

Influencing Financial Decisions on Energy Efficiency: Six Key Strategies to Build Management Support

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ABSTRACT

One of the most common skill gaps amongst energy efficiency practitioners is their ability to successfully develop and promote business case proposals for energy efficiency projects. This paper describes an Australian research and capacity building project ('The Business Case and Beyond') that was designed to address this gap. The project involved industry workshops and interviews with leading energy efficiency practitioners. The key research question was: *What do effective practitioners do to improve the likelihood that business case proposals for energy efficiency projects will be successful?*

The findings were documented in over 30 company and project-level case studies. Key success factors that were identified included linking energy efficiency projects to current business priorities and communicating with decision-makers early in the business case development process to build their knowledge and support for the project. This paper describes the research project and its outcomes with reference to quotes and case studies from organizations that use a significant amount of their energy in buildings. An important conclusion was that the process for developing a business case proposal can be as important as the content of the proposal. The potential use of the project outcomes by practitioners, education and training professionals, government policy makers and program managers is discussed together with considerations for future research.

Introduction

In 2010 the Energy and Environment Division of the Australian Government Department of Resources, Energy and Tourism (referred to throughout this paper as 'the Department') identified the ability of energy efficiency practitioners to develop business case proposals as a critical skills gap that was likely to impact on the extent to which cost-effective energy efficiency projects are implemented in Australian businesses. The skills gap emerged in a training needs analysis conducted as part of the development of the Australian Government's *National Training Strategy for the Development of Energy Efficiency Assessment Skills* (Lund et al. 2010). In order to address this skills gap, the Department commissioned consultants to conduct research and develop capacity building materials that would help practitioners and educators to develop the skills required to develop business case proposals for energy efficiency projects.

This paper describes that project ('The Business Case and Beyond') and explores the challenges and opportunities associated with improving practitioner skills. It begins with a brief review of the energy efficiency literature to highlight some of the complexities associated with decision-making on energy efficiency projects. The methodology and project sample are then described. The six key strategies identified through analysis of the case studies are outlined with reference to case study examples from organizations where a large proportion of energy use is in

commercial buildings. This is followed by a discussion of the application and use of the materials that were developed as outputs from the project. Finally, the lessons learnt from the project in relation to practice, training, policy development and further research, are considered.

Background: Perspectives on the Complexity of Decision-Making Associated with Energy Efficiency Projects

A range of explanations have been proposed to explain why firms may not implement energy efficiency projects that have the potential to be cost effective; the so called ‘energy efficiency gap’ (Jaffe & Stavins 1994). For example, if managers in a firm don’t have sufficient information on project options, approximate costs and benefits and implementation risks, then they may have difficulty deciding to invest in those projects (Garnaut 2008). Worrell et al. (2003) demonstrated that the type and quality of the information presented in a business case proposal could also have a significant influence on the calculation of the financial benefits of a particular project. In reviewing 52 publicly available case studies they found that the average payback on those projects could be reduced from 4.2 years to 1.9 years by including productivity and other project benefits rather than just direct energy-related benefits.

Individual psychological factors that may also play a role include ‘egocentrism’, which may influence decision-makers to make self-serving decisions based on their own perceptions of self-interest and they may also be biased by their professional background and experience (Hoffman and Henn 2008). The concept of *bounded rationality* recognises that decision-makers may be constrained by available time, attention, resources and experience (Sorrell et al. 2004).

The extent to which an organization as a whole understands the costs and strategic implications associated with energy use and the policies and management systems in place to improve their energy efficiency performance can also be influential (Prindle 2010). Structure and culture may create competing incentives that reinforce hierarchical and functional ‘silos’ within an organization (Paton 2001). These provide a barrier to decisions that would benefit the organisation as whole rather than individual units within it. Access to capital for the implementation of projects may vary according to business priorities, business performance and broader economic conditions. Institutional influences may include government legislation, funding mechanisms for energy efficiency and market factors including contractual arrangements with energy suppliers (Hoffman 2001; Lutzenhiser and Biggart 2001).

