9. The dynamics of institutional change

9.1 Introduction

How and *why* do energy management practices change? This chapter brings together the analysis and observations from the empirical research to answer this important question and consider the implications for institutional theory and energy efficiency policy. It does this by drawing on the case research developed in the previous two chapters.

Chapter 7 presented important context that helps to explain changes in large Australian energy consuming organisations between the years 2006–2012. The chapter examined the institutionalised practices (i.e. the established practices that were accepted as the appropriate 'way of doing energy management' at the time) that were applied by organisations once the EEO legislation commenced, before analysing changes in the organisational field associated with energy management practices over the study period.

Chapter 8 then analysed the changes in energy management practices in large energy consuming organisations. The analysis exposed the reasons behind why such changes were made, the challenges associated with implementing new practices and the social dynamics of institutional change, including the strategies applied by corporate energy practitioners and other stakeholders to influence the change process at the project, organisational and organisational field levels.

This chapter proceeds in the following way. First the dynamics of changing energy management practices are explored within and across the organisational field, organisational and project levels of analysis. The implications for institutional theory are then discussed before examining the implications of the research for policymakers and practitioners concerned with accelerating the adoption of effective energy management practices. The chapter then presents the limitations of the research and recommendations for future research that will contribute new knowledge about institutional change, the energy efficiency gap and the process by which organisations adopt more effective energy management practices.

9.2 The dynamics of change within and across each level of analysis

9.2.1 Introduction

This thesis has examined the disruption, development and maintenance of corporate energy management practices in the context of project, organisational and organisational field-level dynamics. It developed a multi-level process model of institutional change and applied the model to the case of changing energy management practices within large energy-using organisations in Australia between the years 2006–2012. The empirical research has exposed critical links between:

- emerging stakeholders in the organisational field driving energy efficiency concerns
- the changing energy management practices adopted by large energy consuming organisations, and
- the shifts in underlying beliefs that inform the evolution of energy management practices across the institutional lifecycle from the disruption of new practices through the development and maintenance of new practices.

The research findings are summarised in Figure 9.1.[218] The next section expands on Figure 9.1 by summarising the process of change observed within and across each level of analysis.

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[218] A full explanation of the model and the origin of the research questions is provided in Section 5.8.

Figure 9.1: Three-level institutional change model applied to changing energy management practices
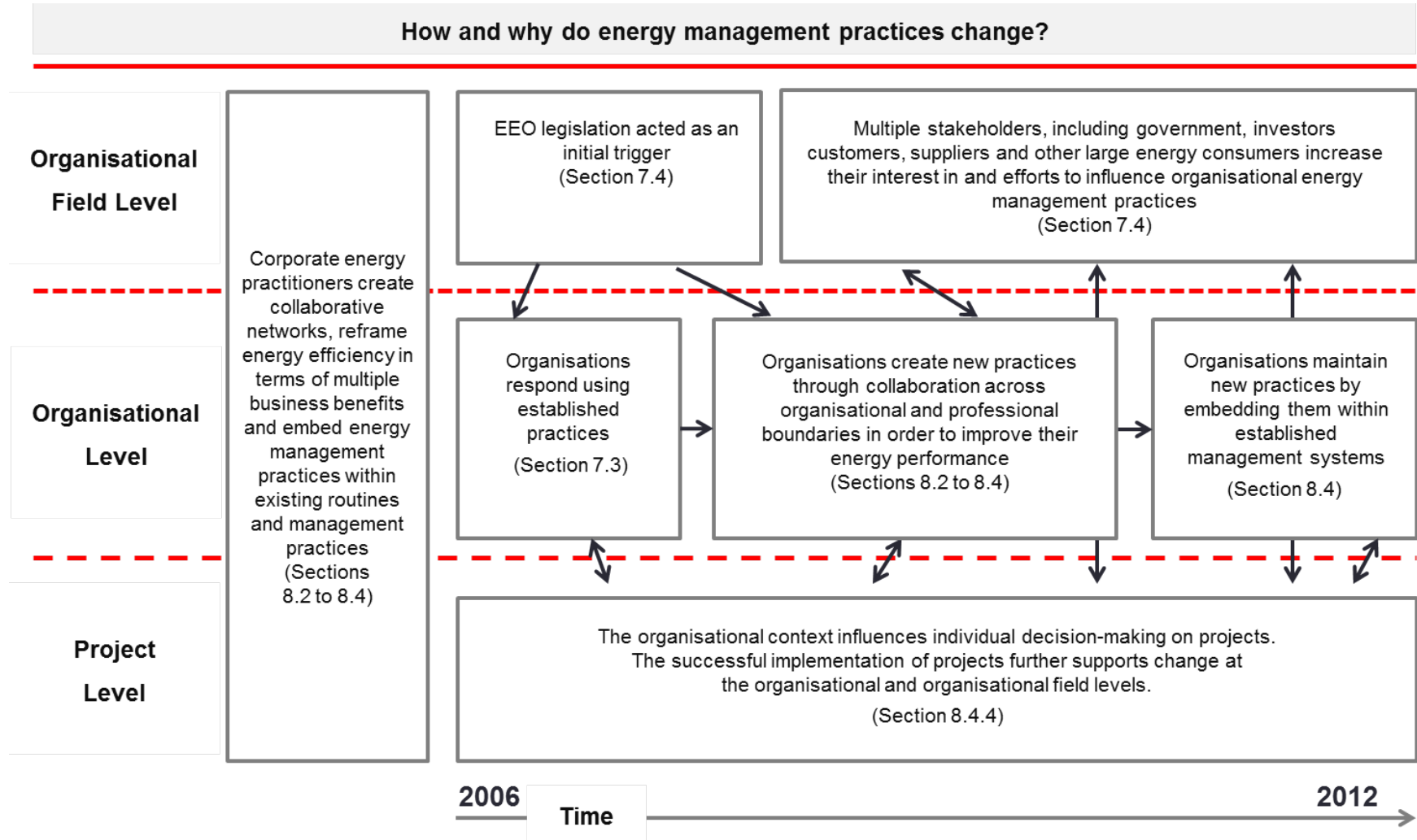
9.2.2 Changing energy management practices at the organisational field level

The EEO legislation acted as an initial trigger for organisations to review and modify their energy management practices. However, the EEO legislation itself did not act in isolation of a number of other important influences. While organisations were involved in conducting energy efficiency assessments as part of the first five year cycle of the EEO legislation, the organisational field associated with energy management was experiencing a period of dynamic change. New stakeholders were entering the field and the level of interest and influence of existing stakeholders was expanding.

The changing interests and influence of key stakeholders including government, investors and customers enhanced the importance of energy management within and external to organisations. This had the combined effect of influencing stakeholder perceptions of the value of energy efficiency.

Figure 9.2 portrays the interactions between stakeholders in the organisational field.

Figure 9.2: Interactions influencing new perspectives on the value of energy management
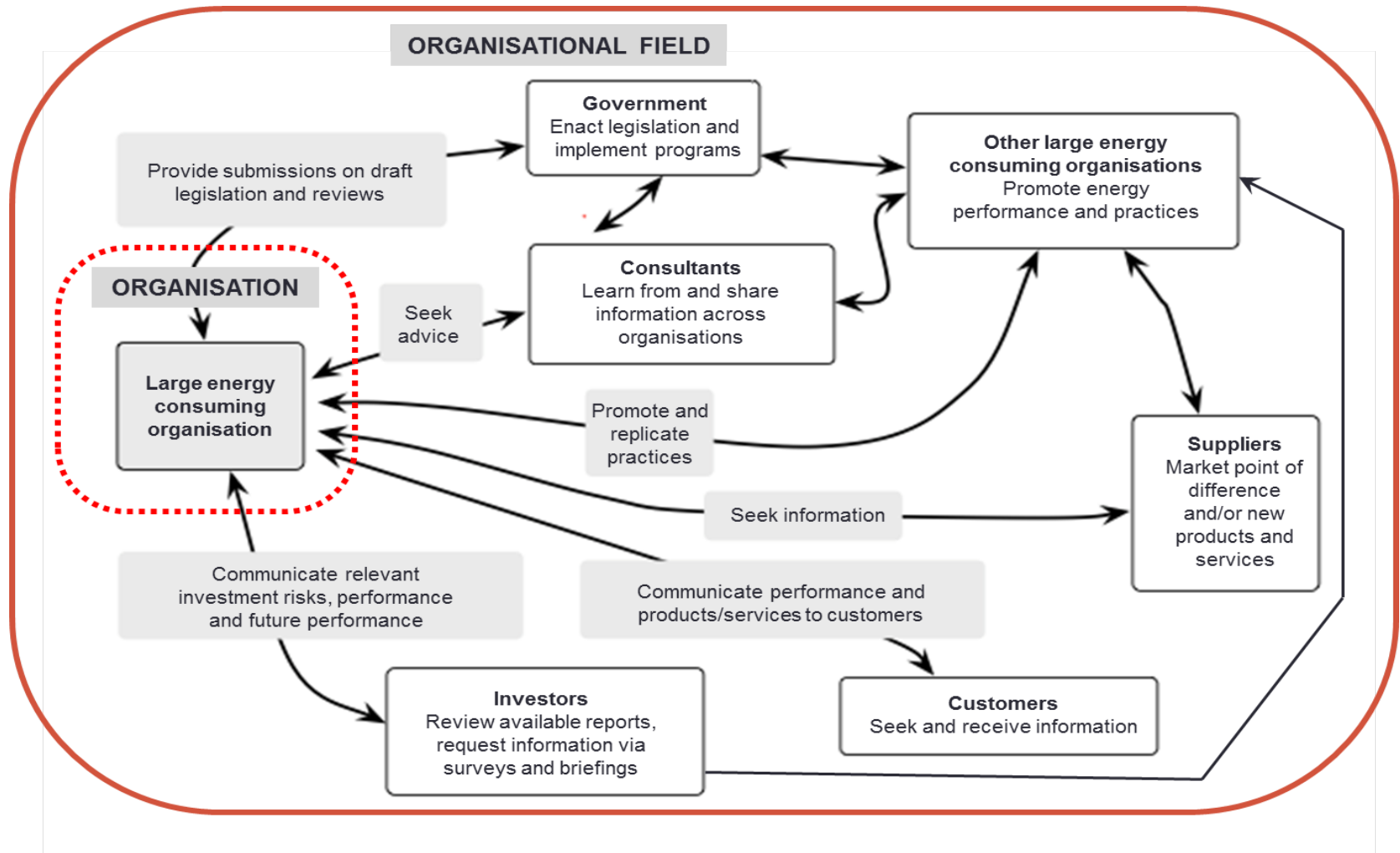
Table 9.1 outlines the research questions that were examined at the interorganisational level and provides examples against each key question.

Table 9.1: Examples of research findings – organisational field level

Research questions	Summary response
What are the triggers for change?	The EEO legislation acted as a trigger. However, its influence towards changing energy management practices was significantly reinforced through the emerging interests and influence of other organisational field constituents.
Who are the key organisational stakeholders that have an interest in energy management practices?	Key stakeholders include: • Government (multiple agencies) • Investors • Customers • Large energy consuming organisations • Suppliers
How do the organisational stakeholders interact and influence the development and adoption of energy management practices?	Examples include interactions between stakeholders through: • the development and review of legislation and programs • public reporting • interactions at conferences • investor briefings, and • competitive tendering.

From an activity that had previously been defined primarily as an energy cost-savings initiative, the emergence of new stakeholders broadened the perceived value of energy efficiency within large energy consuming organisations. Energy efficiency became more widely recognised as a means to manage compliance risk, enhance reputation, attract and retain new customers and support business growth through the development of new products and services. The relevance of these multiple benefits associated with energy efficiency varied from one stakeholder to another depending

on their particular interests. The emergence of this diverse set of business benefits helped corporate energy practitioners and other stakeholders to more effectively promote energy efficiency within their organisations. By adapting their message to align with the varied interests of different internal and external stakeholders, corporate energy practitioners were able to more effectively build support and access resources to progress energy efficiency.

Changes in the organisational field did not occur in isolation from the influence of large energy consuming organisations. Through the work of corporate energy practitioners (in particular), organisations attempted to influence the perspective of external stakeholders in a number of ways. For example, government policy and legislation was influenced through formal consultation mechanisms that were established around the release of white papers, draft legislation and program trial processes. Corporate energy practitioners were also active in promoting their achievements through government-sponsored conferences and written case studies.

By adopting a leadership role and promoting their achievements, corporate energy practitioners helped shape the wider industry perspectives on the appropriate practices that were associated with energy management. At the same time, they created legitimacy for such practices within their own organisations. Large energy consuming organisations also interacted with investors and customers to inform them of the importance of energy management and the actions that their organisations were taking.

Investor and customer interests in energy management were influenced by the increasing volume and progressive introduction of government legislation, including the EEO legislation, NGER Act and the *Clean Energy Act 2011* (Cth). Their interest was further reinforced by rising energy prices. Investors sought information from organisations through surveys and briefings, and by reviewing the growing availability of energy-related information reported by large energy consumers. By responding to investor surveys and briefing investors, large energy consuming organisations were able to promote their own energy performance, which placed pressure on their competitors to improve their energy performance.

