9. How do you generally assess the renewable urban energy resource?
    - Do you have enough information to do this effectively?
    - Are there gaps in the information?
    - Are the methods you use adequate for the task?
    - What is the nature of the information?
        - *Public/in-house/proprietary*
    - What would improve your access to resource information?
    - *Is there a good project example that illustrates the things you have described?*
10. What modelling methods do you use, if any?
    - Do you use any other tools for resource assessment?
11. What evidence from the resource assessment do you use to build a business case?

Knowing the city

12. Do you need to understand the wider city characteristics as part of your role?
        - *Socio-economic/physical characteristics/planning and development*
13. What data do you use for this?
    - Is this compatible with information about energy resources?
    - Do you ever use the two together?

14. How does the information you use inform your decisions?
    - *Is there a good project example that illustrates the things you have described?*

Decision-making generally

15. On what criteria are your decisions surrounding urban energy based?
    - How do you arrive at the criteria chosen?
    - How do you decide the relative importance of various criteria?
16. Do you feel you have enough information to make decisions effectively?
    - What would make decision-making easier?
17. Do you ever use decision support tools to help you?

Risk and investment

18. What are the criteria for final investment approval?
19. How is risk managed in investment decisions?
20. What are the most significant risks that are taken into consideration?
    - *Qualitative/Quantitative*
21. How do future estimates of the urban energy landscape influence these decisions?

Final round-up

22. Do you think that there is a role for urban energy beyond simply energy provision for a city?
23. Would you like to add any further thoughts that have not been covered by the questions?
24. Who else should we talk to?
25. Would you like to be kept up to date with the research?

Thanks

Appendix B: Grey literature and Documentary Data Sources

Grey Literature Sources

Reference Code	Source
G-1	CCC 2012. How local authorities can reduce emissions and manage climate risk [Online]. London. Available from: https://www.theccc.org.uk/publication/how-local-authorities-can-reduce-emissions-and-manage-climate-risks/.
G-2	Cirell, S. 2016. ESCOs: What they are, why they're important and how businesses can benefit. Clean Energy News. [Online]. Available from: https://www.current-news.co.uk/blogs/escos-what-they-are-why-theyre-important-and-how-businesses-can-benefit.
G-3	Coyne, B. 2017. Doncaster and Islington launch local energy companies via Robin Hood. the energyst. [Online]. Available from: https://theenergyst.com/doncaster-and-islington-launch-local-energy-companies-via-robin-hood/.
G-4	DCLG 2007. Development of the new LAA framework: Operational Guidance 2007.
G-5	DECC 2010. Energy Bill: Green Deal Impact Assessment.
G-6	DECC 2010. The Green Deal: A summary of the Government's proposals [Online]. London. Available from: https://www.gov.uk/government/publications/the-green-deal-a-summary-of-the-governments-proposals.
G-7	DECC 2010. The Green Deal: Energy savings for homes and business [Online]. Available from: https://www.gov.uk/government/publications/the-green-deal-energy-savings-for-homes-and-businesses.
G-8	DECC 2010. The Rt Hon Chris Huhne MP welcomes confirmation of Energy Bill in Queen's Speech. [Accessed 7 February 2017]. Available from: https://www.gov.uk/government/news/the-rt-hon-chris-huhne-mp-welcomes-confirmation-of-energy-bill-in-queens-speech.
G-9	DECC 2011. £200m funding boost for Green Deal. [Accessed 1 May 2016]. Available from: https://www.gov.uk/government/news/200m-funding-boost-for-green-deal.
G-10	DECC 2011. Local Authorities and the Green Deal - Information note [Online. Available at: https://www.gov.uk/guidance/local-authorities-and-the-green-deal, [Accessed 12/07/2017]
G-11	DECC 2011. Memorandum of Understanding: Between the LG Group and the Department of Energy and Climate Change [Online]. London. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48040/1380-mou-lggroup-decc.pdf.
G-12	DECC 2011. Microgeneration Strategy [Online]. Available from: http://www.sciencedirect.com/science/article/pii/001632879490071X.
G-13	DECC 2011. Planning our electric future: a White Paper for secure, affordable and low-carbon electricity [Online]. London. Available from: http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx.

Reference Code	Source
G-14	DECC 2011. The Green Deal and Energy Company Obligation: Consultation Document. London.
G-15	DECC 2011. UK Renewable Energy Roadmap [Online]. London. [Accessed 21 November 2017]. Available from: http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/re_roadmap/re_roadmap.aspx.
G-16	DECC 2012. DECC Local Authority Funds 2012-13 [Online]. [Accessed 2 October 2017]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68860/6712-local-authority-competition-fund-application-pack.pdf.
G-17	DECC 2012. Final Stage Impact Assessment for the Green Deal and Energy Company Obligation [Online]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf.
G-18	DECC 2012. Guidance to English Energy Conservation Authorities Issued Pursuant to the Home Energy Conservation Act 1995 [Online]. London. Available from: https://www.gov.uk/government/publications/guidance-to-english-energy-conservation-authorities-the-home-energy-conservation-act-1995.
G-19	DECC 2012. Improving Energy Efficiency in Buildings: Resources Guide for Local Authorities. . (October),pp.1–31.
G-20	DECC 2012. Progress on setting up the Green Deal Framework. London.
G-21	DECC 2012. The Green Deal and Energy Company Obligation: Government Response to the November 2011 Consultation. London.
G-22	DECC 2014. Community Energy Strategy: Full Report [Online]. London. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/275169/20140126Community_Energy_Strategy.pdf.
G-23	DECC 2014. Green Deal Panel for Hard to Reach Audiences Report [Online]. London. Available from: https://www.gov.uk/government/publications/green-deal-panel-for-hard-to-reach-audiences-report
G-24	DECC 2014. The Future of the Energy Company Obligation [Online]. London. [Accessed 14 December 2016]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/342178/The_Future_of_the_Energy_Company_Obligation_Government_Response.pdf.
G-25	DECC 2015. 2010 to 2015 government policy: low carbon technologies. Available from: https://www.gov.uk/government/publications/2010-to-2015-government-policy-low-carbon-technologies/2010-to-2015-government-policy-low-carbon-technologies#appendix-6-renewable-heat-incentive-rhi.
G-26	DECC 2015. Consultation on changes to Feed - in Tariff accreditation [Online]. London. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447314/FITs_pre-accreditation.pdf.
G-27	DECC 2015. Consultation on changes to financial support for solar PV [Online]. London. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447321/Solar_PV_within_the_RO_consultation.pdf.

Reference Code	Source
G-28	DECC 2015. Cutting the cost of keeping warm: A fuel poverty strategy for England. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/408644/cutting_the_cost_of_keeping_warm.pdf.
G-29	DECC 2015. The Central Heating Fund [Online]. London. Available from: https://www.gov.uk/government/publications/central-heating-fund-local-authority-guidance.
G-30	DECC 2102. £12m boost to help cities kick-start Green Deal. [online]. Available from https://www.gov.uk/government/news/12m-boost-to-help-cities-kick-start-green-deal
G-31	Department for Communities and Local Government 2011. A plain guide to the localism act. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/5959/1896534.pdf.
G-32	DoE 1990. This common inheritance: Britain's environmental strategy.
G-33	DTI 2003. Energy White Paper - Our energy future - creating a low carbon economy [Online]. London. Available from: http://webarchive.nationalarchives.gov.uk/+/http:/www.berr.gov.uk/files/file10719.pdf.
G-34	DTI 2007. Meeting the Energy Challenge: A White Paper on Energy [Online]. London. [Accessed 26 September 2017]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/243268/7124.pdf.
G-35	ECCC 2016. Home energy efficiency and demand reduction: Fourth report of session 2015-16 [Online]. London. Available from: http://www.publications.parliament.uk/pa/cm201516/cmselect/cmenergy/552/552.pdf.
G-36	ENA 2014. The Distribution Code & The Guide to the Distribution Code of Licenced Distribution Network Operators of Great Britain.
G-37	Friends of the Earth 2011. Briefing: The impact of abolishing National Indicator 186. . (February). Available from: http://www.foe.co.uk/sites/default/files/downloads/impact_abolish_ni186.pdf.
G-38	Green Deal Arrangements Agreement Version 2.6, Available at: http://gdorb.decc.gov.uk/gdaa, [Accessed 30/01/2018]
G-39	HM Government 1989. Electricity Act 1989 - Standard conditions of the Electricity Distribution Licence [Online]. UK. Available from: http://bit.ly/131CV35.
G-40	HM Government 2000. Warm Homes and Energy Conservation Act. [Accessed 2 July 2018]. Available from: http://www.legislation.gov.uk/ukpga/2000/31/contents.
G-41	HM Government 2004. Housing Act. Available from: http://www.legislation.gov.uk/ukpga/2004/34/contents.
G-42	HM Government 2011. Localism Act 2011 [Online]. Available from: http://www.legislation.gov.uk/ukpga/2011/20/contents/enacted.