Decision-makers may also be influenced by the extent to which they consider a particular project to be ‘strategic’ (Cooremans 2011) or related to core business (Granade et al 2009). There is an emerging stream of research that aims to identify the link between energy efficiency and core business benefits in commercial buildings. For example, Newell, MacFarlane & Kok (2011, 13) found ‘a clear link between enhanced green premiums in value with the higher rated National Australian Built Environment Rating Scheme (NABERS) energy rating categories’. Research such as this should support practitioners in developing business case proposals however, the extent to which influential stakeholders such as property valuers acknowledge energy efficiency and sustainability factors more widely is unclear (Warren-Myers 2011).

A complete discussion of barriers to the uptake of energy efficiency projects is beyond the scope of this paper and, as Sorrell, Mallett & Nye (2011, 76) note, ‘barriers to energy efficiency are understood, classified and interpreted in multiple ways and the lack of both rigor and consistency in the empirical literature makes it difficult to interpret’. The purpose of including a brief summary of the literature here is to highlight the complexity of decision-making

associated with energy efficiency projects. Decisions may be influenced by economic, behavioral and organizational factors at play within and external to the organization. Individual, organization and institutional contexts add to this complexity (see Crittenden & Lewis 2011 for a more complete discussion) . This presents a major challenge when considering how to approach and develop teaching and learning activities that aim to improve practitioner skills in order to overcome many of these barriers and improve the uptake of energy efficiency projects. Awareness of this challenge informed the methodology developed and applied in ‘The Business Case and Beyond’ project.

Methodology and Sample

‘The Business Case and Beyond’ project was developed over four distinct stages: project scoping, case study development, data analysis and development of support material.

Industry input was sought during the scoping stage through the 2010 Energy Efficiency Opportunities program annual workshop series. During interactive sessions practitioners were asked to discuss the challenges they faced in developing business case proposals and to make suggestions about the types of resources that would help them. Participants suggested that case studies should be developed. They also highlighted the importance of identifying the actions taken *throughout development* of a business case proposal as well as providing guidance on the final content of the business case proposal itself.

This perspective is aligned with ‘process research’ approaches, which emphasize the importance of identifying the order and sequence of actions as they occur over time and placing those actions within a wider organizational and institutional context in order to better understand organizational behavior and change (Pettigrew 1997; Sminia 2009). Practitioners also highlighted the wide range of skills and experience of company representatives responsible for driving energy efficiency improvement in their firms and the value of this in developing and presenting business case proposals.

During stage two of the project firms were invited to participate as case study organizations through a notice in the Energy Efficiency Opportunities program newsletter and direct invitations from Departmental representatives. Once companies were confirmed, consultants (Patrick Crittenden from Sustainable Business Pty Ltd and Helen Lewis from Helen Lewis Research) were contracted to conduct the research and write the case studies and guidance material for the project. Semi-structured telephone interviews of up to one hour were held with each industry representative. A structured list of questions guided the interviews. In complex cases additional interviews were conducted, for example with consultants and other staff that had been involved in developing business case proposals for particular projects. Interviews were supported by a desktop review of reports, existing case studies and other material provided by the organizations involved.

Two types of case studies were developed for each organization. The first type described each company’s overall approach to energy efficiency and the process that is typically followed when business case proposals are developed. The second type focused directly on successful projects and the steps that practitioners had taken to develop and promote them. Draft case studies were developed and provided to each company’s key contact person, who provided feedback and suggested changes. A final draft was then sent to the companies for approval to publish them on the Australian Government’s Energy Efficiency Exchange (www.eex.gov.au) website.

An overview of the case study companies in which a significant component of their energy use is ‘buildings-related’ is provided in table 1. These account for five of the fourteen company-level case studies and six of the eighteen project level case studies that were developed. These companies cover a diverse set of building types including commercial and retail property ownership, office tenants, property management and supermarket operations. Diversity in the sample was sought since the project aimed to identify general principles that could be applied across a large number of organizations.