Specific elements of the EEO legislation also had important influences. For example, requirements to undertake detailed data and analysis highlighted new opportunities, presentations by leading practitioners at annual conferences highlight what is possible and how challenges could be overcome and formal verification processes meant that organisations were held accountable to meeting the requirements of the legislation.

Corporate energy practitioners also influenced customers by:
- actively promoting their energy management approaches in industry for a
- emphasising their energy performance and energy management capability when responding to competitive tenders, and
- developing new products – often in collaboration with customers and other stakeholders, such as equipment suppliers.

9.2.3   Changing energy management practices at the organisational level

The research found that organisations initially responded to the EEO legislation in a way that reflected previously institutionalised energy management practices; that is, they used an external consultant to conduct an energy efficiency assessment and attempted to limit the involvement of internal personnel. When the EEO legislation was introduced in 2006, there was relatively little interest from other stakeholders in the organisational field regarding the energy efficiency performance of organisations.

As the relevance of energy management increased through interactions between large energy consuming organisations and other stakeholders, corporate energy practitioners were able to justify and access greater management support and resources for energy management. With greater legitimacy for energy management, new practices emerged. These allowed organisations to better identify improvement opportunities and obtain support from key decision-makers for the implementation of these opportunities. The key areas in which new practices emerged included those associated with:
- engaging staff in energy management
- developing energy information systems

- identifying potential projects, and
- integrating energy management within existing business management systems.

While these practices themselves are not surprising (they are widely acknowledged within the existing energy management and broader organisational change literature), it is the dynamics associated with the *way* in which the practices were developed and maintained that offers important insights into the process of institutional change.

New practices were typically developed in a highly collaborative way. Corporate energy practitioners encouraged collaboration by:
- reframing the benefits of energy management (to obtain the interest of relevant internal stakeholders)
- involving personnel in the development and trialling of new practices, and
- promoting successful outcomes.

Three key mechanisms supporting the process of change included:
1. sequencing assessments to support feedback and learning
2. developing teams and networks to support collaboration, and
3. communicating results to obtain additional resources (see Figure 9.3). These mechanisms are discussed in the following paragraphs.

Figure 9.3: Strategies that support change in relation to energy management practices

Sequencing assessments to support feedback and learning

Adopting a 'progressive approach' to improve energy information systems

Developing teams and networks to support collaboration
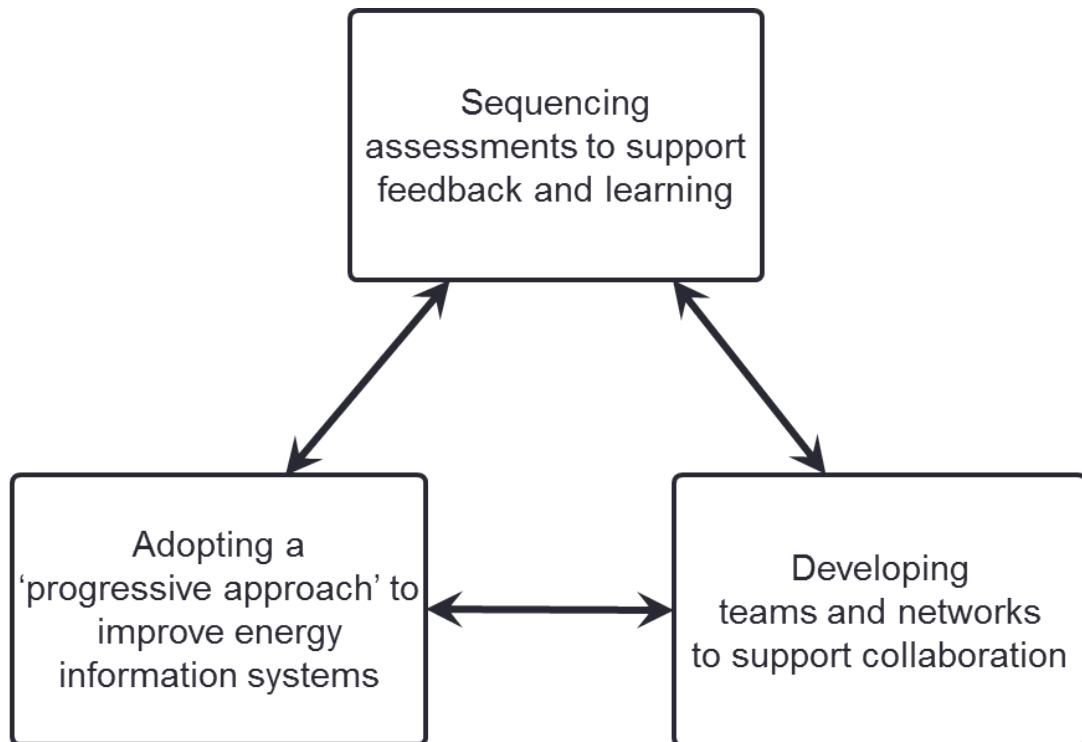
Strategy 1 – **Sequencing assessments to support feedback and learning**

Learning and continuous improvement in energy management practices was supported by the sequencing of energy efficiency assessments. Figure 9.4 illustrates the dynamics of this process. The diagram suggests that the EEO legislation provided an influential trigger for action – particularly as the liability was highlighted at the most senior levels of organisations. As corporate groups became involved in planning the organisational response, first assessments were conducted at the site level (Site A). The results from the assessment were communicated within the organisation and to external stakeholders through the annual public reporting mechanism (a requirement of the EEO legislation). These results demonstrated to the organisation's stakeholders that beneficial outcomes were possible and improved the extent to which stakeholders were able to compare the performance of one organisation with another. Together with other events in the organisational field (e.g. the potential introduction of a carbon pricing scheme), the drivers for energy efficiency improvement increased. This, in turn, enhanced the business case for energy efficiency, which was typically clearer and more convincing by the time subsequent assessments (e.g. at site B) were undertaken. Experience from

conducting an initial assessment could be reviewed to improve the manner in which an assessment was undertaken in subsequent assessments. By the time of subsequent assessments the business case for energy efficiency was enhanced through the implementation of successful projects, as well as the growing interest and influence of external stakeholders. The legislative requirements encouraged firms to sequence the assessments over a period of time and to report on the outcomes of assessments on an annual basis. This contributed towards the development of a structured and sequential learning approach in the majority of the organisations involved in this study.

Figure 9.4: Learning from one site assessment to the next
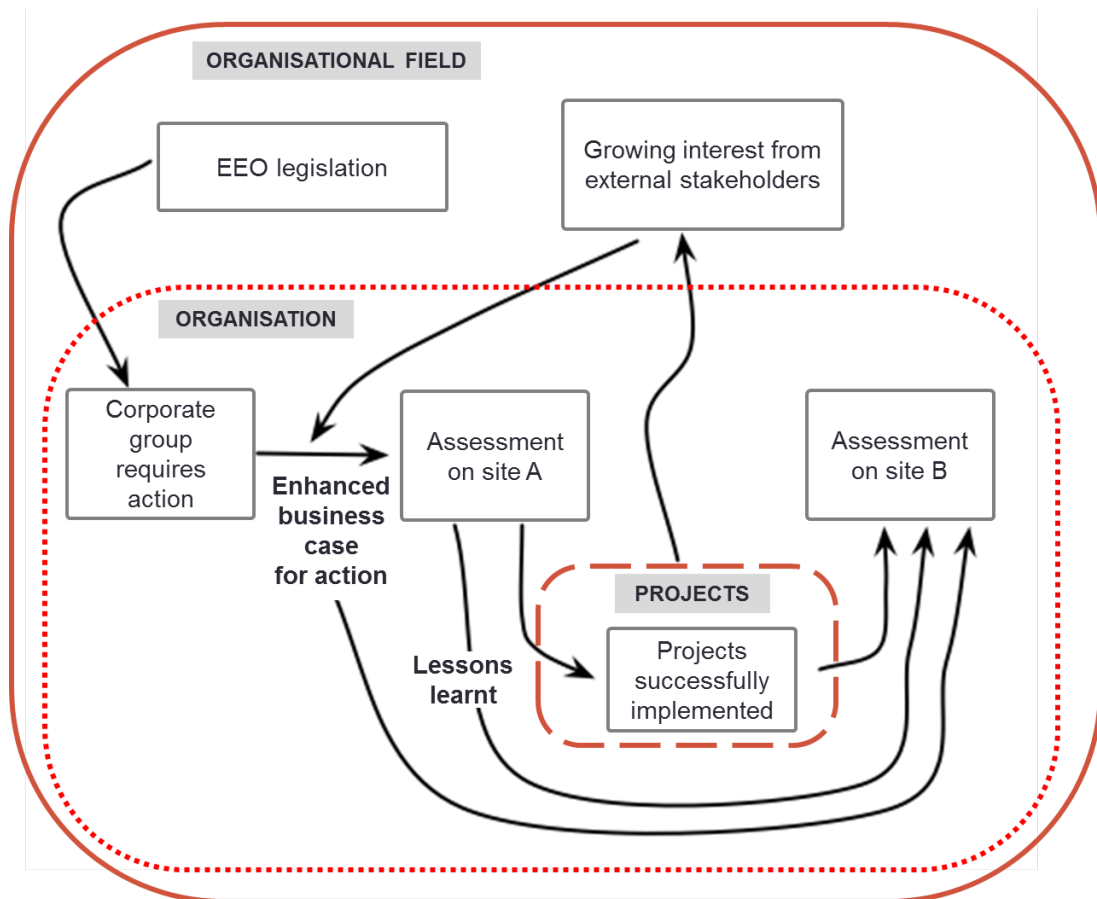

Strategy 2 – Developing teams and networks to support collaboration

Figure 9.5 illustrates the manner in which teams at different levels were used by organisations as a mechanism to broaden accountability and to progress energy efficiency improvement. Teams also provided an opportunity to widen communication of developments in the organisational field with personnel

representing different functional and professional areas within an organisation at both the corporate and site levels. Teams at different levels played different roles in the change process and were responsible for progressing the implementation of different types of projects. This presents a more sophisticated view of the use of teams across an organisation than is typically represented in the academic literature.

Figure 9.5: Relationship between types of projects, teams and external stakeholders
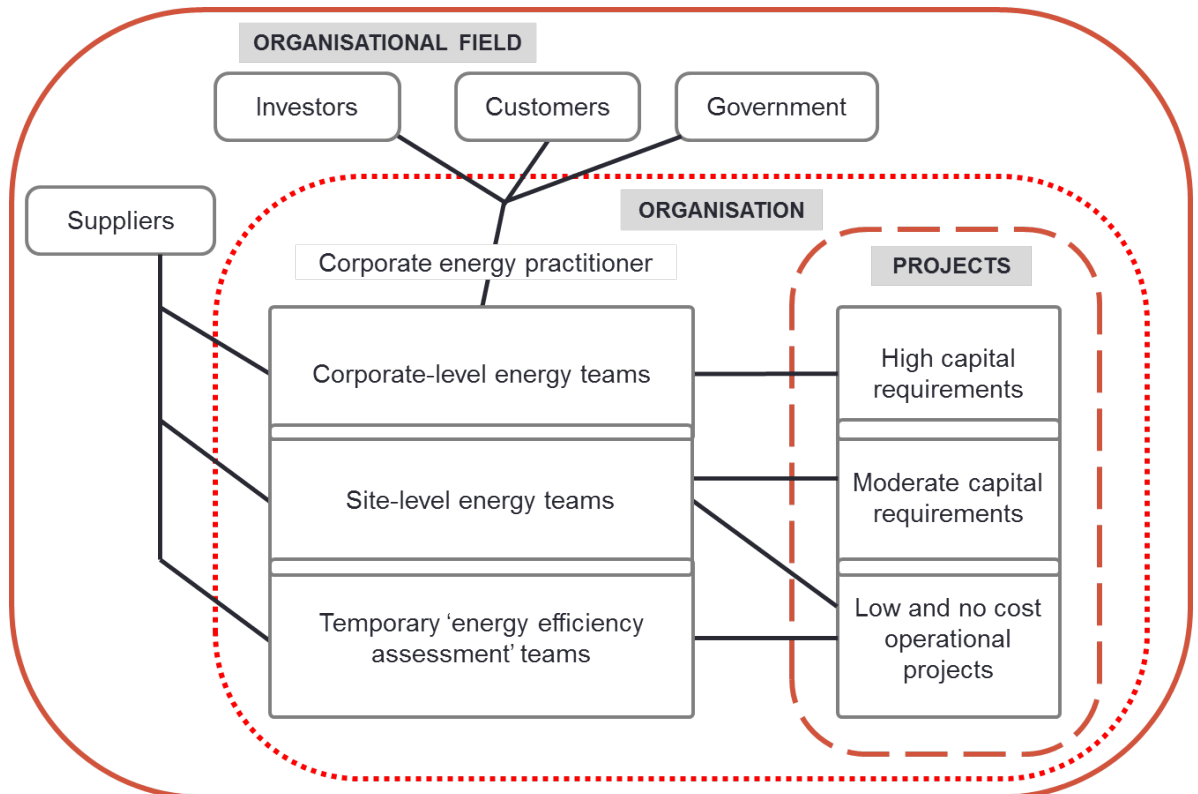
Corporate-level teams provide an important conduit for sharing information gleaned from external organisational stakeholders, including government, investors and customers, and sharing that information back into the organisations. This team level was also typically involved in projects requiring a high level of capital investment. Sitting across the whole organisation (in terms of both business units and functional disciplines) meant that this team and the corporate energy practitioner played an important role in sharing the experience and learnings gleaned from site-level teams.