Reference Code	Source
G-43	HM Government 2011. The Carbon Plan: Delivering our low carbon future [Online]. London. Available from: http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/carbon-plan/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf.
G-44	HM Government 2012. The Electricity and Gas (Energy Companies Obligation) Order 2012. Available from: http://www.legislation.gov.uk/uksi/2012/3018/pdfs/uksi_20123018_en.pdf.
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D-2	1: LCC	Friends of the Earth (2010),Carbon cut gives Leeds a green future, Available at: https://sites.google.com/site/leedsfoe/Home/get-serious-leeds/press	Friends of the Earth	Web page
D-3	1: LCC	LCC (2009), Climate Change Action Plan, Available at: https://www.leeds.gov.uk/docs/lcc%20climate%20change%20action%20plan.pdf	Leeds City Council	Report
D-4	1: LCC	LCC (2009), Council pledges to cut carbon emissions by 40%, Available at: https://news.leeds.gov.uk/council-pledges-to-cut-carbon-emissions-by-40/	Leeds City Council	Report
D-5	1: LCC	LCC (2009?), Leeds Climate Change Strategy: Vision for Action (draft), Available at: https://democracy.leeds.gov.uk/documents/s26464/DRAFT%20FINAL%20CLIMATE%20CHANGE%20STRATEGY%20230109.pdf	Leeds City Council	Report
D-6	1: LCC	LCC (2010), Natural Resources and Waste: Energy topic paper, Available at: https://democracy.leeds.gov.uk/documents/s49062/Energy%20topic%20paper%2030.9.10.pdf	Leeds City Council	Report
D-7	1: LCC	LCC (2011), Leeds City Priority Plan, Available at: https://www.leeds.gov.uk/docs/Leeds%20City%20Priority%20Plan.pdf	Leeds City Council	Report
D-8	1: LCC	LCC (2011), Solar PV Panels Initiative - Business Case v2.0 FINAL, Received through personal communication	Leeds City Council	Personal Communication
D-9	1: LCC	Peter Lynes (2011), Carbon and water management plan 2011-2021: Report to the Executive Board 30/03/2011, Leeds City Council	Leeds City Council	Meeting Records
D-10	1: LCC	George Munson (2012), Leeds Climate Change Strategy 2012-2015 (light touch review): Report to the Executive Board 18/07/2012, Leeds City Council	Leeds City Council	Meeting Records
D-11	1: LCC	LCC (2012), Leeds Climate Change Strategy: Making the Change 2012 to 2015, Available at: https://www.leeds.gov.uk/docs/Climate%20Change%20Strategy%202012%20AW.pdf	Leeds City Council	Report
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Reference Code	Case Study	Source	Organisation	Data Type
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D-15	1: LCC	LCC (2015), Best Council Plan 2015-2020, Available at: https://democracy.leeds.gov.uk/documents/s133599/item%2010%20-%20appendix%202%20-%20Detailed%20BCP%20Objectives%202015-16%20FINAL.pdf	Leeds City Council	Report
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D-17	1: LCC	LCC (2015), Leeds City Council Energy Policy, Available at: https://www.leeds.gov.uk/docs/Leeds%20City%20Council%20Energy%20Policy.pdf	Leeds City Council	Report
D-18	1: LCC	LCC (2015), Leeds City Council Home Energy Conservation Act Further Report Progress Update, Available at: https://www.leeds.gov.uk/docs/HECA%20further%20report%202015.pdf	Leeds City Council	Report
D-19	1: LCC	LCC (2015), Leeds City Council Sustainable Energy Action Plan, Available at:https://www.leeds.gov.uk/docs/SEAP%20Template%20to%20UPLOAD%20290916.pdf	Leeds City Council	Report

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D-21	2: WUN	British Gas (2013), Landmark £200m energy project warms up North East households, Available at: https://www.britishgas.co.uk/media/r/657/landmark__200m_energy_project_warms_up_north_east, [Accessed 15/02/2017]	British Gas	News article
D-22	2: WUN	Peter Brewer (2014), Warm Up North (presentation), Available at: http://www.darlington.gov.uk/media/106674/Warm_up_North-_Peter_Brewer.pdf, [Accessed 02/03/2017]	British Gas	Presentation
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D-24	2: WUN	*Centrica 2017* [online], Available at: https://www.centrica.com/sites/default/files/investors/7_march_2017_centrica_corporate_snapshot.pdf]	British Gas	Report
D-25	2: WUN	WUN scorecard: totals, Received through personal communication	British Gas	Personal Communication
D-26	2: WUN	Centrica (2018), Centrica: About us, Available at: https://www.centrica.com/about-us, [Accessed 04/02/2018]	British Gas	Webpage
D-27	2: WUN	DBC (2011), Item 2: (Urgent Item) Housing Retrofit Programme 2013/16, Cabinet Meeting 06/12/2011	Darlington Borough Council	Meeting Records
D-28	2: WUN	Murray Rose (2011), Housing Retrofit Programme 2013/16: Report to the Cabinet 03/12/2011, Darlington Borough Council	Darlington Borough Council	Meeting Records
D-29	2: WUN	DBC (2012), Item 3: (Urgent Item) Warm up North - Memorandum of Understanding, Cabinet Meeting 03/04/2012, Town Hall, Darlington	Darlington Borough Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
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D-31	2: WUN	DBC (2012), Item 7c: Memorandum of Understanding, Cabinet Meeting 03/04/2012, Town Hall, Darlington	Darlington Borough Council	Meeting Records
D-32	2: WUN	Richard Alty (2012), Warm Up North Pilot Project: Report to the Cabinet 06/11/2012, Darlington Borough Council	Darlington Borough Council	Meeting Records
D-33	2: WUN	Richard Alty (2013), Warm Up North - Inter Authority Agreement: Report to the Cabinet 04/06/2013, Darlington Borough Council	Darlington Borough Council	Meeting Records
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D-35	2: WUN	DBC (2015), FOI 2000 Information Request, Available at: https://www.whatdotheyknow.com/cy/request/246539/response/609033/attach/2/150123%200820%20FoI%20Response.doc, [Accessed 02/03/217]	Darlington Borough Council	Letter
D-36	2: WUN	DBC (2017), Home Energy, Available at: http://www.darlington.gov.uk/environment-and-planning/home-energy/, [Accessed 03/03/2017]	Darlington Borough Council	Web Page
D-37	2: WUN	Lorraine O'Donnell and Ian Thompson (2013), Warm Up North Arrangements and Governance: Report to the Environment and Sustainable Communities Overview and Scrutiny Committee 08/04/2013, Durham	Durham County Council	Meeting Records
D-38	2: WUN	DCC (2017), Warm Up North - Energy Company Obligation, Available at: http://www.durham.gov.uk/article/3135/Warm-Up-North---Energy-Company-Obligation, [Accessed 15/02/217]	Durham County Council	Web Page
D-39	2: WUN	GC (2013), Item 11: Capital Programme and Prudential Indicators 2013/14 - First Quarter Review, Cabinet Meeting 16/07/2013, Civic Centre, Gateshead	Gateshead Council	Meeting Records
D-40	2: WUN	GC (2013), Item 2.C2: Minutes of the Cabinet Meeting 21/05/2013, Civic Centre, Gateshead	Gateshead Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-41	2: WUN	GC (2013), Item 3: Warm Up North Partnership, Report to the Cabinet Meeting 21/05/2013, Civic Centre, Gateshead	Gateshead Council	Meeting Records
D-42	2: WUN	GC (2015), Item 13: Petitions Schedule, Cabinet Meeting 15/12/2015, Civic Centre, Gateshead	Gateshead Council	Meeting Records
D-43	2: WUN	GC (2017), Fuel Poverty (In Focus), Available at: http://www.gateshead.gov.uk/Health-and-Social-Care/JSNA/Topics/Economy-Transport-Housing-Environment-Crime-and-Poverty/Poverty/Fuel-Poverty-In-Focus/What-are-we-doing-and-why.aspx, [Accessed 02/03/2017]	Gateshead Council	Web Page
D-44	2: WUN	HBC (2013), Item 5.2: Warm Up North - Delivery of Green Deal Measures for Residents, Finance and Policy Committee 28/08/2013, Civic Centre, Hartlepool	Hartlepool Borough Council	Not Applicable
D-45	2: WUN	HBC (2013), Item 5.2: Key Decisions - Warm Up North - Delivery of Green Deal Measures for Residents, Financial and Policy Committee 23/08/2013, Civic Centre, Hartlepool	Hartlepool Borough Council	Meeting Records
D-46	2: WUN	HBC (2013), Item 78: Decision - Up North - Delivery of Green Deal Measures for Residents, Financial and Policy Committee 23/08/2013, Civic Centre, Hartlepool	Hartlepool Borough Council	Meeting Records
D-47	2: WUN	HBC (2017), Free Central Heating through Warm Up North, Available at: https://hartlepool.fsd.org.uk/kb5/hartlepool/fsd/organisation.page?id=EG0A-7qBRsE, [Accessed 15/02/2107]	Hartlepool Borough Council	Web Page
D-48	2: WUN	NCC (2010), Item 13: Notice of Motion - The Newcastle Climate Change Declaration, Meeting of the City Council 03/03/2010, Newcastle	Newcastle City Council	Meeting Records
D-49	2: WUN	NCC (2011), Improving energy efficiency in homes in Newcastle and the North East: Report by the Executive Director of Environment and Regeneration to Cabinet 27/07/2011	Newcastle City Council	Meeting Records
D-50	2: WUN	NCC (2012), Warm Up North - Approval to Procure a Green Deal Delivery Partner: Report by the Executive Director of Environment and Regeneration to Cabinet 25/01/2012	Newcastle City Council	Meeting Records
D-51	2: WUN	European Union (2013), Publication of Supplement to the Official Journal of the European Union: Contract Notice ID:2012/S 122-201964, 28/06/2012	Newcastle City Council	OJEU Notice
D-52	2: WUN	Martin Walker (2013), Warm Up North - Approval to Appoint a Green Deal Delivery Partner: Report to Cabinet 26/06/2013, Newcastle City Council	Newcastle City Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
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D-54	2: WUN	NCC (2014), Keeping Householders safe and warm, Available at: https://www.newcastle.gov.uk/news-story/keeping-householders-safe-and-warm, [Accessed 02/03/2017]	Newcastle City Council	Web Page
D-55	2: WUN	CoM (2016), A holistic approach towards energy cost reduction, Available at: http://www.covenantofmayors.eu/IMG/pdf/Newcastle_2016.pdf, [Accessed 02/03/2017)	Newcastle City Council	News article
D-56	2: WUN	John Henderson (2016), Warm Up North (presentation), Available at: http://managenergy.net/lib/documents/1381/original_NEWinRETRO_-_John_Henderson.pdf?1431080552, [Accessed 15/02/2017]	Newcastle City Council	Presentation
D-57	2: WUN	NoCC (2016), Don't miss out on a free central heating system, Available at: http://www.northumberland.gov.uk/News/2016/Feb/Don-t-miss-out-on-a-free-central-heating-system.aspx, [Accessed 02/03/2017]	Northumberland County Council	Web Page
D-58	2: WUN	NoCC (2017), Warm Up North, Available at: http://www.northumberland.gov.uk/About/Partners/Warm-Up-North.aspx, [Accessed 15/02/2017]	Northumberland County Council	Web Page
D-59	2: WUN	SBC (2015), Item 18/15 - Covenant of Mayors - European Carbon Reduction Project, Cabinet Meeting 16/07/2015, Stockton Central Library, Stockton-on-Tees	Stockton Borough Council	Meeting Records
D-60	2: WUN	SBC (2015), Item 25/15 ECO External Wall Insulation Scheme Update, Cabinet Meeting 16/07/2015, Stockton Central Library, Stockton-on-Tees	Stockton Borough Council	Meeting Records
D-61	2: WUN	SCC (2011), Item 8: Children and Young People's Plan annual Report 2010-2011, Priority Outcome 15, Cabinet Meeting 07/09/2011, Civic Centre, Sunderland	Sunderland City Council	Meeting Records
D-62	2: WUN	SCC (2013), Item 5: Green Deal Options Including the Warm Up North Initiative: Report of the Deputy Chief Executive to Cabinet 16/01/2013	Sunderland City Council	Meeting Records
D-63	2: WUN	STC (2012), Warm Up North - Project Update: Report of the Corporate Director, Economic Regeneration to Cabinet 28/03/2012	South Tyneside Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-64	2: WUN	STC (2013), Warm Up North - Approval to Enter into an Inter-Authority Agreement: Report of the Corporate Director, Economic Regeneration to Cabinet 10/07/2013	South Tyneside Council	Meeting Records
D-65	2: WUN	STC (2014), Warm Up North - South Tyneside (presentation)	South Tyneside Council	Presentation
D-66	2: WUN	STC (2014), Warm Up North energy scheme offers South Tyneside residents free Green Deal assessments, Available at: https://www.southtyneside.gov.uk/article/42156/Warm-Up-North-energy-scheme-offers-South-Tyneside-residents-free-Green-Deal-assessments, [Accessed 15/02/2017]	South Tyneside Council	Web Page
D-67	2: WUN	WUN (2013), British gas to deliver UK's largest energy saving scheme: Warm Up North, Available at: https://warmupnorth.com/british-gas-to-deliver-uks-largest-energy-saving-scheme-warm-up-north/, [Accessed, 02/03/2017]	WUN	News article
D-68	2: WUN	Graeme Stephenson (2014), Warm Up North (presentation), Available at: http://www.renting-in-gateshead.co.uk/members/documents/gpla_presentation_041013.pdf, [Accessed 02/03/2017]	WUN	Presentation
D-69	2: WUN	NCC (2015), Warm Up North: Save Energy - Save Money, pp. 1- 40, Newcastle City Council on Behalf of the Warm Up North Partnership, Personal Communication.	WUN	Report
D-70	2: WUN	WUN (2017), Warm Up North, https://warmupnorth.com/, [Accessed 15/02/2017]	WUN	Web Page
D-71	2: WUN	Building Council (2013), North East warms to the Green Deal, Available at: http://www.ukgbc.org/news/north-east-warms-green-deal, [Accessed 02/03/2017]	Other	News article
D-72	2: WUN	Government Opportunities (2013), British Gas secures £200m North East energy efficiency contract, Available at: http://www.govopps.co.uk/british-gas-secures-200m-north-east-energy-efficiency-contract/, [Accessed 02/03/2017]	Other	News article
D-73	2: WUN	Group Horizon (2013), Group Horizon part of Successful Warm Up North Bid, Available at: http://www.grouphorizon.co.uk/group-horizon-part-of-successful-warm-up-north-bid/, [Accessed 02/03/2017]	Other	News article
D-74	2: WUN	Karen McLauchlan (2013), Warm Up North: Landmark £200m energy project warms up North-east households, Gazette Live [online], Available at:	Other	News article