Table 1: Characteristics of Company Energy Use and Influence over Energy Efficiency

Company	Total company energy use in 2009/10 Financial Year	Influence over energy use	% total energy used in buildings	Building types
Australia Post	2,145,471 GJ	Owner & Tenant	44%	Retail shops, delivery centers, administration offices & mail centres.
National Australia Bank (NAB)	663,118 GJ	Tenant	99%	Commercial offices, branches & data centers.
Spotless	864,561 GJ	Tenant & property manager	21%	Commercial offices. Influence clients through facilities management function.
The GPT Group	834,122 GJ	Owner	100%	Office, retail and industrial / business parks.
Woolworths	12,900,000 GJ	Tenant	100%	Big box stores, supermarkets & distribution centres.

In stage three of the project the researchers analysed the case studies to identify some key themes and common principles that practitioners had applied to the development of successful business case proposals. The initial intention of the project was to focus on strategies for developing project level business case proposals. However, the important interrelationship between the success of a proposal and actions taken to develop company culture, systems and processes for energy efficiency was often mentioned by interviewees. As a result of this, three additional strategies were added to highlight the actions practitioners could take beyond the direct focus on project-specific business case proposals.

In stage four of the project, the information gathered in the interviews was used to develop capacity building materials including guidance material, checklists and tools. Because the target audience for the project included people with a wide range of skills and experience in developing business case proposals, the materials focused on strategy rather than technical guidelines. However, links to other resources that provide more detailed and technical information relevant to specific types of projects were also provided, such as the Department’s *Energy Savings Measurement Guide* (RET 2008).

Results

Six important ‘strategies’ for developing a business case were identified (Table 2). These are briefly described below with reference to examples from the ‘building-related’ case study companies. This section draws directly on the case studies and guidance material developed in the project (<http://eex.gov.au/energy-management/the-business-case-and-beyond/>).

Table 2: The Six Key Strategies for Developing an Energy Efficiency Business Case Proposal that Were Identified in the Research

Strategy	Rationale
1. Link your project to current business priorities	Place the project within a wider business context by linking it to existing business priorities. This is likely to be more appealing to decision-makers.
2. Involve the right people in developing the business case proposal	Increase the credibility of the business case proposal by demonstrating that people with the appropriate expertise and influence have provided input to the business case proposal
3. Communicate with decision-makers early and regularly	Build awareness and obtain input from decision-makers to ensure the business case proposal is appropriately targeted
4. Identify project risks and develop strategies to manage them	Demonstrate that risks have been carefully considered and will be appropriately managed if the project is implemented.
5. Describe and quantify all business costs and benefits	Demonstrate that the business case proposal is comprehensive.
6. Consider a range of funding options	Investigate the full range of funding options both internally and externally and leverage these where possible.

1. Link Your Project to Current Business Priorities

Interviewees explained that they were often frustrated by energy audit processes that identified a list of opportunities - with a strong focus on quantifying energy savings - but often with limited effort to describe how the projects might address current business challenges or priorities. They noted that business case proposals were more likely to be successful where a project would help meet existing business planning goals and targets, solve an existing business problem or enhance core business practices.

At the National Australia Bank (NAB) business case proposals for energy efficiency projects emphasized that they would deliver on existing business targets such as the organization's carbon neutral objectives. At Woolworths supermarkets, the installation of refrigerator cabinet doors was promoted as a way of improving the comfort level of customers. When Spotless were developing a proposal to provide operational and facilities maintenance services to the Southbank Institute of Technology in Brisbane the company proposed a number of energy efficiency improvement options in their tender document. One major option was to install an emergency power generator that would reduce costs during peak periods and provide emergency back-up power when required. The bid was not won solely on the basis of the energy efficiency improvement options proposed, but Spotless were able to demonstrate their expertise and innovative thinking to the client and this was considered to be a strong contributing factor to winning the contract.