Site-level teams were less concerned with stakeholders external to the organisation as their targets and performance were typically set by senior management in the

corporate office or from senior site-level management. Their interest and concern was generally associated with projects requiring moderate levels of capital investment (i.e. projects falling within their existing maintenance and operational budgets). Site-level teams also exhibited an interest in low and no cost operational projects – particularly projects that might have some level of impact on day-to-day operations. The site-level energy teams provided continuity and focus on energy management, including reviewing the outcomes of energy efficiency assessments, supporting ongoing evaluation of identified improvement options and tracking progress towards site and corporate-level energy targets and goals.

Temporary teams established to conduct energy efficiency assessments provided an opportunity for personnel to be involved in energy efficiency without the same level of ongoing commitment associated with site-level energy teams. Corporate energy practitioners found that effective interaction and collaboration across functional areas through this process could improve the quality of the energy efficiency improvement opportunities identified. It would also minimise the time spent on projects that were presented as ideas, but which were not feasible. For example, having a manager responsible for safety involved in the team could ensure that safety as a criterion could be considered from the start, rather than having a project be evaluated for costs and benefits, only to find (at the end of a comprehensive process) that there was a substantial safety issue meaning that a project like that could not proceed, even though it presented a positive financial return.

Strategy 3 – Adopting a 'progressive approach' to improving energy information systems

The availability of sufficient, accurate and accessible energy data is fundamental to energy efficiency improvement. However, the challenge for organisations and the energy management practitioners responsible for progressing energy performance is that it was difficult to justify investment in improving energy information systems when the benefits were difficult to quantify. One important strategy applied within organisations to address this challenge and obtain other resources for energy management was to adopt a 'progressive approach' in which early results were used to justify further investment. This progressive approach is summarised in Figure 9.6. It involves using existing data to identify and implement opportunities. As energy

efficiency projects are implemented, the results are then used to justify further investment. Further opportunities are implemented and, with the additional savings, more comprehensive investment of sub meter data is made. This is followed by continuous improvement through periodic reviews.

Figure 9.6: A progressive approach to improving energy information systems
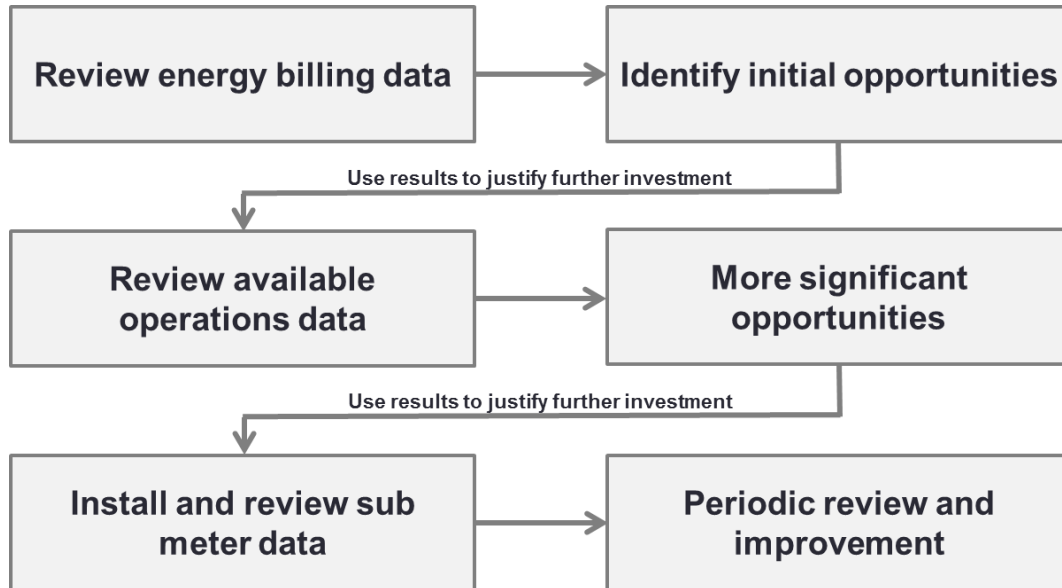
This process highlights a number of important points about energy efficiency improvement and energy information systems. First, there have been few clear guidelines or agreements on the level of data that is required in operations to identify, evaluate and implement opportunities. This has been challenging because of the diversity of operations and the way in which energy is used within and across industries. Second, obtaining resources for improved metering has typically been very difficult for energy efficiency practitioners. As discussed above, one successful strategy has been to implement smaller projects and use the positive results from these projects to justify investment in more sophisticated data and monitoring systems. Once achieved, the savings from the early work have assisted in justifying investment in improved monitoring equipment.

Section summary –Changing energy management practices at the organisational level

Table 9.2 summarises the research findings at the organisational level

Table 9.2: Summary of research findings – organisational level

Research questions	Summary response
How did organisations respond initially to the trigger for change?	Typically, organisations used an external consultant to conduct the energy efficiency assessment with limited involvement by internal staff. This approach to energy management was seen to minimise disruption and address skills limitations within the organisation.
Who were the key stakeholders within the organisation?	Internal stakeholders were multiple and varied. They included senior management through to operational personnel and key functional areas, such as HR and IT.
What energy management practices changed?	Examples include: • a deeper analysis of energy use was relied on to identify and analyse improvement opportunities • there was greater involvement of personnel across functional and hierarchical boundaries • there was development in the area of business case proposals – these more comprehensively accounted for business benefits as well as energy savings • there was ongoing tracking and communication of the organisation's energy efficiency performance within and outside the organisation, and to external stakeholders. • there was continuous improvement, rather than a series of single episodic approaches through energy efficiency assessments
How and why did they change?	Change was facilitated by corporate energy practitioners, in collaboration with cross functional teams, improvements in energy information systems and sequencing of assessments. Interactions between stakeholders at multiple levels enhanced the rationale for the development and maintenance of more effective energy management practices.

Research questions	Summary response
What actions are taken to maintain the new practices?	To maintain the new practices, corporate energy practitioners have been integrating the practices within existing business systems, including establishing role descriptions and accountabilities for relevant staff across their organisations. Ongoing briefings to senior management has also played an important role in maintaining the support of senior management.

9.2.4 Project-level perspective

The research found that newly-developed energy management practices have supported the identification of energy efficiency improvement options that may have otherwise remained hidden. For example, improving the quality, reliability and ease of accessing energy data has enhanced the identification of low and no cost energy efficiency initiatives that can be achieved through changes in day-to-day operational protocols and practices. Another example is that by drawing on and involving internal personnel with specific and localised expertise, ideas for energy efficiency improvement can be more quickly evaluated and are more likely to be successful since appropriate personnel are more directly involved in the process. Decision-making on energy efficiency was enhanced by involving decision-makers early in the process, rather than presenting them with a business case proposal for a project that they were not previously informed of. The communication of improved energy efficiency performance by the organisation to organisational stakeholders further reinforced the importance and value of effective management practices. This, in turn, built credibility at senior levels of organisations which enabled corporate energy practitioners to obtain additional support and resources for energy management. A summary of the research questions and findings at the project level are summarised in Table 9.3.

Table 9.3: Summary of research findings – project level

| Research questions	Summary response
How do the new practices influence the identification of energy efficiency projects?	Examples include: • improving the quality, reliability and ease of accessing energy data • drawing on/involving experienced internal personnel • modifying assessment processes to enhance the identification and evaluation of energy efficiency projects.
How does the organisational and field-level context influence identification, evaluation and decision-making on energy efficiency projects?	Examples include the following: • Legislation specifically requires energy efficiency assessments and evaluation. The interest of external stakeholders, such as investors and customers, further enhance the priority placed on energy efficiency improvement projects • Organisational commitments, such as targets, legitimise the focus on energy efficiency improvement as a business priority which, in turn, raises the expectation for projects to be successfully implemented in order to improve performance.
How do successful projects reinforce new practices and influence stakeholders in the field?	The communication of improved energy efficiency performance by the organisation to organisational stakeholders helps to reinforce the importance and value of effective management practices. This, in turn, has helped to build credibility at the senior levels of organisations, which has enabled corporate energy practitioners to obtain additional support and resources for energy management.

9.2.5   An integrated perspective: the dynamic process of institutional change

Figure 9.7 summarises the overarching dynamics of institutional change associated with energy management practices. The figure illustrates the linkages between project, organisational and organisational field-level interactions that have contributed to the evolution of energy management practices in large energy consuming organisations over the study period. The process shown in the diagram demonstrates how multiple stakeholders within and external to large energy consuming organisations interact to create the conditions that support positive feedback cycles. These positive feedback cycles support the development and maintenance of new and more effective energy management practices. Figure 9.7 contrasts with the process illustrated in Chapter 7 at Figure 7.4, which presented the limitations of the 'traditional' energy management practices that were typically applied by organisations in early energy efficiency assessments as they responded to the EEO legislation.

On commencement of the EEO legislation, there were relatively few external stakeholders who exhibited an interest and influence over energy management practices. The primary influence in the organisational field was the government department responsible for the EEO legislation and energy consultants. By the end of the study period, however, multiple stakeholders were more actively involved, including government departments, investors, customers, suppliers and technical specialists. Of note is the increased level of interaction between the stakeholders within organisations and those external to large energy consuming organisations. Also, the diagram highlights how the role of the corporate energy practitioner has typically expanded from a technical or energy audit project management role to one that involves interactions and communication between internal and external stakeholders.

Senior management support is developed as results are achieved by the organisation and as the interests of external stakeholders help corporate energy practitioners to reframe energy efficiency as a broader business issue, rather than simply promoting the cost-saving benefits. Communication programs, teams and direct engagement

Figure 9.7: Interactions within and across levels to support the adoption of energy management practices
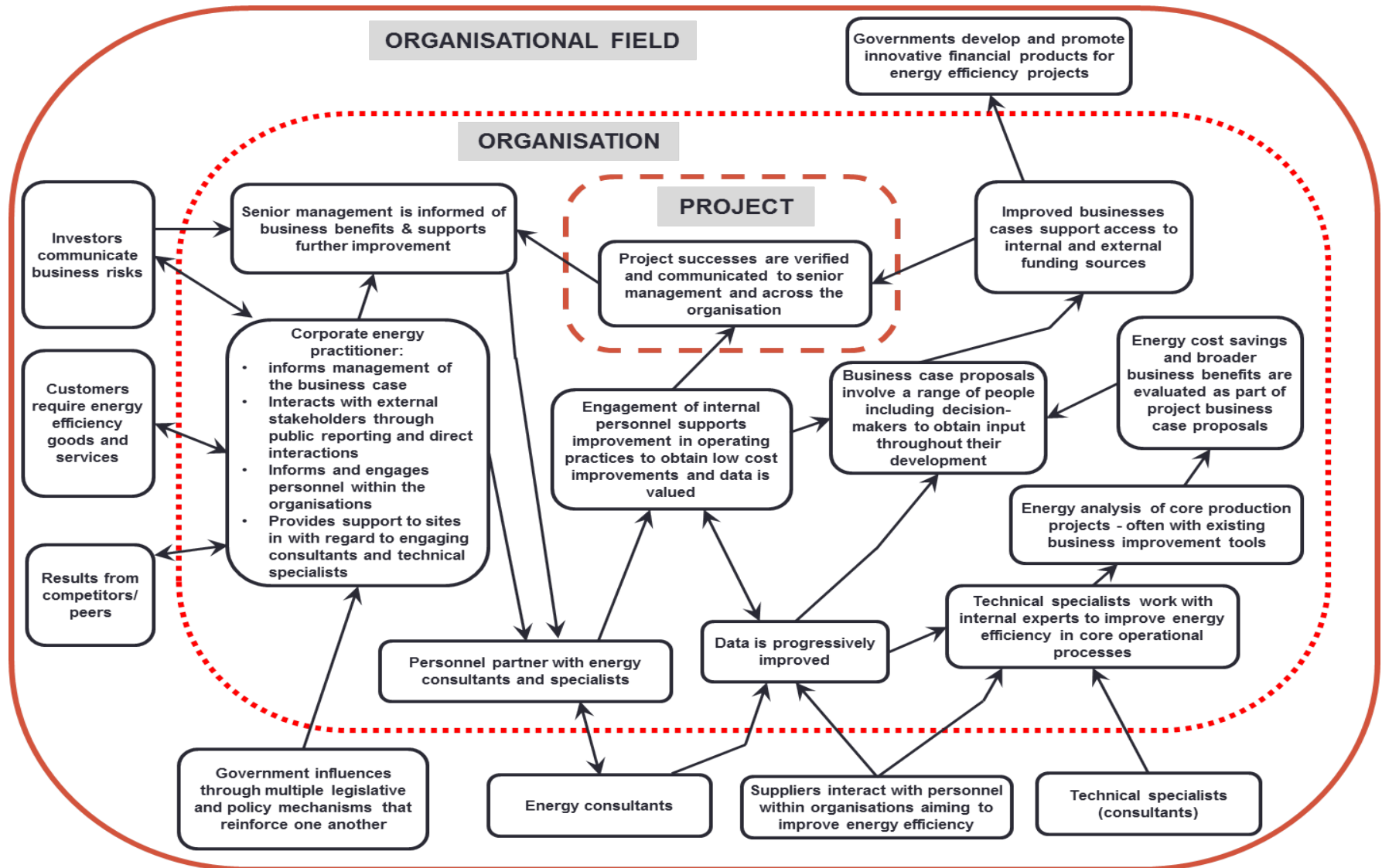
within the organisation by the corporate energy practitioners helps to build support for energy efficiency. The involvement of internal personnel and the more focused use of external consultants, including technical specialists, enhances the number and scope of the energy efficiency projects identified. The process is supported by progressive improvement in the quality, accessibility and analysis of energy and production data.