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D-75	2: WUN	Kelley Price (2013), Warm Up North: Leading the drive to help cut consumers' fuel bills, Gazette Live [online], Available at: http://www.gazettelive.co.uk/business/warm-up-north-leading-drive-6121032, [Accessed 02/03/2017]	Other	News article
D-76	2: WUN	Mark Tallentire (2013), Thousands to benefit from Warm Up North Scheme, The Northern Echo [online], Available at: http://www.thenorthernecho.co.uk/news/10571680.Thousands_to_benefit_from___200m_Warm_Up_North_scheme/?ref=nt, [Accessed 15/02/2017]	Other	News article
D-77	2: WUN	Nick Duxbury (2013), British Gas wind 50,000 home retrofit contract, Insider Housing [online], Available at: http://www.insidehousing.co.uk/british-gas-wins-50000-home-retrofit-contract/6527880.article, [Accessed 02/03/2017]	Other	News article
D-78	2: WUN	Walton Robinson (2013), £200m 'Warm Up North' Scheme announced by Newcastle City Council as part of the Green Deal, Available at: http://www.waltonrobinson.com/news/2013/200m-warm-up-north-scheme-announced-by-newcastle-city-council-as-part-of-the-green-deal/, [Accessed 02/03/2017]	Other	News article
D-79	2: WUN	Town Talk (2014), Solar Panels to Bring Savings and Earnings for Redcar and Cleveland Residents, Available at: http://www.redcar.towntalk.co.uk/news/d/46976/solar-panels-to-bring-savings-and-earnings-for-redcar-and-cleveland-residents, [Accessed 02/03/2017]	Other	News article
D-80	2: WUN	CITYNVEST (2015), Warm Up North, Available at: http://citynvest.eu/content/warm-north, [Accessed 15/02/2017]	Other	Web Page
D-81	2: WUN	This Is Redcar and Cleveland (2015), Energy efficiency scheme turns up the heat on inefficiency gas boilers, Available at: https://www.redcar-cleveland.gov.uk/pressrel.nsf/published/march_2015_energy_efficiency_scheme_turns_up_the_heat_on_inefficient_gas_boilers, [Accessed 02/03/2017]	Other	News article
D-82	2: WUN	Emily (2016), North East residents and community groups to keep 'Warm Up North' through free boiler scheme, NEConnected [online], Available at: http://neconnected.co.uk/north-east-	Other	News article