Common to each of these examples is that the energy efficiency benefits are not considered in isolation – rather, the project is placed within a wider business context that is likely to be more appealing to decision-makers where they can see a direct link to an existing business priority.

2. Involve the Right People in Developing the Business Case Proposal

The research highlighted that getting the right people involved in the development of an energy efficiency business case proposal is essential to build credibility with decision-makers. As well as key internal staff, the involvement of external stakeholders was considered an important strategy to obtain resources in many projects.

For example, when the lease for NAB's head office was up for renewal in 2008 the company had a number of options including vacating the building or working with the building owner to upgrade the building. Energy efficiency was a key criterion because the company had challenging energy efficiency and greenhouse gas targets to meet as well as other criteria. These included the need to create a modern and productivity workspace that was attractive for staff while also increasing desk capacity. Faced with the classic *split incentive* or *principle-agent problem* in which there is a disincentive for owners to invest in energy efficiency upgrades when the tenants obtain the savings (IEA 2007), discussions were held to determine how the building upgrade might be structured to obtain a *shared incentive* between the landlord and the tenant. The tenant (NAB) agreed to co-invest in certain modifications to the base building, which was, in turn, supported by a long-term lease. NAB was able to work closely with the building owner during the upgrade with staff closely involved in decisions associated with the fit out design. In this way NAB achieved a range of benefits in retaining their location and delivering a more productive and energy efficient workplace. The key was the ability of NAB as the tenant to negotiate and work collaboratively with the building owner to ensure that together they were able to meet shared goals.

One of the challenges to implementing projects at Woolworths supermarkets is that retail managers have a primary focus on sales to customers. The energy savings that could be achieved from installing doors on refrigerated display cabinets were well known, but the impact on customer amenity and sales were not. This led to a trial project in which the doors were installed and customers were surveyed to obtain their perspective on comfort and the potential impact on their shopping habits. In this case it is information from the customer that was being used to, ultimately, assess the value of the project in ways that were relevant to the concerns of retail managers. This example highlights the importance of involving a range of stakeholders in decisions.

3. Communicate with Decision-Makers Early and Regularly

A common theme across each of the case studies was that decisions are typically made well before the presentation of a formal business case proposal. Involving decision-makers early in the project was considered an important opportunity to test ideas, inform decision-makers about the project and identify potential issues and concerns from the perspective of the key decision-makers. Decision-makers may include people who make the final decisions but also other staff or external consultants that a manager might look to in order to build their confidence in a final decision. Interviewees suggested that identifying the right people sometimes takes time.

Some companies such as GPT use regular meetings – for example, quarterly meetings with asset managers – to communicate with decision makers. Other companies, such as Australia Post, had put in place cross-functional teams to specifically review the progress of energy efficiency business case proposals on a regular basis. This process is effective because the projects are brought to the attention of senior staff; the diversity of the review groups helps to

identify and refine energy efficiency co-benefits and overcomes organisational ‘silos’; and the early input of senior staff helps to target the development of the business case proposal well before it is presented for a decision.

4. Identify Project Risks and Develop Strategies to Manage Them

In presenting a business case proposal another critical factor described by those that were interviewed was the importance of adopting a ‘risk-based’ perspective. A representative of The GPT Group explains:

I've found that applying a risk management strategy to building upgrades forces you to plan well. You have to think about how confident you are in your assumptions, what you will do to reduce the chance of unforeseen things happening and consider how you will manage them if they do happen. Decision-makers want to know that you have taken all relevant considerations into account.

Table 3 lists some of the risks described by participants and the key questions to consider in developing business case proposals. Of note is that some companies have formal processes for assessing risk while for others the approach is more ad-hoc.