The increased level of engagement between internal personnel, including those involved in decision-making, increases the quality and success of business case proposals. This increases the likelihood that projects will receive funding and support for implementation from both internal sources and government funding. Greater evidence of success and support from senior management justifies progressive improvement in energy efficiency information systems which, in turn, contribute towards the identification of new energy efficiency projects. The following section considers the theoretical implications of the research findings.

9.3 Implications for the paradox of embedded agency and institutional change

9.3.1 Introduction: A process of collaborative co-creation

As discussed in Chapter 5, as institutional theorists have increasingly examined institutional change as well as institutional stability, they have been challenged to explain the "paradox of embedded agency" (Dorado 2005; Holm 1995; Seo & Creed 2002). This paradox presents the theoretical question: how do actors effect change when their intentions, actions and rationality are conditioned by the very social structures that they seek to change? (Battilana, Leca & Boxenbaum 2009; Czarniawska 2009; Seo & Creed 2002).

DiMaggio's (1988) essay on 'Interest and agency in institutional theory' introduced the concept of institutional entrepreneurship and prompted research that examined strategy and power within institutional theory and shifted attention toward the way in which actors purposefully influence institutions (Lawrence & Suddaby 2006). However, a contemporary critique of the growing body of literature that has examined institutional entrepreneurship suggests that institutional entrepreneurs have

typically been presented as powerless, at one extreme, or as overly powerful, at the other (Fligstein 2001; Powell & Colyvas 2008; Suddaby 2010b).

This thesis contributes new perspectives on the paradox of embedded agency and institutional change by examining the process of institutional change from the point of view of 'distributed agency'. That is, it has focused on the interactions between multiple stakeholders to examine how the dynamics of these interactions influence the way in which the institutions associated with energy management practices in organisations change over time. This approach addresses the call from scholars to conduct empirical research to better understand the implications of distributed agency for the process of institutional change (Battilana & D'Aunno 2009; Dorado 2005; Garud & Karnøe 2003; Hargrave & Van De Ven 2006; Lawrence, Suddaby & Leca 2011; Perkmann & Spicer 2008; Reay & Hinings 2005).

The research has revealed the diversity and influence that an eclectic set of stakeholders have had on energy management practices throughout the six-year period examined in this study. It has drawn on the perspective of corporate energy practitioners who have been well placed to share their perspectives as to who the most influential stakeholders are, how they influence change in energy management practices and the relative influence of different stakeholders at different times across the institutional lifecycle[219] associated with energy management practices.

The research demonstrates how social practices change through a process of collaborative co-creation, in which multiple organisations interact over time to disrupt previously institutionalised practices and to create new practices. This research has highlighted the role of Australia's first national energy efficiency legislation, the EEO legislation, as an influential trigger for change. However, the influence of the EEO legislation is intertwined with the entrance and growing influence of a number of other stakeholders into the organisational field associated with energy management practices. These stakeholders include other government agencies, investors and customers. The involvement and influence of new

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[219] The institutional lifecycle describes change in institutions from their disruption through development and then maintenance as newly-established or institutionalised practices.

stakeholders emerged through a recursive process in which corporate energy practitioners played a central role in 'translating' the significance of these external drivers for change within their own organisations at the same time as they sought to influence the actions and intent of the very same stakeholders that they were being influenced by (Hoffman 2001; Zilber 2006) .

In Chapter 5, two contrasting views of institutional change were discussed. The first was a dialectical view. Here, loose coupling between individuals and organisations creates divergence and contradiction within interconnected systems which leads to conflict and ultimately creates resolution through praxis (Seo & Creed 2002). This view has informed the description of institutional change as 'a battlefield' in which institutional war is waged between powerful actors (DiMaggio 1988; Hoffman 1999; Reay & Hinings 2005). However, the process of institutional change that was observed in this case research was more in keeping with an alternative view of institutional change, which Zietsma and McKnight describe as "collaborative co-creation"; that is, multiple actors are involved in experimentation, negotiation and consensus processes. Their interactions inform the development of shared templates that incorporate the interests of multiple parties (Zietsma & McKnight 2009).

Collaborative co-creation processes have been observed at multiple levels and at different phases in the institutional lifecycle. For example, at the organisational level, corporate energy managers illustrate the importance of negotiation with internal stakeholders. This is particularly apparent at the beginning of the institutional lifecycle when practitioners attempt to disrupt previously established practices. Negotiation is essential since practitioners have limited coercive power and instead rely on aligning the diverse motivations of internal stakeholders with the activities and outcomes of energy management.

At the interorganisational level, the government department responsible for the EEO legislation attempted to work collaboratively with organisations throughout the development and implementation of the legislation. This resembles the process of co-creation that Zietsma & McKnight (Zietsma & McKnight 2009) observed in relation to forest management agreements. Common to both situations is that power is dispersed across many stakeholders, supporting negotiation to create shared

interests, rather than contestation around fixed positions. A collaborative approach was reinforced as trust and knowledge developed between stakeholders. Early concerns within organisations about the coercive influence of the legislation softened as the strategic benefits and "innovation offsets" (Hoffman & Woody 2008; Porter & Reinhardt 2007) available to organisations began to emerge and become recognised.

At the project level, corporate energy practitioners found that collaboration improved the likelihood that they would access resources. For example, they found that involving decision-makers and other key internal stakeholders in the process of developing business case proposals for energy efficiency projects helped to build awareness and support for their projects. In part, this was because the involvement of multiple personnel helped to establish the multiple business benefits associated with a given energy efficiency project.

The research reveals four conditions that support successful institutional change through a process of collaborative co-creation. These conditions are that:

1. stakeholders with varying degrees of embeddedness are engaged in the change process
2. roles emerge for institutional entrepreneurs
3. collaboration is facilitated through the enactment of constructive social skills, and
4. change is underpinned by emerging shifts in institutional logic.

Each of these conditions are described in the following paragraphs.

9.3.2   Condition 1 – Stakeholders with varying degrees of embeddedness are engaged in the change process

At the core of the paradox of embedded agency is the notion of 'embeddedness' which describes "the degree to which actors and their actions are linked to their social context" (Reay, Golden-Biddle & Germann 2006, p. 978). High degrees of embeddedness have traditionally been considered a constraint on institutional change (see Section 5.3). This is due to the expectation that highly embedded actors will be strongly influenced by the cognitive, normative and institutional mechanisms that act to maintain existing behaviours.

This perspective has been challenged by Reay, Golden-Biddle and Germann (2006). Their research examined the way in which experienced and highly embedded nurse practitioners challenged established patterns of work to introduce new work practices. The researchers found that the high degree of embeddedness of the nurse practitioners was advantageous in supporting change. The practitioners were able to use their inside knowledge to develop new and improved ways of working. Examining distributed agency and institutional change over time in this thesis provides further understanding of the relative benefits and limitations of embeddedness in relation to institutional change. Figure 9.8 illustrates the range of interactions between key stakeholders with reference to their degree of embeddedness within an organisation. To illustrate the relative benefits and limitations of embeddedness in relation to institutional change, the degree of embeddedness of three key roles associated with changing energy management practices are examined here. Those roles are:

1. energy consultants
2. corporate energy practitioners, and
3. site-based energy champions.

Figure 9.8: Interactions between stakeholders with varying degrees of embeddedness
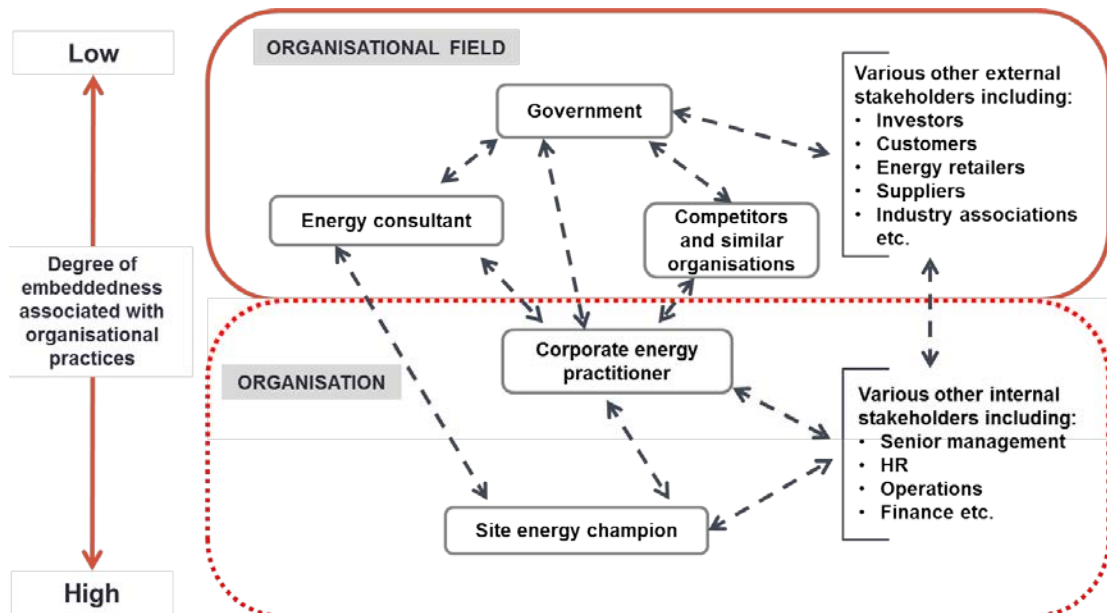
Energy consultants can be expected to have the lowest degree of embeddedness of these three actors. That is, they are 'outsiders' to the organisations that they work with. On the one hand, this means that they can potentially bring new ideas and approaches to the organisation regarding energy efficiency. Many consultants have the advantage of having worked across a number of organisations and have direct experience of conducting energy efficiency assessments and progressing energy management. On the other hand, without appropriate support from within the organisation (e.g. appropriate energy information systems and access to people) their effectiveness has been shown to be limited. While the idea of handing over an energy efficiency assessment to an external consultant is appealing to the organisation and to policymakers since it can reduce the internal organisational resources required, this research suggests that over-reliance on external consultants is likely to limit the scope of energy efficiency measures identified, as well as the quality of the business case proposals developed. This suggests that potentially cost-effective energy efficiency measures may not even be identified and, those that are, may have a relatively poor likelihood of being adopted unless they represent clear financial benefits with little upfront investment and business risk.

It is difficult to ascertain the influence of different skills on the part of energy consultants from this research. However, there is some evidence that those that were most successful were able to partner with organisations over a longer period of time. This helped the consultants to become more embedded in the organisation through ongoing exposure and experience. That is, they progressively improved their understanding of business priorities, built links with the personnel who could influence project decisions and improved their ability to communicate the benefits of energy efficiency in a manner that was most appealing to particular internal stakeholders. Over time they also developed a successful track record which illustrated their contribution to the organisation. The research suggests that successful partnering between an organisation and a consultant may be a function of the:

- consultant's technical, communication and influencing skills
- strength of their relationship between the corporate energy practitioner and the organisation, and
- extent to which consultants are able to build effective relationships with

personnel within the organisation.

Corporate energy practitioners are more embedded in the organisation than energy consultants. Typically, they will have developed an understanding of the key priorities in the business and, by working in the organisation on a day-to-day basis, they have ongoing contact with staff across professional and functional boundaries. Through their position in the corporate group, corporate energy practitioners have access to senior corporate management in their organisation, which presents them with the opportunity to communicate the drivers for and benefits associated with energy management, which they use to obtain corporate support. Although corporate energy practitioners may have been considered 'insiders' from the perspective of the corporate groups in their organisations, they were typically perceived to be 'outsiders' in relation to operating sites where managers and operators are more directly involved in delivering the products and services that form the basis of the organisation's business. Since corporate energy practitioners were often introducing activities and requirements that require additional resources, they were (in the first instance) typically perceived to be constraining sites, rather than delivering value.