Reference Code	Case Study	Source	Organisation	Data Type
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D-83	2: WUN	In and Around (2016), Available at: http://inandaroundonline.co.uk/2016/03/warm-up-north-scheme-installs-free-central-heating/, [Accessed 02/03/2017]	Other	News article
D-84	3: BHY	BHY (2015), Better Homes Yorkshire: Presentation at the Yorkshire and Humber Fuel Poverty Forum, 2015, Available at http://www.nea.org.uk/wp-content/uploads/2015/08/YH-Forum-5-Nov-15.pdf, [Accessed 18/11/2016]	BHY	Presentation
D-85	3: BHY	BHY (2015), Leeds City Region goes green with Better Homes Yorkshire, Available at: https://www.betterhomesyorkshire.co.uk/9-news-leeds-city-region-goes-green-with-better-homes-yorkshire.html, [Accessed 13/03/2017]	BHY	Web Page
D-86	3: BHY	BHY (2016), About Us, Available at: http://www.betterhomesyorkshire.co.uk/about-us.html, [Accessed 18/11/2016]	BHY	Web Page
D-87	3: BHY	BMBC (2015), Barnsley to benefit from Leeds City Region's "Better Homes" programme, Available at: https://www.barnsley.gov.uk/news/barnsley-to-benefit-from-leeds-city-region-s-better-homes-programme/, [Accessed 08/12/2016]	Barnsley Metropolitan Borough Council	News article
D-88	3: BHY	BMDC (2015), Launch of new scheme brings reduced fuel bills to Barnsley residents, Available at: https://www.barnsley.gov.uk/news/launch-of-new-scheme-brings-reduced-fuel-bills-to-barnsley-residents/, [Accessed 13/03/2017]	Barnsley Metropolitan Borough Council	News article
D-89	3: BHY	BMBC (2017), Yorkshire Councils bring heating to struggling Households, Available at: https://www.barnsley.gov.uk/news/yorkshire-councils-bring-heating-to-struggling-households/, [Accessed 13/03/2017]	Barnsley Metropolitan Borough Council	News article
D-90	3: BHY	BMBC (2013), Item 7.1: BMBC's Participation in the Leeds City Region Green Deal Scheme, Cabinet Meeting 17/07/2013, Town Hall, Barnsley	Barnsley Metropolitan Borough Council	Meeting Records
D-91	3: BHY	BMBC (2014), Item 11: BMBC Participation in the Leeds City Region Green Deal/ECO Scheme, Cabinet Meeting 08/10/2014, Town Hall Barnsley	Barnsley Metropolitan Borough Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-92	3: BHY	BMBC (2014), Item 6.4: Corporate Finance Summary, Cabinet Meeting 14/08/2013, Town Hall, Barnsley	Barnsley Metropolitan Borough Council	Meeting Records
D-93	3: BHY	BMBC (2015), Energy Strategy 2015 - 2025, Barnsley Metropolitan District Council	Barnsley Metropolitan Borough Council	Report
D-94	3: BHY	BMBC (2016), £1.5 million to support people in Leeds City Region to warm their homes, Available at: https://www.barnsley.gov.uk/news/gbp15-million-to-support-people-in-leeds-city-region-to-warm-their-homes/, Accessed [13/03/2017]	Barnsley Metropolitan Borough Council	News article
D-95	3: BHY	BMBC (2016), Decision: Better Homes Barnsley Scheme - Acceptance of Leeds City Region Local Growth Funding , Cabinet Spokesperson Place, 25/10/2016	Barnsley Metropolitan Borough Council	Meeting Records
D-96	3: BHY	BMBC (2016), New Funding to Keep Homes Warmer in Barnsley, https://www.barnsley.gov.uk/news/new-funding-to-help-keep-homes-warmer-in-barnsley/, [Accessed 13/03/2017]	Barnsley Metropolitan Borough Council	News article
D-97	3: BHY	BMDC (2012), Item 63: Document O - Report of the Environment and Climate Change Unit, Environment and Waste Management Overview and Scrutiny Committee 31/01/2012, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-98	3: BHY	BMDC (2014), Item 24: Leeds City Region Green Deal Contract, Governance and Audit Committee 19/09/2014, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-99	3: BHY	BMDC (2014), Item 5: Document P - Report of the Strategic Director Regeneration & Culture, Environment and Waste Management Overview & Scrutiny Committee 28/10/2014, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-100	3: BHY	BMDC (2014), Item 8: Document AB - Report of the Strategic Director of Regeneration & Culture, Executive Committee 04/11/2014, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-101	3: BHY	BMDC (2015), Item 10: Document O - Report of Strategic Director Regeneration, Environment and Waste Management Overview & Scrutiny Committee 06/10/2015, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-102	3: BHY	BMDC (2016), Item 7: Document K - Appendix 2: Report of the Strategic Director of Regeneration, Environment and Waste Management Overview and Scrutiny Committee 25/10/2016, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-103	3: BHY	BMDC (2016), Item 7: Document K - Report of the Strategic Director of Regeneration, Environment and Waste Management Overview and Scrutiny Committee 25/10/2016, City Hall, Bradford	Bradford Metropolitan District Council	Meeting Records
D-104	3: BHY	CDC (2013), POL 508: Leeds City Region Green Deal Scheme, Policy Committee Meeting 23/04/2013, Skipton	Craven District Council	Meeting Records
D-105	3: BHY	CDC (2013), Up to £1.5 million to support residents to warm their homes, Available at: http://www.cravendc.gov.uk/article/5414/15milliontosupportresidentstowarmtheirhomes, [Accessed 13/03/2017]	Craven District Council	News article
D-106	3: BHY	CMBC (2011), Item 82: The Green Deal - Report of the Economy and Environment Scrutiny Panel, Cabinet 31/10/2011	Calderdale Metropolitan Borough Council	Meeting Records
D-107	3: BHY	CMBC (2011), The Green Deal: Report of the Economy and Environment Scrutiny Panel to Cabinet, 31/10/2011	Calderdale Metropolitan Borough Council	Meeting Records
D-108	3: BHY	CMBC (2012), Fuel Poverty: Report of Scrutiny Support Officer to Economy and Environment Scrutiny Panel, 11/10/2012	Calderdale Metropolitan Borough Council	Meeting Records
D-109	3: BHY	CMBC (2013), Home Energy Conservation Act (HECA) 1995 - Delivery Plan 2012-15: Report of the Director, Economy and Environment to Cabinet, 08/05/2013	Calderdale Metropolitan Borough Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-110	3: BHY	CMBC (2013), Item 7: Home Energy Conservation Act 1995 - Delivery Plan 2013-15, Cabinet 08/05/2013	Calderdale Metropolitan Borough Council	Meeting Records
D-111	3: BHY	CMBC (2014), Item 56: Leeds City Region Green Deal and Energy Company Obligations Project, Cabinet 15/09/2014	Calderdale Metropolitan Borough Council	Meeting Records
D-112	3: BHY	CMBC (2014), Leeds City Region Green Deal and Energy Company Obligation Project: Report of the Director, Economy and Environment to Cabinet, 15/09/2014	Calderdale Metropolitan Borough Council	Meeting Records
D-113	3: BHY	CMBC (2015), Launch of new scheme brings reduced fuel bills to Calderdale residents, Available at: http://news.calderdale.gov.uk/launchofnewschemebringsreducedfuelbillsto-calderdaleresidents/, [Accessed 13/03/2017]	Calderdale Metropolitan Borough Council	News article
D-114	3: BHY	CYC (2013), Item 121: Maximising the opportunities from the Green Deal In York, Cabinet Meeting 02/04/2013, York	City of York Council	Meeting Records
D-115	3: BHY	CYC (2014), Addressing climate change, fuel poverty, rising bills and generating and selling localised sustainable energy in York: Report to the Economic and City Development Overview and Scrutiny Committee 12/11/2014, York	City of York Council	Meeting Records
D-116	3: BHY	CYC (2014), Item 51: Maximising the opportunities from the Green Deal in York, Cabinet Meeting 07/10/2014, York	City of York Council	Meeting Records
D-117	3: BHY	CYC (2014), Maximising the Opportunities from the Green Deal In York: Report to Cabinet 07/10/2014, City of York Council	City of York Council	Meeting Records
D-118	3: BHY	CYC (2015), Implementation of the Better Homes Contract - York: Report to the Cabinet Meeting 10/02/2015, City of York Council	City of York Council	Meeting Records
D-119	3: BHY	CYC (2015), Item 102: Implementation of the Better Homes Contract - York, Cabinet Meeting 10/02/2015, York	City of York Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-120	3: BHY	CYC (2015), York's share of new £1.7m fund to bring gas mains heating, Available at: https://www.york.gov.uk/press/article/1461/york_s_share_of_new_17m_fund_to_bring_gas_mains_heating, [Accessed 13/03/2017]	City of York Council	News article
D-121	3: BHY	CYC (2013), Maximising the Opportunities from the Green Deal In York: Report to Cabinet 02/04/2013, City of York Council	City of York Council	Meeting Records
D-122	3: BHY	CYC (2015), Better Homes opens door to 44% higher energy efficiency and 31% lower bills, Available at: https://www.york.gov.uk/press/article/1427/better_homes_opens_door_to_44_per_cent_higher_energy_efficiency_and_31_per_cent_lower_bills, [Accessed 08/12/2016]	City of York Council	News article
D-123	3: BHY	CYC (2015), Launch of new regional scheme brings reduced fuel bills, Available at: https://www.york.gov.uk/press/article/1205/launch_of_new_regional_scheme_brings_reduced_fuel_bills, [Accessed 13/03/2017]	City of York Council	News article
D-124	3: BHY	John Ward-Campbell (2012), Leeds City Region Green Deal: Report to Cabinet 21/11/2012, Harrogate Borough Council	Harrogate Borough Council	Meeting Records
D-125	3: BHY	HBC (2013), Item 129/12: Energy Strategy 2013/15, Cabinet Meeting 27/03/2013, Harrogate	Harrogate Borough Council	Meeting Records
D-126	3: BHY	HBC (2013), Item 136/12: Leeds City Region Green Deal Scheme - Requirement for Contribution to Set-Up Costs, Cabinet Meeting 27/03/2013, Harrogate	Harrogate Borough Council	Meeting Records
D-127	3: BHY	Les Williamson (2013), Leeds City Region Green Deal Scheme - Requirement for Contribution Towards Set-up Costs: Report to 4) Cabinet 27/03/2013, Harrogate Borough Council	Harrogate Borough Council	Meeting Records
D-128	3: BHY	HBC (2012), Item 84/12: Leeds City Region Green Deal, Cabinet Meeting 21/11/2012, Harrogate	Harrogate Borough Council	Meeting Records
D-129	3: BHY	Jane Money (2015), YEP Membership: Report to Cabinet Member (Housing), 14/04/2015, Harrogate Borough Council	Harrogate Borough Council	Meeting Records
D-130	3: BHY	HBC (2017), Better Homes Harrogate, Available at: https://www.harrogate.gov.uk/info/20070/energy_efficiency/511/better_homes_harrogate, Accessed [13/03/2017]	Harrogate Borough Council	Web Page

Reference Code	Case Study	Source	Organisation	Data Type
D-131	3: BHY	KC (2012), Corporate Priorities Budget Year End Report 2011/12: Report to Cabinet 14/08/2012	Kirklees Council	Meeting Records
D-132	3: BHY	KC (2012), Green Deal and Energy Company Obligation Update: Report to Cabinet 09/10/2012	Kirklees Council	Meeting Records
D-133	3: BHY	KC (2012), Item 149: Green Deal and Energy Company Obligation Update, Cabinet Meeting 25/09/2012	Kirklees Council	Meeting Records
D-134	3: BHY	KC (2013), Item 8: Cabinet Decision Summary, Cabinet 09/04/2013	Kirklees Council	Meeting Records
D-135	3: BHY	KC (2013), Kirklees Council Climate Local Investment Plan 2013-14: Report to Cabinet 07/05/2013	Kirklees Council	Meeting Records
D-136	3: BHY	KC (2013), Leeds City Region Energy saving Scheme: Report to Cabinet 09/04/2013	Kirklees Council	Meeting Records
D-137	3: BHY	KC (2014), LCR Green Deal and ECO (Energy Company Obligation) Scheme: Report to Cabinet 18/11/2014 (Duplicate 21/10/2014)	Kirklees Council	Meeting Records
D-138	3: BHY	KC (2014), LCR Green Deal and ECO (Energy Company Obligation) Scheme: Report to Cabinet 21/10/2014	Kirklees Council	Meeting Records
D-139	3: BHY	KC (2015), Item 15: Quarter 2 - 2015/16 Corporate Performance Report (pp.75-136), Public Report Pack for the Cabinet Meeting 15/12/2015, Town Hall, Huddersfield	Kirklees Council	Meeting Records
D-140	3: BHY	KC (2016), Kirklees Together:Heat your home for less, Available at: http://www.kirkleestogether.co.uk/heat-your-home-for-less/, [Accessed 08/12/2016]	Kirklees Council	News article
D-141	3: BHY	Keepmoat (2016), A poetic pleas to tackle fuel poverty, Available at: https://www.keepmoat.com/about-us/news/a-poetic-plea-to-tackle-fuel-poverty, [Accessed 18/11/2016]	Keepmoat	Web Page
D-142	3: BHY	Keepmoat (2016), Financial information, Available at: https://www.keepmoatcorporate.com/investor-relations/financial-information, [Accessed on 22/08/2016]	Keepmoat	Accounts