Table 3: Risk Types, Questions to Ask and Mitigation Actions to Consider*

Type of risk	Questions to ask	Actions to mitigate risks
Financial risk	<p>Will the project deliver the savings predicted during scoping?</p> <p>Will the funds requested for the project be sufficient to deliver the project?</p>	<ul style="list-style-type: none"> • Ensure any quotes come from reputable sources. • Review a similar project if available and use any monitoring and verification of their projects to inform your own calculations. • Conduct sensitivity analysis to account for variability in the assumptions you make about the costs and benefits of your project.
Strategic risk	Will the funds be used inappropriately, and hinder the organization’s ability to deliver other corporate goals?	<ul style="list-style-type: none"> • Demonstrate how your project links to existing policies and strategies and make sure you follow any processes that are outlined in your organization
Operational/technical risk	Does the project involve potential interruptions to normal plant operations?	<ul style="list-style-type: none"> • Consult with the relevant managers and specialist expertise as required.
Operational/safety risk	Will the project involve safety issues?	<ul style="list-style-type: none"> • Most organizations will have an established safety/risk assessment protocol that will need to be followed.

*Adapted from the Project risks and strategies checklist available from: <http://eex.gov.au/energy-management/the-business-case-and-beyond/checklists-tools/checklist-project-risks-and-strategies/>

Examples of risk mitigation strategies include the use of an Energy Performance Contract by The GPT Group to upgrade an office tower (530 Collins St. in Melbourne). Trials were frequently used by Australia Post and Woolworths. Successful trials meant that projects were easier to roll out across a portfolio of buildings because the evidence and experience gained on one site could then be incorporated into proposals for another site.

5. Describe and Quantify All Business Costs and Benefits

The case studies highlighted the fact that the success of business case proposals can be improved by including all of the business costs and benefits associated with the project. Interviewees described a wide range of business benefits. One of the most comprehensive examples was provided by The GPT group. When the business was considering whether to upgrade an A-grade commercial office building, the sustainability manager developed a list of business criteria and then compared them against three different upgrade options – ‘do nothing’, ‘traditional services replacement’ or an ‘energy performance contract’. Twelve business criteria were considered in the four categories of performance, financial, capital expenditure and environment (Table 4). The approach was considered to be influential because it provided the key decision-makers with a far more complete perspective on the relative benefits of the project well beyond a focus on energy and greenhouse gas emission reductions.

Table 4: Business Criteria that The GPT Group Used to Demonstrate the Multiple Benefits of a Building Upgrade that Aimed to Significantly Improve Energy Efficiency

Category	Business criteria
Performance	<ul style="list-style-type: none"> • Tenant comfort • Reliability – ongoing maintenance costs and potential disruption to tenants • Reputation – of the building and the GPT Group in relation to meeting publicly stated targets and policies • Competitiveness/occupancy – attractiveness to current and future tenants from a leasing perspective • Safety
Financial	<ul style="list-style-type: none"> • Value – of the asset • Income – potential to increase rental income • Outgoings – tenant expenses that are not covered under the lease
Capital expenditure	<ul style="list-style-type: none"> • Government incentives – potential government funding
Environment	<ul style="list-style-type: none"> • NABERS rating • CO2e emissions • Resource efficiency

6. Consider a Range of Funding Options

Government policies on energy efficiency and greenhouse gas reduction have changed significantly over the past few years and this trend is expected to continue. In relation to commercial office buildings there have been a number of policy changes and new funding opportunities in Australia including: the Green Building Fund, which provides direct funding for building upgrades; Energy Efficiency Obligation schemes established such as the Energy Savings Scheme in NSW (<http://www.ess.nsw.gov.au/Home>) and the introduction of the carbon price in July 2012, which will impact on electricity prices and stakeholder awareness of energy efficiency and climate change

Those interviewed explained that these new funding options provide additional opportunities to finance energy efficiency improvements. However, the challenge was to

maintain an understanding of the full range of options available.¹ Some had found that despite initial resistance to financing options such as Energy Performance Contracts, they were likely to be used more widely as financial personnel in their company became comfortable with them.