One important way in which this was addressed was by establishing site-based energy champions. That is, a role was established at the site level with responsibility for progressing energy efficiency improvements. Site-based energy champions are positioned much closer to day-to-day business operations. They are geographically advantaged by being located at sites and can develop relationships across the different groups and personnel at the site level. In many cases site-based energy champions also have the advantage of continuity, which allows them to better understand the culture of the site and build enduring relationships. However, recruiting appropriate personnel and minimising staff turnover remains a challenge for many organisations – particularly in sectors like mining which was experiencing a skills shortage at the time. Relative to corporate energy practitioners and energy consultants, they are highly embedded.

In a manner that is similar to the nurse practitioners described in the Reay, Golden-Biddle and Germann (2006) study, site-based energy champions have access to detailed knowledge of day-to-day operations. However, one of the factors that is

likely to influence their effectiveness in introducing change is their high degree of embeddedness (i.e. being subject to the culture of the site, including the business priorities that are considered to be important, and the activities that are, accordingly, considered to be legitimate). Their link to the corporate office through the corporate energy practitioner was a factor that helped them to overcome this constraint. For example, the corporate energy practitioner could provide the site-based energy champions with tools, resources and project examples that would help them to more effectively promote the benefits of energy management at the site-level.

This brief perspective on roles highlights the strengths and constraints associated with the degree of embeddedness of each of these key stakeholders. Organisations that have successfully introduced new energy management practices have been able to exploit the strengths and limitations of each role and the relative degree of embeddedness by encouraging collaboration with internal and external stakeholders. This characteristic was not just observed within organisations across structural and professional boundaries, it was also observed in relationships between organisations and government departments and between large energy consuming organisations. Therefore, this research supports the finding from Reay, Golden-Biddle and Germann (2006) that stakeholders with high degrees of embeddedness have an important role to play in facilitating change. However, it goes further by illustrating the important need to involve a range of stakeholders with multiple degrees of embeddedness. However, the question then becomes, what conditions support collaboration between stakeholders with multiple degrees of embeddedness? A contributing factor is the emergence of roles for institutional entrepreneurs, such as corporate energy practitioners.

9.3.3   Condition 2 – Roles emerge for institutional entrepreneurs

Earlier in this thesis (see Section 5.3) institutional entrepreneurs were introduced as: "change agents who actively participate in the implementation of changes that diverge from existing institutions" (Battilana, Leca & Boxenbaum 2009, p. 70). This emphasis on 'divergence' as a defining characteristic of the institutional entrepreneur has been highlighted by many scholars (Battilana 2006; Greenwood & Hinings 1996; Greenwood, Suddaby & Hinings 2002; Schultz & Hinings 2012). To clarify, non-divergent changes are those which are aligned with existing institutions. For

example, as the EEO legislation was introduced, many of the organisations replicated the accepted energy management practices of the time, which included contracting an energy consultant to conduct an assessment with limited engagement and involvement of internal personnel. This is an example of non-divergent change because although an organisation might have been conducting an energy efficiency assessment for the first time, the patterns of existing and well-established practice were replicated. Corporate energy practitioners exhibited a role as institutional entrepreneurs when they began to challenge the status quo by departing from practices that had previously been accepted as 'the way to do energy management', by introducing new practices. Thus, the corporate energy practitioners involved in this research may be considered to be institutional entrepreneurs since their actions clearly contributed towards divergent change, and they were actively involved in obtaining resources to support the change process.

What conditions encouraged the emergence of the corporate energy practitioner as institutional entrepreneur? As was highlighted in the beginning of the case study, the EEO legislation acted as an important trigger (i.e. a direct consequence of the introduction of the EEO legislation is that it encouraged organisations to establish a role with responsibility for ensuring that, as a minimum, compliance requirements were achieved). However, the expanding interest of other stakeholders, which led to the introduction of related legislation and growing interest on the part of investors and customers, for example, helped create an opportunity for corporate energy practitioners to challenge existing energy management practices. Further, the emerging interests of external stakeholders helped corporate energy practitioners to expand their role from one where they were responsible for compliance, to one which became responsible for briefing management on the implications of external changes. In addition, the role involved interacting with key external stakeholders (e.g. government, investors and customers) and, ultimately, improving energy performance and delivering value to the business through energy management. Table 9.4 lists some of the key activities that reflect the changing role of the corporate energy practitioner. The table illustrates how the role grew from an initial focus on legislation and compliance to one that encompasses advice, strategy, planning, the development of management systems, internal and external communications, staff engagement and reporting.

Table 9.4: Emerging role and activities of corporate energy practitioners

Activity	Aim
Legislation and compliance	Ensure that compliance requirements are understood and achieved by the organisation.
Advisory	Advise senior management and other relevant internal stakeholders on energy-related issues.
Strategy and planning	Develop a coherent plan for energy management and coordinate implementation across the organisation.
Management systems	Establish and maintain energy management systems.
Internal communication and staff engagement	Communicate the business case for energy management and motivate relevant internal stakeholders to support improved energy management.
External communications and reporting	Manage the development of public reports and liaise with key external stakeholders on energy management issues.

In playing an active communication and influencing role with external stakeholders, corporate energy practitioners also improved their access to senior management within their organisation. For many, an important part of their role was to communicate changes external to the organisation that could impact on their organisations. This presented corporate energy managers with an opportunity to continually reframe the benefits of energy management in a way that highlighted not only energy cost savings, but a range of other business risks and benefits as well, including legislative compliance, productivity improvements and competitive advantage.

Broadening the perspective of the value of energy management at senior management levels helped corporate energy practitioners to address what they perceived to be the limitations of the traditional energy management practices. In particular, it enabled them to broaden the scope of energy management beyond energy efficiency assessments conducted by external consultants and the idea that energy management was a 'once every few years' activity, rather than a continuous and integrated improvement process.

Changes in the organisational field also presented corporate energy practitioners with new opportunities and arguments to promote the benefits of energy efficiency within their own organisations. In part, this was due to the changing role of many corporate energy practitioners. These roles expanded from being predominantly legislation and compliance focused to roles where these practitioners were required to:

- advise senior management on energy and climate-related issues
- be involved in strategy and planning
- develop management systems
- support effective communication and engage staff.

Uncertainty in the external environment also facilitated access to senior management as organisations sought to understand the risks and opportunities associated with turbulent and ongoing changes in the external environment. Access was facilitated as management requested briefings on the changes, reviewed public submissions to be made on behalf of their organisations on proposed legislation and (in the case of the EEO legislation) senior management and boards were required to sign-off each year on public energy efficiency reports. Access to senior management helped energy practitioners to obtain the resources and support needed to bring about changes in energy management practices (discussed in the remainder of this case study). New practices included:

- broadening staff involvement in energy management
- increasing the visibility and relevance of energy efficiency to staff
- augmenting business systems (e.g. associated with the collection and analysis of energy data), and
- leveraging existing management practices to integrate energy management within existing business systems.

The actions of corporate energy practitioner resemble what Janda and Parag (2013)describe as 'middle-out' influence (Figure 9.9). That is, corporate energy practitioners exert influence 'upstream' to leverage the influence of senior management as well as external stakeholders such as government. At the same time they aim to influence 'downstream' by drawing on the influence of operational personnel and others within their organisations that are more directly involved in

decisions and behaviour that effect energy use. They also influence sideways by influencing other corporate energy practitioners (e.g. through presentations at conference) as well as managers at a similar level but in other functional areas within their organisations.

Figure 9.9: Directions of influence

(Source: Janda & Parag 2013, p. 43)
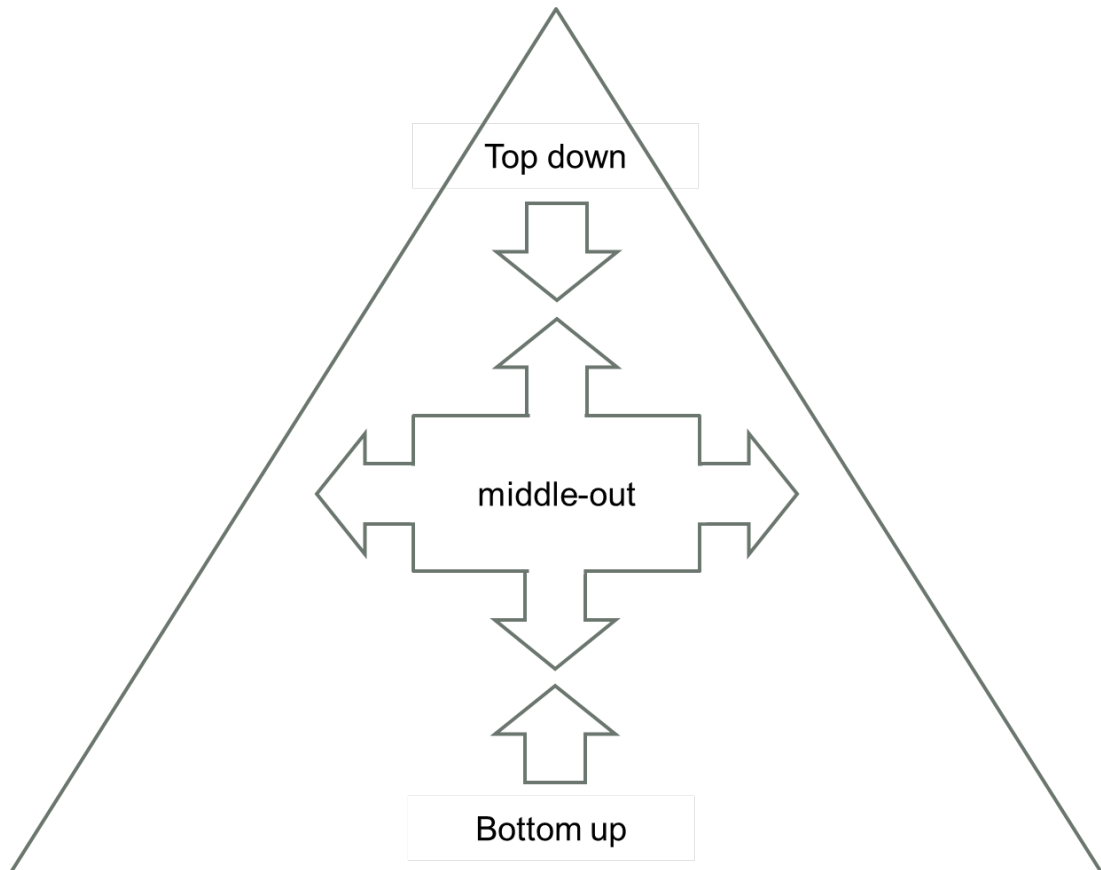
How did these institutional entrepreneurs exert influence and facilitate change? The next section proposes three key social skills that were observed and which support the collaborative co-creation of new institutions associated with energy management practices.

9.3.4 Condition 3 – Collaboration is facilitated through the enactment of constructive social skills

Social skills have been defined as "the ability to engage others in collective action" (Fligstein 2001, p. 105). Social skills include: "reading people and environments, framing lines of action, and mobilizing people in the service of these action frames" (Fligstein & McAdam 2011, p. 7). The emergence of a new line of inquiry under the term 'institutional work' (e.g. Hargrave & Van De Ven 2009; Kraatz 2011; Lawrence & Suddaby 2006; Lawrence, Suddaby & Leca 2009; Perkmann & Spicer 2008) is closely aligned with the notion of 'social skill'. Institutional work has been defined as: "the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions" (Lawrence & Suddaby 2006, p. 215). In their major study on institutional work, Lawrence and Suddaby (2006) reviewed empirical research published from 1990 in the publications – *Administrative Science Quarterly*, *Academy of Management Journal* and *Organization Studies* to catalogue prominent examples. Examples of institutional work that they identified include the use of advocacy, mimicry and educating as a means of creating institutions. 'Mythologising' and 'policing' are examples of institutional work that aim to maintain existing institutions. The term 'social skill' is used here, but it may be used interchangeably with the term 'institutional work'.

This thesis has highlighted that social skills can be observed as playing a central role in connecting stakeholders and focusing their efforts towards energy efficiency improvement. These individual-level skills were exhibited by corporate energy practitioners and supported their efforts to change energy management practices. However, rather than using directly coercive strategies, three particular social skills were observed to be prevalent in this case of changing energy management practices. These distinct, yet interrelated social skills have been identified as playing a central role in the collaborative co-creation of energy management practices, and are:

- framing
- integrating, and
- creating normative networks (see Figure 9.10).