Reference Code	Case Study	Source	Organisation	Data Type
D-143	3: BHY	Keepmoat (2016), Our Structure, Available at: https://www.keepmoat.com/about-us/corporate-information/our-structure, [Accessed on 22/08/016]	Keepmoat	Web Page
D-144	3: BHY	George Munson (2012), Green Deal - Leeds City Region Project: Report to the Executive Board 12/12/2012, Leeds City Council	Leeds City Council	Meeting Records
D-145	3: BHY	George Munson (2012), Green Deal Go Early: Report to the Executive Board 17/10/2012, Leeds City Council	Leeds City Council	Meeting Records
D-146	3: BHY	LCC (2012), Item 130: Green Deal - Leeds City Region Project, Executive Board 12/12/2012, Leeds	Leeds City Council	Meeting Records
D-147	3: BHY	LCC (2012), *Proposal: A Leeds City Region Deal,* Available at: https://www.gov.uk/government/publications/city-deal-leeds	Leeds City Council	Report
D-148	3: BHY	George Munson (2013), Tackling Fuel Poverty and Reducing CO2 Emissions - Home Energy Conservation Act Further Report 2013: Report to the Executive Board 13/03/2013, Leeds City Council	Leeds City Council	Meeting Records
D-149	3: BHY	LCC (2013), Item 134: Impact of the ECO Changes on Wrap Up Leeds, Executive Board 18/12/2013, Leeds	Leeds City Council	Meeting Records
D-150	3: BHY	LCC (2013). New scheme launched to help you heat your home for less. Available at: http://www.leeds.gov.uk/news/pages/New-scheme-launched-to-help-you-heat-your-home-for-less.aspx [Accessed 07/02/2017]	Leeds City Council	News article
D-151	3: BHY	Fiona McAnespie (2014), 2013/14 Quarter 4 Performance Report: Report to Sustainable Economy and Culture Scrutiny Board 01/07/2014, Leeds	Leeds City Council	Meeting Records
D-152	3: BHY	George Munson (2014), Green Deal Communities Grant Update: Report to the Executive Board 16/07/2014, Leeds City Council	Leeds City Council	Meeting Records
D-153	3: BHY	George Munson (2014), Leeds City Region Green Deal and ECO Scheme: Report to the Executive Board 15/10/2014, Leeds City Council	Leeds City Council	Meeting Records
D-154	3: BHY	LCC (2014), Item 86: Leeds City Region Green Deal and ECO Scheme, Executive Board 15/10/2014, Leeds	Leeds City Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-155	3: BHY	Sandy Rutherford (2014), YORE-97PH9U Leeds City Region Green Deal and ECO Scheme: Report to the Director of Environment and Housing, 06/11/2014, Leeds City Council	Leeds City Council	Report
D-156	3: BHY	LCC (2015), Better Homes Yorkshire: The Leeds City Region Green Deal & ECO Programme, Members Briefing Note 06/03/2015	Leeds City Council	Meeting Records
D-157	3: BHY	LCC (2015), Item 20: Solar PV Installations for Council Housing, Public Document Pack for the Executive Board Meeting 18/05/2015, Civic Hall, Leeds	Leeds City Council	Meeting Records
D-158	3: BHY	LCC (2015), Launch of new scheme brings reduced fuel bills, Available online: http://www.leeds.gov.uk/news/pages/Launch-of-new-scheme-brings-reduced-fuel-bills.aspx, [Accessed 08/12/2016]	Leeds City Council	News article
D-159	3: BHY	BHY Operational model, received through personal communication	Leeds City Council	Personal Communication
D-160	3: BHY	SDC (2014), Item 37: Green Deal, Executive Committee 04/09/2014, Civic Centre, Selby	Selby District Council	Meeting Records
D-161	3: BHY	SDC (2015), Item 6: Leeds City Region Green Deal Contract (Better Homes Yorkshire) and the YEP: Report to the Executive Committee 05/03/2015, Civic Centre, Selby	Selby District Council	Meeting Records
D-162	3: BHY	SDC (2016), £1.5 million to support people in Leeds City Region to warm their homes, Available at: https://www.selby.gov.uk/news/media-releases/%C2%A315-million-support-people-leeds-city-region-warm-their-homes, [Accessed 13/03/2017]	Selby District Council	News article
D-163	3: BHY	WC (2012), Home Energy Conservation Act Further Report 2012-2013, Available at: http://www.energysavingtrust.org.uk/sites/default/files/wakefield-heca-further-report-march-2013.pdf	Wakefield Council	Report
D-164	3: BHY	WC (2013), ID No: 1159/0412 Wakefield Council Green Deal Scheme, Executive Leaders Forward Plan of Key Decisions, 01/04/2013 - 31/07/2013, Wakefield Council	Wakefield Council	Meeting Records
D-165	3: BHY	WC (2013), Item 24: Wakefield Council Green Deal Scheme, Cabinet 02/07/2013, Wakefield	Wakefield Council	Meeting Records
D-166	3: BHY	WC (2013), Item 6: Leeds City Region Green Deal, Corporate Performance and Transformation Overview and Scrutiny Committee 18/06/2013, Wakefield	Wakefield Council	Meeting Records

Reference Code	Case Study	Source	Organisation	Data Type
D-167	3: BHY	WC (2013), Leeds City Region Green Deal Scheme: Report to Corporate Performance and Transformation Overview and Scrutiny Committee 18/06/2013, Wakefield Council	Wakefield Council	Meeting Records
D-168	3: BHY	WC (2013), Wakefield Council Green Deal Scheme: Report to Cabinet 02/07/2013, Wakefield Council	Wakefield Council	Meeting Records
D-169	3: BHY	WC (2016), Better Homes Yorkshire (BHY) Scheme: Report to Cabinet 18/10/2016, Wakefield Council	Wakefield Council	Meeting Records
D-170	3: BHY	WC (2016), Council to consider joining Better Homes Yorkshire Scheme, Available at: http://www.wakefield.gov.uk/Pages/News/PR8370.aspx, [Accessed 08/12/2016]	Wakefield Council	News article
D-171	3: BHY	WC (2016), Housing Strategy Action Plan Report - June 2016, Available at: http://www.wakefield.gov.uk/Documents/community-housing/housing/housing-strategy-action-plan.pdf, [Accessed 13/03/2017]	Wakefield Council	Report
D-172	3: BHY	Willmott Dixon (2014), Annual Report and Accounts 2014	Willmott Dixon	Accounts
D-173	3: BHY	Willmott Dixon (2015), Willmott Dixon chosen for Leeds energy programme [online], Available at: http://www.willmottdixon.co.uk/news/willmott-dixon-chosen-for-leeds-energy-programme, [Accessed 13/03/2017]	Willmott Dixon	News article
D-174	3: BHY	Willmott Dixon (2016), Local Authorities and Registered Providers, Available at: http://www.willmottdixon.co.uk/sectors/local-authorities-and-registered-providers, [Accessed 22/08/2016]	Willmott Dixon	Web Page
D-175	3: BHY	Willmott Dixon (2016), Our structure, Available at: http://www.willmottdixon.co.uk/about-us/our-structure, [Accessed 22/08/2016]	Willmott Dixon	Web Page
D-176	3: BHY	Willmott Dixon (2016), Private Homeowners and Landlords, Available at: http://www.willmottdixon.co.uk/sectors/private-homeowners-and-landlords, [Accessed 22/08/2016]	Willmott Dixon	Web Page
D-177	3: BHY	Willmott Dixon (2016), Re-thinking, Available at: http://www.willmottdixon.co.uk/how-we-do-it/re-thinking, [Accessed 22/08/2016]	Willmott Dixon	Web Page

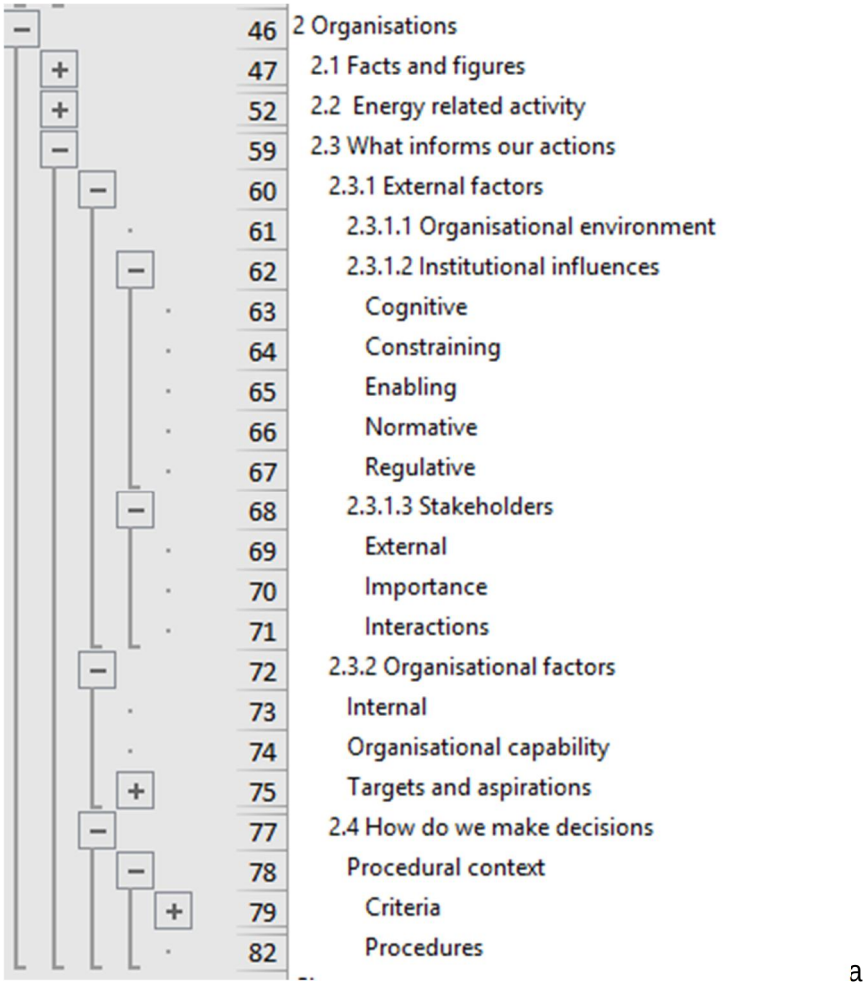
Reference Code	Case Study	Source	Organisation	Data Type
D-178	3: BHY	Willmott Dixon (2016), Sustainable Development Strategy , Available at: http://www.willmottdixon.co.uk/how-we-do-it/sustainable-development-strategy, [Accessed 22/08/2016]	Willmott Dixon	Web Page
D-179	3: BHY	Willmott Dixon (2016), Transforming Tomorrow, Available at: http://www.willmottdixon.co.uk/asset/8776/view.pdf, [Accessed 22/08/2016]	Willmott Dixon	Report
D-180	3: BHY	European Union (2013), Publication of Supplement to the Official Journal of the European Union: Contract Notice ID:2013-102423, 26/07/2013	WYCA	OJEU Notice
D-181	3: BHY	Colin Blackburn (2014), Item 9: Better Homes Yorkshire Programme - Report to West Yorkshire and York Investment Committee, West Yorkshire Combined Authority	WYCA	Meeting Records
D-182	3: BHY	West Yorkshire Combined Authority (2015), Better Homes Yorkshire	WYCA	Web Page
D-183	3: BHY	Colin Blackburn and Vicky Dumbrell (2016), Item 18: Better Homes Update - Report to Combined Authority, 01/12/2016, West Yorkshire Combined Authority	WYCA	Report
D-184	3: BHY	LEP & WYCA (2016), Leeds City Region Strategic Economic Plan 2016-2036	WYCA	Report
D-185	3: BHY	LEP (2016), £1.5 million to support people in Leeds City Region to warm their homes, Available at: http://www.the-lep.com/news-and-blog/news/1-5-million-to-support-people-in-leeds-city-region/, [Accessed 08/12/2016]	WYCA	News article
D-186	3: BHY	Rob Norreys (2016), Item 9: Better Homes Programme Update - Report to WYCA Investment Committee 07/06/2017, West Yorkshire Combined Authority	WYCA	Meeting Records
D-187	3: BHY	WYCA (2016), West Yorkshire Combined Authority Corporate Plan 2016 -17 [online], Available at: https://www.calderdale.gov.uk/nweb/COUNCIL.minutes_pkg.view_doc?p_Type=AR&p_ID=46517, [Accessed 01/05/2018]	WYCA	Report
D-188	3: BHY	WYCA (2017), Item 43: xvi - Capital Spending and Project Approvals, West Yorkshire and York Investment Committee 16/06/2017, Wellington House, Leeds	WYCA	Meeting Records
D-189	3: BHY	BHY structure, received through personal communication	WYCA	Personal Communication

Reference Code	Case Study	Source	Organisation	Data Type
D-190	3: BHY	Jacqui Warren (2018), Green Economy Panel Major Projects Update - Report to the Green Economy Panel, 24/07/2018, West Yorkshire Combined Authority	WYCA	Meeting Records
D-191	3: BHY	WYCA (2018), Item 4c - Green Economy Panel Projects Update, Leeds City Region Enterprise Partnership Board, 16/01/2018, Wellington House, Leeds	WYCA	Meeting Records
D-192	3: BHY	Andrew Mernin (2015), Green Scheme promises investment boost, Business Quarter [online], Available at: http://www.bqlive.co.uk/yorkshire/2015/01/27/news/greenschemepromises-investmentboost20191/, [Accessed 13/03/2017]	Other	News article
D-193	3: BHY	Barnsley News and Sport (2015), £20 investment to bring 'Better Homes' to Barnsley residents [online], Available at: http://barnsleynewsandsport.com/2015/01/26/20-investment-bring-better-homes-barnsley-residents/, [Accessed 13/03/2017]	Other	News article
D-194	3: BHY	Batley and Birstall News (2015), *Cheaper Heat for Kirklees Homes*, [online], Available at: http://www.batleynews.co.uk/news/cheaperheatforkirkleeshomes17180796, [Accessed 13/03/2017]	Other	News article
D-195	3: BHY	Clare Burnett (2015), £20 million green homes investment for Leeds City Region, Bdaily News [online], Available at: https://bdaily.co.uk/environment/26012015/20milliongreenhomes-investmentforleedscityregion/, [Accessed 13/03/2017]	Other	News article
D-196	3: BHY	Construction Manager (2015), *Replace Green Deal now, says council running £20m scheme* [online], Available at: http://www.constructionmanagermagazine.com/news/replacegreen-dealnowsayscouncilrunning20msc/, [Accessed 13/03/2017]	Other	News article
D-197	3: BHY	Dave Himelfield (2015), Thousands of homes in Kirklees and Calderdale to benefit from green grants to cut energy bills, Huddersfield Examiner [online], Available at: http://www.examiner.co.uk/news/westyorkshirenews/thousandshomeskirkleescalderdale-benefit8534946, [Accessed 13/03/2017]	Other	News article
D-198	3: BHY	Dringhouses and Woodthorpe Liberal Democrats (2015), York goes green with "Better Homes", Available at: http://dringhousesandwoodthorpeward.mycouncillor.org.uk/2015/01/26/yorkgoesgreenwith-betterhomes/, [Accessed 13/03/2017]	Other	News article

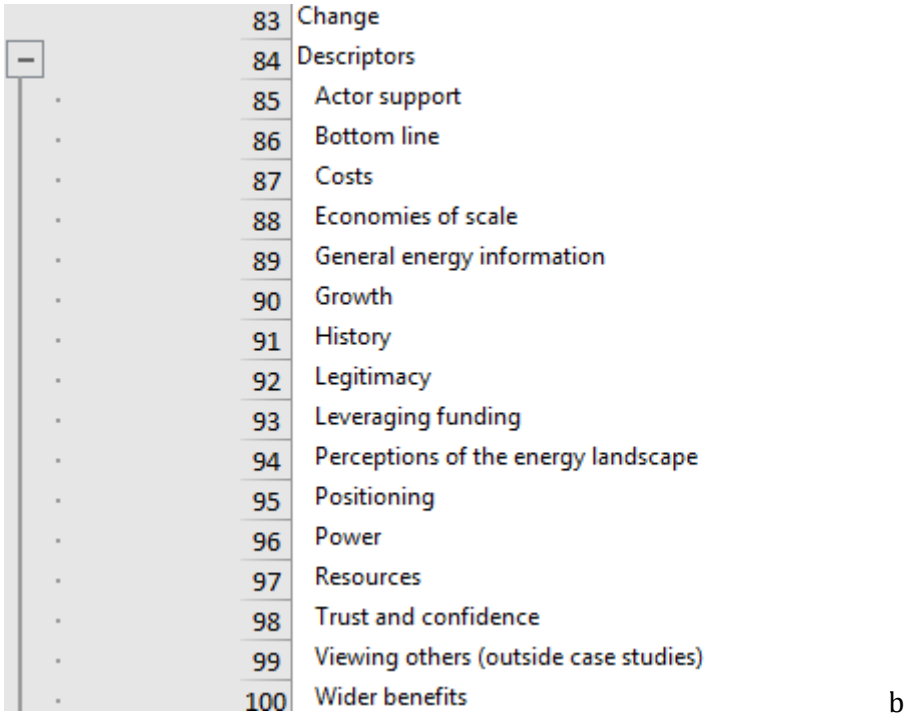
Reference Code	Case Study	Source	Organisation	Data Type
D-199	3: BHY	Helen Mead (2015), Bringing Warmth to Cold Homes, Telegraph and Argus [online], Available at: http://www.thetelegraphandargus.co.uk/news/news_behind/14129981.Bringing_warmth_to_cold_homes/, [Accessed 13/03/217]	Other	News article
D-200	3: BHY	Minster FM News (2015), Cash for Landlords in Selby, Available at: http://www.minsterfm.com/news/local/1804925/cashforlandlordsinselby/, [Accessed 13/03/2017]	Other	News article
D-201	3: BHY	YES Energy Solutions (2015), *Better Homes Yorkshire* [online], Available at: http://www.greendealinstallerhub.co.uk/289,news,better_homes_yorkshire.html, [Accessed 08/12/2016]	Other	News article
D-202	3: BHY	Minster Fm News (2016), Two year project to beat fuel poverty in York launched [online], Available at: http://www.minsterfm.com/news/local/2121454/twoyearprojecttobeatfuel-povertyinyorklaunched/, [Accessed 13/03/2017]	Other	News article
D-203	3: BHY	Stray FM News (2016), Extra cash to heat homes, Available at: https://www.strayfm.com/news/localnews/1881337/extracashtoheathomes/, [Accessed 13/03/15]	Other	News article
D-204	3: BHY	LGYNYER (2015), Item 5: Housing Board Sub Groups Report, Local Government York, North Yorkshire and East Riding Housing Board 14/12/2015, Thirsk	Other	Meeting Records
D-205	2, 3: Supporting information	EST (2011), Local authority large scale retrofit: A review of finance models, Available at: http://tools.energysavingtrust.org.uk/Publications2/Local-delivery/Funding-and-finance/Local-authority-large-scale-retrofit-A-review-of-finance-models, [Accessed 12/07/2017]	Other	Report
D-206	2, 3: Supporting information	EST (2012), Energy Saving Trust: Delivering the Green Deal, Available at: http://modgov.cherwell.gov.uk/ieListDocuments.aspx?CId=325&MID=2291, [Accessed 19/01/2018]	Other	Presentation
D-207	2, 3: Supporting information	Christoph Harwood (2012), Financing ECO-refurbishment - a local authority solution, Available at: http://apse-	Other	Presentation