Figure 9.10: Three key social skills supporting collaborative co-creation
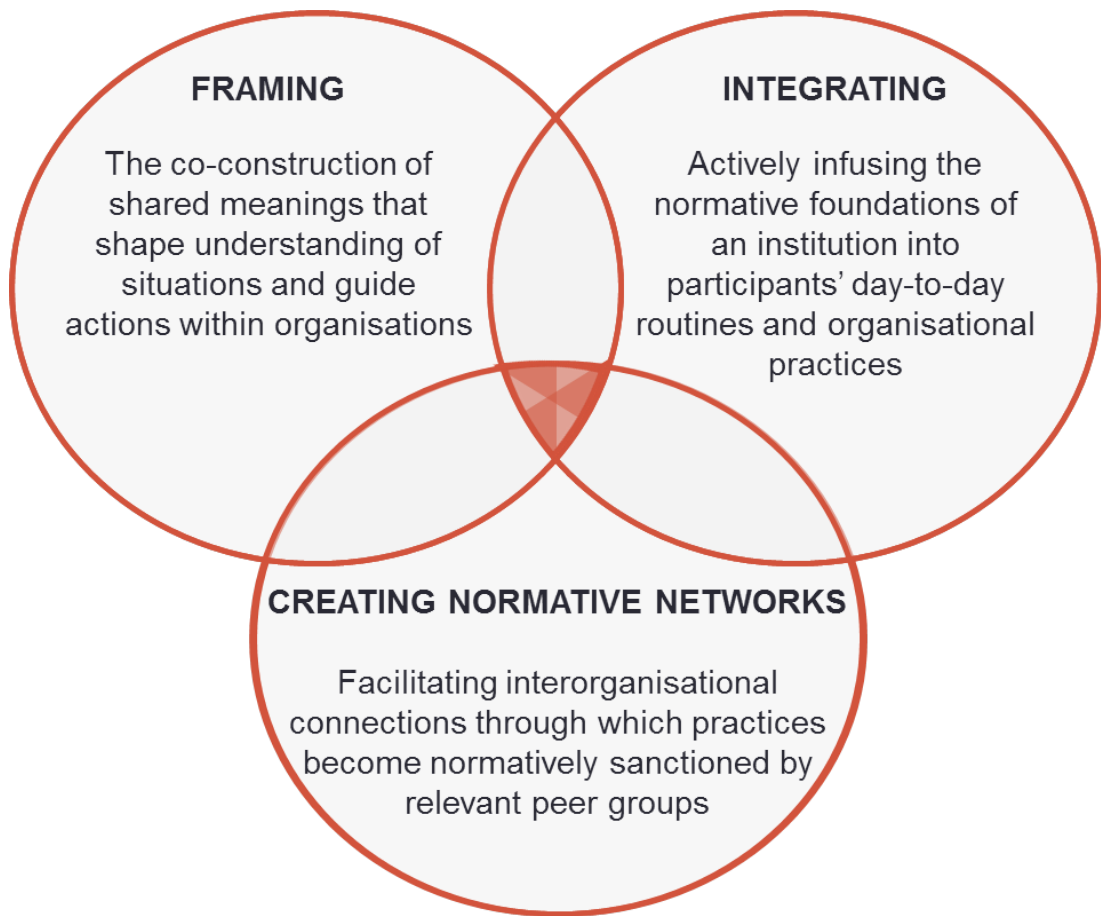
Framing

A frame is: "a quality of communication that causes others to accept one meaning over another" (Fairhurst & Sarr 1996, p. xi; Sillince & Mueller 2007). 'Cultural frames' are used by individuals to shape their understanding of situations and guide their actions (Howard-Grenville & Hoffman 2003).

Maguire, Hardy & Lawrence (2004) observed that the institutional entrepreneurs involved in influencing the development of the field of Canadian HIV/AIDS treatment advocacy framed arguments in different ways to appeal to the interests of diverse stakeholders (e.g. the community, treatment advocates, pharmaceutical companies and activists). Howard-Grenville & Hoffman (2003) suggest that, where there are multiple benefits associated with social initiatives, then framing can provide a particularly useful method of engaging stakeholders in the process of institutional change. The findings in this research are consistent with that view.

Framing was used by actors in many different ways as a means of building support for energy efficiency and to access resources. For the Department of RET there were explicit attempts to frame the EEO legislation as a program that delivered business benefits as well as energy cost savings and greenhouse gas emissions. This was even written into the legislation by requiring organisations to assess what the government called "whole-of-business" benefits.[220] This was an attempt to challenge the established perception of energy efficiency as primarily an initiative aimed at reducing energy costs.

For corporate energy practitioners at the nexus between external stakeholders and internal groups, reframing arguments to appeal to different individuals and groups throughout their organisation provided a particularly powerful tool for obtaining support. For example, it was observed that energy efficiency was framed in a number of different ways, including as a:

- risk management strategy
- cost containment strategy
- way of engaging internal staff in their day-to-day work, and
- means of demonstrating an organisation's social responsibility.

Of particular interest is that the content of the framing was adjusted by corporate energy practitioners over time. For example, whereas initial framing tended to be focused around saving energy costs, as external drivers, such as the introduction of a carbon price enhanced the focus for both senior managers and investors, the framing shifted towards a focus on legislative risk and cost containment. Following the global financial crisis in 2008, there was greater focus once again on cost reduction benefits.

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[220]The EEO Industry Guidelines document states that: "The detailed investigation is used to inform whole-of-business evaluation, to inform a full cost-benefit analysis to quantify benefits to business beyond the value of direct energy savings. These could include production efficiencies, reduced maintenance schedules, improvements to operational health and safety, staff comfort and engagement, improved reputational benefits, or changes in other factors that the company views as a business priority."(RET 2011, p. 64)

This research also highlighted that framing at the individual level might be much more personal – tapping into values and emotions. Corporate energy practitioners found that one-on-one discussions were not only useful in understanding which frame might be most appropriate for the individual or group concerned, but these discussions also subtly shaped the framing of the messages in ways that highlight that framing can be more effective as a recursive process. That is, rather than just selecting from a menu of possible 'frames' for a particular stakeholder, the discourse between actors themselves helped to create *new* frames that were somewhat unique to the social context within which they were being delivered. For example, involving decision-makers in the process of identifying and evaluating energy efficiency measures also helped to ensure that business case proposals were framed in ways that made certain that appropriate business costs and benefits were taken into account. Collaboration with decision-makers not only helped to establish the appropriate framing of the project, it also led to greater engagement, interest and commitment from decision-makers, which appears to have helped to increase the likelihood that a project would be implemented. Thus, approaching framing as 'a process of engagement' rather than 'a recipe of options' helped to enhance the benefits of collaboration across actors with different levels of embeddedness.

Framing has been shown to be particularly powerful in relation to energy efficiency due to the multiple benefits that accrue. Acting as a powerful boundary object the notion of energy efficiency provided a shared concept that could be adopted to appeal to the particular interests of individuals and occupational groups (Benn, Edwards & Angus-Leppan 2013; Oswick & Robertson 2009; Star & Griesemer 1989).

Integrating

Corporate energy practitioners frequently used the terms 'integrating' and 'integration' when they described the focus of their efforts to improve and maintain energy management practices in their organisations. There were several advantages to integrating energy management into existing management practices in their organisations. For example, as they sought to broaden the involvement of personnel across their organisations by highlighting ways in which existing management

systems or practices could be applied to the task of energy efficiency improvement, they were able to reduce resistance. Also, using existing systems reduced the perception of extra work required or the effort of learning new ways of doing things.

Other terms are closely related and relevant to what might be considered the social skill of 'integrating'. For example, Lawrence & Suddaby (2006, p. 233) used the terms 'embedding' and 'routinising', which they described as: "actively infusing the normative foundations of an institution into the participant's day-to-day routines and organisational practices". Zeitz (1999) described tactics, such as linking a new management practice to organisational identity, as an important mechanism for supporting the adoption and entrenchment of new management practices.

Integrating energy management practices into the day-to-day routines of the organisation presents several effects. A number of these are highlighted by (Becker 2004) and discussed here. For example, routine behaviour is easier to monitor and control than non-routine behaviour. Consequently, routine behaviour helps to reduce uncertainty. For corporate energy practitioners attempting to meet compliance requirements, establishing appropriate routines was considered essential to meeting compliance requirements. Integrating within existing management practices also made it more efficient to conduct energy efficiency assessments since there was less 'reinventing of the wheel' required. Establishing routines also supported learning from one site assessment to another as any variation in approaches could be compared and contrasted – providing feedback that was used to incrementally modify subsequent assessments.

Supported by training, documentation and other material, this may also mean that integrating practices into routines has meant knowledge is more effectively stored within the organisation. This helps address the risk that knowledge is lost when personnel leave an organisation, or (as a number of corporate energy practitioners suggested) energy consultants leave with important knowledge that was developed within the organisation (i.e. the consultant's intellectual property), but not documented or stored appropriately for future use by the organisation. Routines can also provide stability and efficiency since less conscious problem-solving is required to execute particular tasks and skills are progressively developed.

Creating normative networks

Lawrence & Suddaby (2006, p. 225) define normative networks as: "the inter-organizational connections through which practices become normatively sanctioned and which form the relevant peer group with respect to compliance, monitoring and evaluation". Of note is that Lawrence and Suddaby use the term 'constructing'. However, this term tends to imply a greater level of direct control than was observed in the research. The term 'facilitation' has more of a connotation of *creating* the conditions to enable interaction amongst individuals and groups, rather than coercively designating them to particular networks. Therefore, this is the term that is used in this discussion.

Although Lawrence and Suddaby classify the construction of normative networks as being prominent in the process of *creating* institutions, in this case study we observe that it is part of both *disrupting* and *maintaining* institutions. This is consistent with Zietsma & McKnight's (2009) study of new forestry practices in Canada. They found that institutional creation, maintenance and disruption work often occurred at the same time. In this research, the normative networks that were formed to disrupt existing management practices were often modified for the process of creation and maintenance of these networks.

The case study highlights how normative networks were established at both the field and organisational levels. For example, the annual conferences that were hosted by the Australian Government provided a location in which corporate energy practitioners could share their experiences and interact to form networks of people with a distinct professional interest. Within organisations, normative networks included energy teams and networks of site-based energy managers which supported learning across the organisation. An important key to creating normative networks was to work across structural and professional boundaries. This helped to draw on the unique strengths individuals and groups in particular parts of an organisation had in relation to their particular level of embeddedness.

Fligstein (1997) refers to tactics that relate to the facilitation of normative networks such as 'aggregating interests' and 'networking to outliers who have no coalitions'.

Aggregating interests involves joining together actors or group with different preferences to create a collective identity around a new issue. Newly established networks may be formed or developed by drawing in 'outliers' who have no collective identity into a network to further reinforce support for and replication of new practices. Both of these tactics were observed and were prominent in this research. For example, operational personnel may be considered outliers in that they are directly involved in day-to-day operations, but in some organisations, their perspectives on operational practices may not be sought. In the process of engaging staff in energy efficiency improvement, such personnel may be provided with an opportunity to share their perspectives. Where there are changes that lead to improved energy efficiency then operators may use the energy efficiency team or improvement process to help them realise the operational changes that they seek.

9.3.5   Condition 4 – Shifts in institutional logic underpin institutional change

'Institutional logic' refers to the underlying belief systems that inform the behaviour of actors within an institutional field (Scott 2001). It has the effect of providing the organising principles for a field (Friedland & Alford 1991) and influencing individual and organisational behaviour when they relate to the collective identities of a social group (Thornton & Ocasio 2008). Polleta and Jasper (2001, p. 285) define a collective identity as: "an individual's cognitive, moral, and emotional connection with a broader community, category, practice, or institution". Institutional logic plays a fundamental role within organisational fields by creating common purpose and alignment amongst field constituents. It supports understanding of institutional change, as shifts in a dominant logic can provide an important indication of change (Reay & Hinings 2009). Three major shifts in the institutional logic that informed the enactment of energy management practices were observed in this case research (see Table 9.5). These shifts informed the development and maintenance of new energy management practices amongst the organisational field associated with energy management practices.

Table 9.5: Shifts in institutional logic

Shift in logic	Old rationale	New rationale
From outsourcing to internal engagement and capacity building	• External consultants seen to have the credibility and legitimacy to conduct energy efficiency assessments • Outsourcing considered a means of minimising the resources required to deliver energy efficiency improvement	• Dispersed nature of decision-making and perspectives on energy use required involvement and skills development of personnel from across the organisation
From energy savings to business value	• Main value associated with energy management consisted of reducing input costs associated with energy use which contributes to incremental change	• Energy management perceived as an opportunity to deliver multiple organisational benefits which contributes towards transformative change *as well as* incremental change
From episodic to continuous improvement	• Energy efficiency assessments – primary means of managing energy use • Conducted on a semi-regular basis (e.g. every 3-5 years)	• Energy management considered a process of ongoing management, including at the level of day-to-day review and modification of operational practices to save energy

The first shift was from outsourcing to internal engagement and capacity building.

That is, the institutionalised practice had been to outsource energy management to a consultant as consultants had perceived credibility and legitimacy (by key stakeholders). However, this shifted as it was realised that more effective outcomes could be achieved by involving a range of people across professional and structural boundaries across the organisation. To facilitate their involvement briefings, training and other capacity building activities are implemented.