Reference Code	Case Study	Source	Organisation	Data Type
		archive.org.uk/presentations/2012/11/Renewables%20and%20Climate%20Change/Marksmans%20Consulting.pdf, [Accessed 15/01/2018]		
D-208	2, 3: Supporting information	London Councils (2012), The Green Deal ECO and RE:NEW, Available at: https://www.londoncouncils.gov.uk/node/1373, [Accessed 19/01/2018]	Other	Report
D-209	2, 3: Supporting information	GDFC (2013), Financial Statements The Green Deal Finance Company Limited: From the period from 7 March 2012 to 30 June 2013, Available at: https://beta.companieshouse.gov.uk/company/07980777/filing-history?page=2, [Accessed 19/01/2018]	Other	Accounts
D-210	2, 3: Supporting information	Tamworth Borough Council (2014), Everything you need to know about the Green Deal and ECO: Report to Cabinet Meeting 20/02/2014, Tamworth Borough Council	Other	Meeting Records
D-211	2, 3: Supporting information	Tamworth Borough Council (2014), The Council's Approach to Green Deal and ECO: Report to Cabinet Meeting 20/02/2014, Tamworth Borough Council	Other	Meeting Records
D-212	2, 3: Supporting information	EST (2018), Green Finance Consultancy Case Studies, Available at: http://tools.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Green-Deal-and-ECO-readiness/Green-finance-procurement-framework, [Accessed 15/01/2018]	Other	Web Page
D-213	2, 3: Supporting information	EST (2018), Green Finance Procurement Framework, Available at: http://tools.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Green-Deal-and-ECO-readiness/Green-finance-procurement-framework, [Accessed 15/01/2018]	Other	Web Page
D-214	2, 3: Supporting information	EST (2018), Green finance, Available at: http://tools.energysavingtrust.org.uk/wales/Organisations/Government-and-local-programmes/Green-Deal-and-ECO-readiness/Green-finance, [Accessed 15/01/2018]	Other	Web Page

Appendix C: Phase One coding extract



a



b

Figure Appendix-1: Coded nodes for Phase One analysis. a: Categories, b: Descriptors

Interviews were coded using NVivo, with sections of the interview highlighted and assigned to coding nodes, contained within wider thematic groups. The codes used in the overall analysis are shown in the figure above; codes below are identified by the numbers in the figure above.

Coded extract [LCC L5]:

Interviewee: We tried to do a scheme that was similar in the past when the FIT rates, the feed in tariff was higher, but it fell through because it was in that transitional period just before they dropped them and we didn't have enough to implement it. But that was more of a rent a roof scheme which would have had a third party involvement, whereas in this case we're going to own the assets and it's going to be a lot simpler.

69, 74, 83, 91, 93

Interviewer: OK. So you've described the FIT change as a challenge. If we think about the challenges and opportunities for urban energy in your role within the council can you describe, let's go with opportunities first, can you describe opportunities that you can see?

Interviewee: I think the opportunities in terms of renewables, microgeneration, are mostly vested in solar PV. I think you know we can make it work, but it is complicated because although the cost of installation, supply and installation has come down, the FIT rates have come down by a higher degree, so it doesn't really stack up that well sometimes financially, (pause) I'll just go straight into the challenges I think!

52, 86, 97

Interviewer: (laughs) that's fine!

Interviewee: In terms of PV we've also got corporate schemes as well that are about to be undertaken, and previously we did about seven corporate sites, leisure centres, other reasonably large buildings, and because the FIT rates were so high it didn't really matter if it even underachieved because it more than makes up for the shortfall. But now the FIT rates are really marginal, and the way it works is centrally we would borrow the money to pay for the installation, and then centrally the feed in tariff revenue would come in and pay for the loan repayments, amortise the loan. And the sites would benefit from the free electricity that's generated. But in this latest corporate scheme, they're going to have to part fund the borrowing costs as well on the sites, so they're going to have to give back some of that free electricity. So essentially it becomes a sort of subsidised electricity that they're getting a

52, 82, 93, 91

73, 85, 86

lower tariff effectively than some of the other sites. But it's a harder sell. Because there's a hassle factor, you know if you're going into a building and saying "we need to put these things on the roofs" then you know there are challenges, persuading people that it's going to work and it's going to (pause) not leave them in a bad position.

Interviewer: So, that hassle factor then, is it a central decision to fit out these buildings with PV, and then you go to say the leisure centre manager and say "this is going to happen to your leisure centre"?

Interviewee: It's not really mandated. I think they would have a choice if they had a strong opinion that they didn't want it because there's so many complicated factors, you would, we've got so many corporate assets, loads of buildings and you think it would be easy to put solar PV on them, but because of the current financial climate the futures of these buildings are in doubt. So you need a building that's going to remain whole for twenty years. Because you need that revenue stream coming in, because it pays back over quite long time periods. So what people are saying when we go and see them is "this asset might not be retained by the council for more than five years, seven years" you know, there's no surety over what assets will stay in the estate. The move is for everything to be sort of centralised and for people to work from home and to sell off assets, you know even things like leisure centres.

75, 82, 85, 97

Appendix D: Phase Two Ethical Consent Information

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Consent to take part in "Motivations for participation in city energy initiatives": stakeholder interviews

Please read each statement and indicate your response:	Yes	No
I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.		
I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.		
I understand that the interview will be recorded in audio format only, and that the recordings will be used only for analysis. No other use will be made of them without my written permission, and no one outside the project will have access to the original recordings.		
I understand that any original written data will be used for analysis. I agree that extracts from anonymised written data may be used for illustrative purposes in publications.		
I understand that I have the right to request that data already provided be excluded from the research if it has not already been anonymised and amalgamated with other data.		
I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. I understand that my responses will be kept strictly confidential.		
I agree for the data collected from me to be stored and used in relevant future research in an anonymised form.		
I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.		
I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.		

I confirm that I have read the above statements and have had all questions answered to my satisfaction.
I agree to participate in the research and to inform the project team should my contact details change.

Name of participant			
Participant's signature		**Date**	
Name of lead researcher	Katrina Adam		
Signature		**Date**	

I would like to be kept informed as to the progress of the research ☐

Motivations for participation in city energy-related activities: Stakeholder Interview Information Sheet

This sheet provides information on the research project and interview process in which you have been invited to participate. Please take time to read the information, and seek clarification if you would like more information before you make a decision on whether or not to take part.

The interviews are being conducted as part of a PhD research project into organisational motivations for participation in city energy-related initiatives, by Katrina Adam of the EPSRC funded Doctoral Training Centre for Low Carbon Technologies at the University of Leeds.

Interviews will ideally take the form of a loosely structured face-to-face conversation lasting approximately one hour, at a mutually convenient location. If this is not possible, a telephone or Skype interview can be arranged. All interviews will be recorded (audio only) and transcribed for use in the research.

The interviews will cover three main areas.

1. The characteristics of your organisation
2. The energy-related activities that your organisation is involved in
3. The partnerships between your organisation and others involved in energy-related projects

The evidence collected will be used to develop an understanding of the reasons for entering into collaborative partnerships to deliver city energy projects. It is anticipated that results from the completed research will provide an informed contribution to the development of energy policy to support future energy initiatives.

You have been identified as a potential participant through publically available corporate literature or by recommendation. You have been invited to take part because your role appears to be relevant to city energy-related projects in an advisory, managerial, delivery or regulatory position. Alternatively, you may be a supporter of a particular city energy initiative.

Personal data collection will be limited to the participants name and organisation, and will be kept strictly confidential. Transcript information will be anonymised, used and stored according to the University of Leeds data protocols. Anonymised data may be shared in due course according to EPSRC public-funded research data rules[1] [2].

If you decide to take part you will be given this information sheet to keep, and be asked to sign a consent form at the start of the interview. You are entitled to withdraw from the process at any time.

If you would like any further information please contact Katrina Adam, email: pmkla@leeds.ac.uk

[1] https://www.epsrc.ac.uk/about/standards/researchdata/expectations/

[2] https://www.epsrc.ac.uk/files/aboutus/standards/clarificationsofexpectationsresearchdatamanagement/

Interview questions

Introduction

Aim of project, focus of the interview, consent form

Whole organisation information

1. What is your role in the organisation?
2. Thinking about the organisation as a whole, can you describe:
    - Its core purpose
    - The culture
    - The values
3. Can you draw me a diagram/describe how the organisation is organised?

The organisation's involvement in (aspirations to) energy-related activities (internal and external)

4. What would you consider to be the activities that the organisation is involved in that are related to energy in some way?
5. Which parts of the organisation are involved in these activities?
    - Add to drawing?
6. Has the organisation always been involved in this sort of work?
    - No: can you describe how <the organisation> got involved?
    - Yes: Has your involvement changed over time?
    - No/Yes: What do you think are the reasons for the changes you described?
7. Do you think there are benefits and or costs to the organisation in being involved in this kind of work?
8. Is there a vision for the organisation's involvement in future energy-related activities?
    - Who/what is driving that?

Projects and partnerships with other energy actors

9. Can you give me some specific examples of work in the areas of energy activity most important to the organisation?
10. How and why did the organisation get involved in these particular examples?
11. Do any of these examples include working in partnership with others?
    - How did you come to work with them?
    - What is the nature of your relationship with them?
        - Formal/informal
        - Long term/short term
        - Complex/simple contract
12. How are the projects you are working on funded?
13. How does involvement in these particular examples support the organisation to achieve its vision or fulfil its mission/purpose?

Finally

14. In your opinion, how important is energy-related work to your organisation?
15. What does the organisation do to achieve internal energy objectives?

16. Are there other individuals in the organisation or with your project partners that I should talk to?

Facts from pre-interview research – can they point me in the right direction if I haven't found them?

- Can you give me some basic facts about the organisation
    - Number of employees?
    - Scale (local/regional/national/international)?
    - Approximately how much of <the organisation's> work is linked to energy?
    - How many people are involved?
    - What proportion of the organisations resources?
    - Is there a substructure to the energy part of the business?
    - Mission statement?

Appendix E: Phase Two coded extract

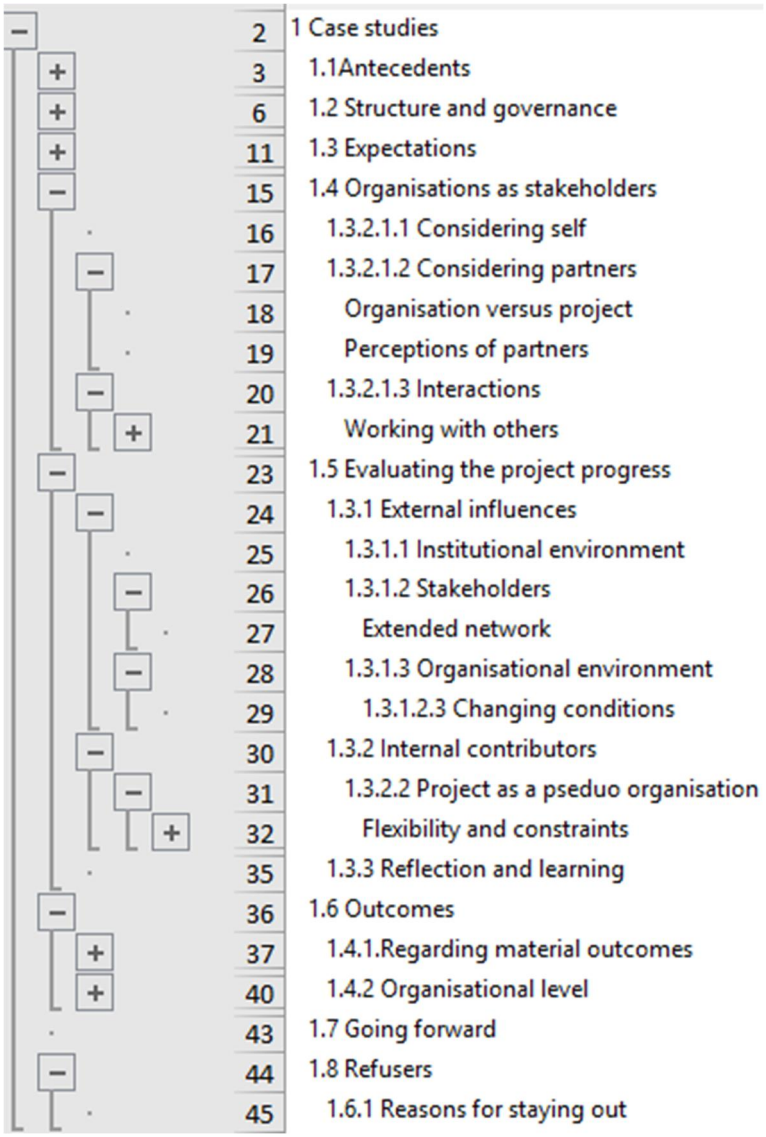

Figure Appendix-2: Coded nodes for Phase Two analysis: categories

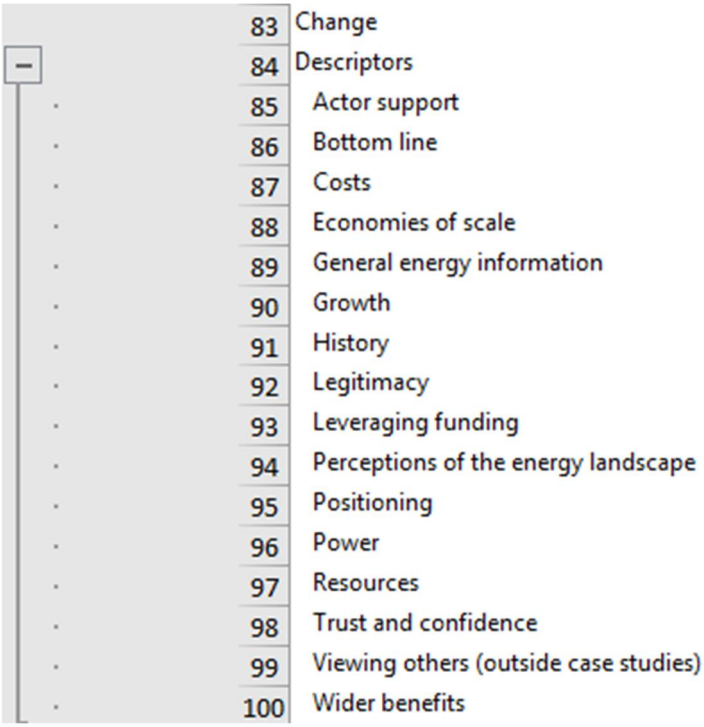

Figure Appendix-3: Coded nodes for Phase Two analysis: descriptors

For each of the case studies, interviews were coded using NVivo, with sections of the interview highlighted and assigned to coding nodes, contained within wider thematic groups. The codes used in the overall analysis are shown in the figures above; codes below are identified by the numbers in the figures above.

Coded extract [WUN L1]:

Interviewer: Yeah, yeah. Okay. Let's just talk a little bit about Warm Up North because that's important that I talk about that as well as... The strategic stuff's really important but so is Warm Up North. So, what were the reasons that [the council] decided to get involved in Warm Up North?

Interviewee: I think it's quite straightforward really, it was somebody was going to do something for us. It didn't cost us a lot of money and we would get some project delivery happening in the city because again going back to what we said earlier we're very good at the strategy bit and deciding what we want but there's no money to do anything. And I think that was the driver whereby the Warm Up North partnership gave us that ability in a collective way to benefit from a big project doing things in the city.

11, 88, 97

Interviewer: Okay.

Interviewee: You know, you can still access the funds by not being part of Warm Up North but it would have been more intense for us and we don't have the capacity to actually build those relationships, you know, it's far easier to pool our small resource to create Warm Up North partnership to then be able to actually then get a partner engaged to make things happen on the ground.

11, 18, 97

Interviewer: Yeah. So, were you doing anything sort of in that – I think I know the answer to this – but were you doing anything before Warm Up North?

Interviewee: Not in a structured way. We have bid, for example, for DECC funds for external wall insulation projects, so our cavity wall projects. So, year on year we've worked with [our housing provider] for example around…I think we did one in…last one was 2012/2013, we did a major external wall insulation programme funded by DECC. It's just like a bonanza of free cash for residents to improve the insulation of their home but it wasn't structured, it was like a one year programme of activity building on a series of other one year programmes of activities, which was good for those residents that benefitted but it wasn't co-ordinated in any way. So, we've ended up with like we've got streets now where some have got EWI and there's two or three which haven't and it just looks messy because it was based on the private individual working with us to say whether they wanted it or not and obviously we try and do a whole street but some people didn't want to do it and it just looks not brilliant now. And again because it was funded and it was a one year fund it's like, well, will it continue? Because the idea being if it continues then the person who didn't have it done could say, well, oh I can see the benefits now but that's the problem with that funding nature.

21, 83, 85, 91, 93, 97

So, I suppose we had a series of projects, loft insulation and again when we look at the stats we've got double the national average of loft insulation in the city because of projects like that and {the housing provider's] work whereby, yeah, there's stuff that's happened but it's not been co-ordinated and it's short term, short sharp shock kind of treatment as oppose to a long term investment plan to make these things happen. And we don't have the resources, the staff resources, to then push that through, so Warm Up North kind of came along with a longer term plan, oh that might actually suit our interests because it gives us the people on the ground to do things which is the thing we do not have.

Interviewer: Okay. So, I know there was a group of Councils and then there was another group of Councils, were you in the first group or the second group?

Interviewee: There was a small group of Councils that kind of came up with the idea, we were not in that group, we were invited to join by that smaller group of Councils and we said yes straight away. There was no hesitation from us that again for a small amount of resource we get access to a lot of resource, so I wasn't actually part of their original set up and so to me it was a case of it made sense for us to join. Let's say it was Gateshead, Newcastle and one other, I don't know, I think there was three Councils who originally came up with this concept and a really good concept came out to the other local authorities really wanting buy in because obviously economies of scale mean the more we get into it the better it will work, hopefully. So, for us it was a no brainer as they say, it just made sense to do it.

11, 88, 97

Interviewer: Okay, okay. And so at that point British Gas hadn't been chosen had they?

Interviewee: No, no, they hadn't been procured.

Interviewer: So, what were you as a group looking for in the partner that you chose to sort of...and have they delivered what you wanted?

Interviewee: Right, what we were looking for, let's answer that one, that's an easier one. I think we wanted somebody who could be up and running quickly, would have high impact and would have credibility and British Gas had that, so from the outset you think, yeah, they kind of hit those buttons in terms of they've got the ability to make Warm Up North work for us. So, in summary I said that's the kind of things we were looking for, the other ones, the financial models were part of it but it was almost again reputation and ability to do it. British Gas clearly you would say from the outset they could do that.

11, 19, 92, 98