Second, energy efficiency was perceived to be an activity that mainly achieved savings in energy costs. This underlying assumption shifted as organisations found that energy management could deliver energy savings and a range of more far-reaching business outcomes, therefore, justifying further investment and attention to energy management.

The third shift related to the frequency with which attention and effort was placed on energy management. The change moved from a belief that energy management only required periodic attention by conducting energy audits once every few years, to a new belief where there was value placed on ongoing attention to energy management. This included a review of energy data on a day-to-day or shift-to-shift basis (i.e. increased frequency) to deliver improved energy and operational performance.

9.3.6   Section summary

This section of the thesis has described the implications of the research for the paradox of embedded agency and institutional change. It began by highlighting that the process of institutional change observed in this research can be characterised as 'collaborative co-creation'. Then, the following four conditions supporting institutional change as a process of collaborative co-creation were discussed:

1. stakeholders with multiple levels of embeddedness are engaged in the change process
2. roles emerge for institutional entrepreneurs
3. collaboration is created through the enactment of constructive social skills, and
4. change is underpinned by shifts in institutional logic, by which diverse stakeholders create shared understanding of newly-created energy

management practices.

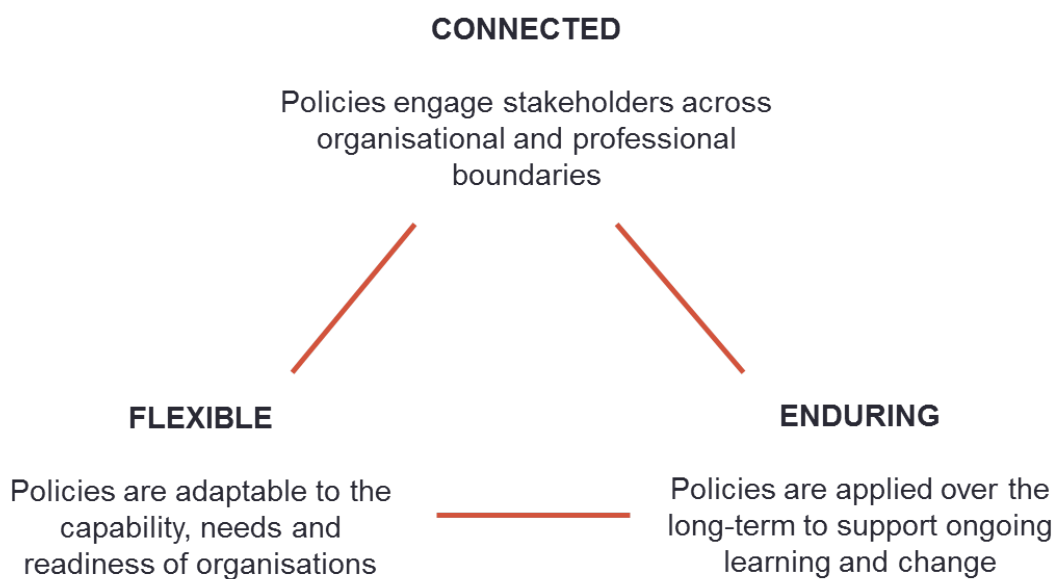The next section considers the practical implications of the research/

9.4   At the level of practice: implications for policy development

The findings on institutional change have important implications for energy efficiency policy development. In Chapter 4, the literature on energy efficiency policy was reviewed with a particular focus on how policies aim to encourage the adoption of energy management practices. That review highlighted that there are many different factors influencing energy use in organisations, including the design of energy markets, economic environment, business circumstances, managerial priorities and a wide range of implementation barriers (Tanaka 2011). As a result, policymakers typically approach energy efficiency policy by developing multiple policies that are linked together as 'policy packages' (Jollands et al. 2010; Price et al. 2005; Ürge-Vorsatz & Novikova 2008; Zhou, Levine & Price 2010). While this is an appropriate response to the complexity associated with the adoption of energy management practices in organisations, there is also a potential for unintended consequences from the implementation of energy efficiency policies. For example, organisations may respond to policy as an administrative burden and adopt a 'compliance' approach that places an emphasis on meeting the minimum requirements of the legislation rather than improving their energy efficiency and business performance (Shen, Price & Lu 2012). Also, financial and market-based measures that aim to modify the price of energy may be ineffective unless organisations are aware of and manage their energy use effectively, thus impacting on the extent to which such programs are able to encourage improved energy performance (Garnaut 2008; Tanaka 2011).

These unintended consequences and limitations were reflected in the initial response by organisations to the EEO legislation; that is, organisations applied established energy management practices that were widely 'taken for granted' as 'the way to do energy management.' And yet, over time these energy management practices changed in the organisations involved in this study. These changes may be attributed, in part, to policy mechanisms (e.g. the EEO legislation). Ultimately, it is clear, however, that the dynamic interaction between multiple government policies and other changes in the organisational field influenced change.

This research identified four conditions supporting the adoption of energy management practices in organisations through a process of collaborative co-creation. On the basis of these conditions, three key policy development principles that may be applied to encourage the adoption of energy management practices have been derived (see Figure 9.11).

Figure 9.11: Implications of the research for policy development and implementation

CONNECTED

Policies engage stakeholders across organisational and professional boundaries

FLEXIBLE

Policies are adaptable to the capability, needs and readiness of organisations

ENDURING

Policies are applied over the long-term to support ongoing learning and change

First, policy measures should be *connected*. That is, energy efficiency policies should encourage a wide range of stakeholders to engage in the process of energy efficiency improvement. This principle is intended to address the limitation of policies that have focused on technical personnel and technology improvement without broadening engagement to the wide range of other professions and stakeholders who play an important role in overcoming barriers to energy efficiency improvement. This approach also reduces the risk that managers will delegate energy efficiency to personnel who may already be overloaded with inadequate resources.

Second, to encourage the adoption of effective energy management practices, it is argued that policy measures should be *enduring*. That is, there should be policy and program stability over a period of time to provide organisations with a level of consistency that can help them to develop and adopt new energy management

practices. This principle acknowledges that changes in energy management practices require deep shifts in beliefs as well as changes in technical activities.

Third (and finally), policy measures should be *flexible* in their application. This principle is intended to support organisations with different capabilities and degrees of energy management sophistication to adopt the appropriate practices that will progress energy management most effectively for them.

9.4.1 Towards better connected policies

Identify and involve multiple stakeholders in energy efficiency improvement

This research has highlighted the complex social environment associated with energy management. A wide and growing range of stakeholders have augmented their interest in the energy efficiency performance of organisations across the study period. This presents an opportunity for policymakers to leverage the influence of stakeholders with an interest in energy management. Such leverage may be enhanced by providing education and training programs and by upskilling professionals and organisations with limited experience with energy management. For example, middle/senior managers within organisations and external advisors who are focusing solely on core business issues, such as financial management and accounting, may not be aware of the strategic benefits associated with improved energy management.

This was, however, achieved in the NSW Government Energy Efficiency Training Program. As part of this program, the University of Technology Business School undertook a training needs analysis to determine the interests and needs of the accounting profession. One important outcome was that professional industry associations were in the process of promoting the role of accountant as a 'business partner'. They identified that energy efficiency was an issue that accountants could promote to senior management (Benn et al. 2011). In this case, the NSW Government played a role of coordination between industry associations, universities, technical education institutions and practitioners to raise awareness and provide skills to support energy efficiency improvement. This is just one illustration of the important role that government can play in creating 'normative networks' between stakeholders with diverse professional interests that may not have previously perceived a shared interest and opportunity for collaboration with others.

From this point of view, energy efficiency may also be used by educators to demonstrate their efforts at renewal and in highlighting the relevance of their courses in the context of contemporary issues.
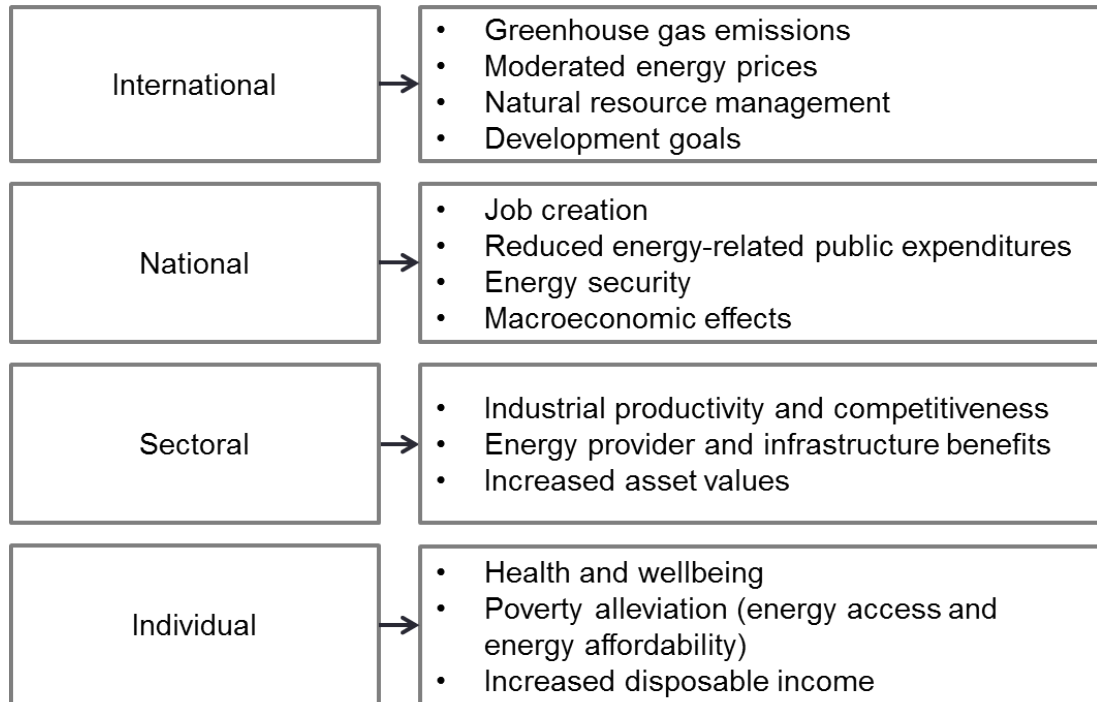
Communicate the multiple benefits of energy efficiency

One of the strengths of energy efficiency is that using less energy to produce goods and services can deliver multiple benefits. A number of these benefits were identified in the case study and in the previous discussion on the social skill of 'framing'. Reframing energy efficiency can also be done at the national and international levels. It has recently been acknowledged that the full benefits of energy efficiency have not been effectively communicated by governments. This may have the effect of limiting the extent to which other government department and businesses themselves value policies and initiatives that aim to accelerate energy efficiency improvement (Ryan & Campbell 2012).

The recent IEA report *Spreading the Net: The Multiple Benefits of Energy Efficiency Improvements* (Ryan & Campbell 2012) provides a preliminary assessment of the work that has been undertaken to quantify the multiple benefits from energy efficiency. In Figure 9.12, the benefits of energy efficiency are presented at multiple levels, including international, national, sectoral and individual levels. The work builds on other attempts to determine the macro-economic benefits of energy efficiency. For example, Barker, Ekins and Foxon (2007) studied the macro-economic effects of energy efficiency policies and programs in the United Kingdom between the years 2000–2010. This study, which covered the domestic, business, commercial and transport sectors, found that the energy efficiency policies that had been implemented across these sectors led to a saving of around 8% of the energy that would have otherwise been used. The positive macro-economic effects included lower prices and lower inflation as production systems required fewer inputs to produce the same output. Higher output and growth was also found – in the order of a 0.1% increase in the annual gross domestic product growth rate over the period 2005–2010.

Figure 9.12: 'Levels' typology of the multiple benefits from energy efficiency improvement

(Source: Ryan & Campbell 2012, p. 15)

International	→	• Greenhouse gas emissions • Moderated energy prices • Natural resource management • Development goals
National	→	• Job creation • Reduced energy-related public expenditures • Energy security • Macroeconomic effects
Sectoral	→	• Industrial productivity and competitiveness • Energy provider and infrastructure benefits • Increased asset values
Individual	→	• Health and wellbeing • Poverty alleviation (energy access and energy affordability) • Increased disposable income

An example of the way in which the benefits of energy efficiency may be reframed by governments is presented in the following quote from the Australian Government's Energy White Paper of 2012 (RET 2012c, p. 179). In this quote, the words 'energy productivity', rather than 'energy efficiency' are used.

> "Improving energy productivity involves increasing the ratio of economic output or social utility relative to the cost of the energy used in their production. At its core it involves the efficient generation, distribution and use of energy. Improved productivity can reduce the need for investment in energy systems and lower energy and carbon costs for households and businesses. However, achieving sustained economic, social or environmental benefits requires the whole supply and end-use chain to operate efficiently."

This concept attempts to link energy end-use more clearly with the full life cycle of energy supply. The term 'productivity' may be considered more appealing to businesses and government stakeholders and more in alignment with national economic jargon (Boyd & Pang 2000; He, Liu & Zhang 2006; Honma & Hu 2009).

To 'leverage' this framing however, requires education, training and collaboration processes that bring together diverse stakeholders across the supply chain to identify and enact change.

9.4.2   Towards more enduring energy efficiency policies

The case study highlighted that the organisational field associated with energy management practices was dynamic and changing over the six years that were examined. The EEO legislation provided an important trigger for companies to reconsider their energy management practices, and this was then reinforced through the influence of other government legislation and growing interest from investors and customers. As well as providing a trigger, however, the EEO legislation also provided continuity and focus for organisations as they sought to manage the broadening interest in energy management from external stakeholders (e.g. investors and customers). Of note is that – even after the first five-year period of the program (which concluded in June 2011), the corporate energy practitioners that presented at the annual EEO conferences emphasised a number of significant changes that they were intending to make as they planned for the second five-year EEO assessment cycle. These organisations had already delivered substantial energy efficiency improvements, yet saw significant further potential.

Continuing attention to energy efficiency is required for a number of reasons – by policymakers as well as practitioners. For example, technology improves, energy prices fluctuate and there is a need to purchase new equipment and refurbish existing equipment from time-to-time. An important characteristic of organisations that have been successful in improving their energy efficiency performance is an ability to maintain the focus on energy management, to review their effectiveness and implement new practices that support continuous improvement. The enduring nature of the legislation played an important role in supporting an ongoing focus on energy efficiency improvement. At the time of writing the EEO legislation had provided a consistent driver for change over more than seven years in a period when related government policies had been modified substantially and stakeholder interest and concern was augmented.

This finding highlights the need for energy management policies to provide

consistency and longevity in order to support improvements in energy management practices which, in turn, deliver improved energy efficiency performance. There are a number of design features in the EEO legislation that encourage continuous improvement and supported learning and continuous improvement:

- There is the option for organisations to sequence their energy efficiency assessments over a five-year period, rather than conducting them in one particular year. This approach supported reflection and learning from one site assessment to the next.

- At the commencement of the program and at the commencement of each five-year assessment cycle, organisations are required to submit an Assessment Plan outlining the detail of how they will conduct their assessments and meet other requirements. This encourages organisations to review their experience in each five-year assessment cycle and to propose improvements in subsequent cycles.

- Annual conferences and published case studies present a learning opportunity for corporate energy practitioners. They can share their experiences in a peer-to-peer learning environment.

- Annual reporting contributed towards greater visibility for senior managers and external stakeholders regarding the extent to which energy performance is improving in each organisation. It also encouraged the organisations themselves and other stakeholders to compare the energy efficiency performance of one organisation with another.

These design features appear to encourage energy efficiency improvement more effectively than the technical task of identifying opportunities through an energy efficiency assessment alone. They encourage reflection and learning that contributes towards changing beliefs about how energy management 'should be done'. This, in turn, informs the development and implementation of new and more effective energy management practices within organisations.

These findings are consistent with other research that underlines the importance of policy and program continuity. For example, Therkelsen (2013) found that implementation rates of energy efficiency measures improve over time. In reviewing

China's energy efficiency auditing policies, Shen (2012) highlights the benefits of long-term and enduring policies in supporting coordination across local, regional and national measures to create deeper cultural change than is possible with short-term, disparate policy approaches.

9.4.3 Towards more flexible policies

Researchers have called for energy efficiency policies to be appropriately targeted to situations that particular organisations find themselves in, thereby acknowledging the heterogeneity of organisations (Allcott & Greenstone 2012; Allcott, Mullainathan & Taubinsky 2012; Christoffersen, Larsen & Togeby 2006; Gillingham & Palmer 2013; Mallett, Nye & Sorrell 2011). However, the challenge that arises is how to determine the different levels of sophistication and readiness, and the policies that are most appropriate to their needs.

Chapter 3 described a number of empirical studies into energy management, including studies in the Danish manufacturing sector (Christoffersen, Larsen & Togeby 2006), Swedish pulp and paper industry, the foundry industry (Thollander & Ottosson 2010) and the Turkish iron, steel, cement, paper, ceramics and textile industries (Ates & Durakbasa 2012). Although the energy management practices examined differ in some respects, one limitation of this approach has been the way it has been presented as a means of identifying the organisations that *do* practice energy management and the organisations that *do not*.

However, the research conducted in this thesis highlights the relevance of viewing energy management practices as developing along a continuum. There is a degree of energy management *practiced* in every organisation. At the most basic level, this may be associated with decisions around energy procurement. However, the approach may became increasingly more sophisticated by broadening the types of people involved in energy management, improving energy information systems and continually scanning changes in the wider environment beyond organisations to understand emerging business risks and opportunities, as well as dealing with the emergence of new technologies.

Organisations and policymakers may develop diagnostic tools to assess the level of existing capability and business context that may be used to determine the most appropriate intervention strategies. The model developed in this thesis could be used to inform the development of such tools. For example, at the level of the organisational field, the external drivers for change may be examined. This differs from one industry sector to another. For example, the influence of investors appears to have been greater in the commercial property sector than others. In part, this is due to the development of a simple measure, the NABERS Energy rating, that allows investors and others to easily compare the energy efficiency performance of one organisation in the sector to another. There may also be different legislative requirements, levels of customer interest and even differences in the availability of technical expertise and energy consultants.

At the organisational level, it could be useful to analyse the extent to which the three major shifts in institutional logic have occurred. Such a review would examine the extent to which energy management is approached on an episodic or ongoing basis, and the extent to which energy management is integrated within the organisation. Reviewing the process through which projects are evaluated and presented to management could also help to identify appropriate interventions.

The research suggests that working with groups of companies with similar levels of energy management practices and performances could improve policymakers' understanding of the most appropriate policy measures that could be applied. An additional benefit of this approach is that it would build local support and also build on or create normative networks within and across industry sectors to provide a foundation for ongoing energy efficiency improvements.

9.5   Key contributions in summary

This thesis set out to provide new perspectives on institutional change by examining how and why energy management practices changed in Australia over the period 2006–2012. In doing so, the thesis has responded to the call from researchers to provide new perspectives on persistent societal challenges, such as climate change, through the application of institutional theory (Kraatz 2011; Scott 2010; Stern & Barley 1996).

The thesis offers the following four key contributions to the academic literature:

1. *Original and empirically tested insights into the conditions that support institutional change as a process of 'collaborative co-creation'*: It adds to the understanding of the process by which multiple organisations are involved in experimentation, negotiation and consensus-building processes which disrupt previously institutionalised energy management practices and inform the development and maintenance of new and more effective practices. This perspective on change contrasts with the more widely recognised dialectical model of institutional change. According to the dialectical model, change is characterised as a process of 'institutional war', which is waged between powerful actors (DiMaggio 1988; Hoffman 1999; Reay & Hinings 2005). This finding supports the musings of Zietsma and McKnight who state (2009, p. 225): "We expect that this co-creation process by multiple actors of different types is much more common than the current literature suggests" (2009, p. 225).

2. *Novel insights into how and why the interactions between stakeholders with varying degrees of social embeddedness play an important part in the dynamic processes of institutional change*: This contribution extends the work of Reay, Golden-Biddle and Germann (2006) who challenged the view that embedded actors create barriers to change. Instead, they found that deeply embedded actors can play a constructive role in progressing institutional change. The present study has demonstrated how the processes by which the interactions between stakeholders with varying degrees of embeddedness contribute constructively to institutional change. This contribution also addresses the call from researchers for institutional researchers to examine the 'paradox of embedded agency' by

exploring the interactions and influence multiple distributed stakeholders have/experience. The notion of distributed agency is that institutional change occurs through the interactions of multiple actors distributed across status, time and levels of influence (Lawrence, Suddaby & Leca 2011; Lounsbury & Crumley 2007, p. 1007).

3. *It responds to the call from researchers to balance analysis at the level of the institutional field with examination at the individual level* (Battilana & D'Aunno 2009; Fligstein & McAdam 2011; Hwang & Colyvas 2011; Lawrence, Suddaby & Leca 2011; Lawrence, Suddaby & Leca 2009; Zietsma & Lawrence 2010): Specifically, the research identified three key social skills that institutional entrepreneurs apply to progress institutional change. Corporate energy practitioners act as institutional entrepreneurs by reframing the benefits of energy efficiency to engage stakeholders, creating normative networks across structural and professional boundaries, and by integrating energy management into existing business practices and management systems.

4. *Finally, this thesis contributes to the energy efficiency literature*: Researchers have highlighted the need for novel theoretical approaches to be applied in order to improve understanding of the phenomenon of the energy efficiency gap and how it might be addressed (Biggart & Lutzenhiser 2007; Palm & Thollander 2010; Shove 1998). The research has achieved this by developing an empirical model that supports analysis at multiple levels. In particular, it contributes to the literature by extending established theoretical perspectives and empirical work to the examination of the interorganisational level. The thesis has also contributed practical, specific insights that can be applied by policymakers as they review and develop energy efficiency policies that aim to accelerate the uptake of effective energy management practices in organisations in order to resolve the gap between actual and optimal energy use in organisations.

9.6 Limitations and suggestions for further research

This study has certain limitations. The study focused on the changing management practices of large energy consuming organisations in Australia as a single case. Different results may be generated if this study is conducted with organisations in specific industry sectors, in smaller organisations and in different national contexts. It is suggested that further research could replicate the application of the model advanced in this thesis in different contexts. For example, the development of the NABERS Energy rating system in the commercial building sector was referred to in this thesis since this had proven to be a substantial enabler of improved energy efficiency performance in that sector. A commercial focus would allow the development and application of the rating system to be examined in more detail. This could present a useful case by examining:

- which stakeholders were involved in its development
- how rating systems like NABERS Energy support communication across organisational and professional boundaries, and
- the role and skills of the 'institutional entrepreneurs' involved to develop the perceived legitimacy of the ratings tool.

Another example of the usefulness in taking a sectoral approach is shown in the transport sector. The transport sector was a relative newcomer to formalised energy efficiency assessments when the EEO legislation was first introduced. However, the organisations from the transport sector that were involved in the study saw significant gains – particularly through behavioural initiatives, such as driver training. Examining change within the sector could provide researchers and policymakers with a better understanding of why an industry in which energy is a very high proportion of operating costs had been able to make such substantial improvements over the first five-year cycle of the EEO legislation.

Further research could also involve replicating the model and comparing one country context to another. For example, the energy management practices within the Australian commercial sector could be compared with the practices and energy efficiency performance in other countries. This approach could present a particularly useful extension of this research since there is evidence that the larger and stock exchange-listed property companies in Australia have been assessed as consistently

higher in their environmental management practices and performance (of which energy efficiency is a part) compared to the commercial sector organisations in other countries (Bauer, Eichholtz & Kok 2010; Eichholtz, Kok & Yonder 2012; GRESB Foundation 2011, 2012). Therefore, a study comparing the leading organisations in each country could present useful insights into the different energy efficiency policies, economic and social influences that contribute towards improved energy efficiency performance and the adoption of effective energy management practices.

Whilst it may be challenging to replicate the annual conferences which served as field-configuring events in the current study, smaller workshops which encourage leading practitioners to share their experience may provide a fruitful avenue to gather data at the same time as participants share their experiences and learn from each other.

Small and medium enterprises present a number of unique challenges with regard to energy efficiency improvement. Particularly in relation to accessing resources and having the time required to focus on energy efficiency improvement. Several useful studies have already focused on this sector (e.g. (Côté, Booth & Louis 2006; Kannan & Boie 2003; Trianni & Cagno 2012). Further research could develop exemplary cases as a powerful means of demonstrating what is possible within a sector where there are significant barriers. Further research could attempt to clarify the different factors that influence the likelihood of success in relation to energy efficiency interventions using techniques such as lifestyle categorisation (Palm 2009) to group 'types' of organisations.

As well as suggesting that the model used in the present study be applied more widely, this thesis has also exposed a wide range of theoretical approaches that may be applied to the problem of the energy efficiency gap. In particular, the brief review of the organisational change literature suggested that the work on organisational change could be more effectively integrated into both research and practice associated with energy efficiency. There is scope for detailed case studies at the organisational level that delve into finer detail than was possible in this study, to understand the dynamics of change in relation to energy efficiency within organisations.

Finally, is it suggested that future research examine the promotion and take-up of the ISO 50001 Energy Management System standard. Since this standard has a high profile and the support of organisations and governments around the world (Goldberg et al. 2012; McKane, Scheihing & Williams 2008; McKane et al. 2008; Price et al. 2008; Reinaud, Goldberg & Rozite 2012), it presents an opportunity to significantly accelerate the energy efficiency improvement in organisations. However, as this and other research has shown, the way in which new systems and practices are introduced and implemented within an organisation can have a significant influence on their success. Future research should learn from the experience with the ISO 14000 Environmental Management standard (Könnölä & Unruh 2007; Nawrocka & Parker 2009) and ensure that appropriate research is undertaken to leverage the ISO 50001 standard in a way that maximises outcomes while minimising the potential for unintended consequences, such as organisations treating energy management as an administrative or compliance initiative, rather than as an intervention that can deliver significant environmental, social and economic benefits (Shen, Price & Lu 2012).