Beyond Project-Level Considerations – Strategies to Influence Culture, Systems and Processes

Although the initial intention of the project was to focus on strategies for developing written business case proposals, interviewees frequently mentioned the importance of influencing organizational culture, systems and practices in order to improve the likelihood that a business case proposal would be successful. Three common strategies were described.

Firstly, monitoring, verifying and promoting successful energy efficiency projects was considered essential as these provide the most credible demonstration of the benefits of energy efficiency. Obtaining resources to do this was seen as a challenge with some suggesting that funding for evaluation should be incorporated into the initial business case proposal where possible. Another suggested strategy was to evaluate projects in detail at one site in order to support the rollout of initiatives across other sites.

Secondly, many emphasized the importance of regularly briefing management on relevant energy risks and opportunities. They considered that this should be done on a regular basis (e.g. quarterly or half-yearly) because of the dynamic nature of in the external business environment. Key changes included rising energy prices, new and modified legislation and emerging interest in energy efficiency from external stakeholders including investors and customers.

Finally, exploring opportunities to streamline and adapt project approval processes was also considered important. Practitioners suggested that project approval processes were often assumed to be fixed and inflexible. Some had worked with finance staff to streamline these processes which had, in turn, reduced transaction costs and decreased the time required to review energy efficiency business case proposals. Others had established internal energy funds or found that bundling smaller, site-based projects into larger projects had improved the success rate of business case proposals.

Resources Developed to Support Practitioner Skills

The aim of ‘The Business Case and Beyond’ project was to develop capacity building materials that could be used to improve the ability of energy efficiency practitioners to identify and communicate the business case for energy efficiency projects. Since the material was designed for publication on the Internet, rather than as a print document, the research was structured into a number of different formats to allow for the different preferences and needs of end users. For example each ‘strategy’ for developing a business case proposal is described on a separate web page that includes information on the rationale for applying the strategy, a list of practical tips, internal links to relevant case studies and external links to other tools and resources. Short quotes, key questions and vignettes are also included to illustrate key points where appropriate.

¹ The Australian government has responded to these requests by providing updated information and weblinks at <http://eex.gov.au/business-support/funding-options-for-energy-efficiency-projects/>

Six checklists were also developed to make it easier for users to review an existing business case proposal or to develop a new one. The checklists can be reviewed online or downloaded as Microsoft Excel files. Checklist topics include planning and developing a business case proposal, what to include in a business case proposal, and ‘whole of business benefits’ to consider including in a business case proposal. A stakeholder analysis tool has also been developed with the aim of encouraging practitioners to systematically consider the range of stakeholders that might influence the success of their business case proposal and the actions that they might take to get key stakeholders involved in a constructive way.

Discussion

In the introduction to this paper the complexities associated with decisions on energy efficiency were explored by drawing on the energy efficiency literature. The outcomes from ‘The Business Case and Beyond’ project support the view that decision-making on energy efficiency projects is complex. However, by adopting a ‘process approach’ that is based on identifying and describing leading practice examples, a relatively small number of key strategies have been drawn from the research case studies. One strength of this approach is that the ‘key strategies’ are able to be communicated as tangible actions that practitioners can take to improve the way in which they develop and promote business case proposals on energy efficiency projects within their organizations. This approach is intended to support use of the developed materials by practitioners ‘in the field’ as well as educators who want to integrate energy efficiency into their courses.

A challenge for practitioners is to balance the development and application of technical skills with communication and influencing skills to maximize their effectiveness. Planning for ‘influence and change’ is something that all practitioners should be aware of, and by developing these skills they may be able to make a greater contribution to energy efficiency improvement in their organizations. The tools developed through this project and made available on the Energy Efficiency Exchange website can provide useful support. One example of their application is that during the 2011 Energy Efficiency Opportunities workshop program the project and the six strategies were presented. This was followed by industry presentations and small group discussions, in which industry representatives discussed application of the strategies within their own organizations.²

For education and training professionals the case studies and guidance material can be used to introduce the topic of energy efficiency into a range of courses across professions and trades. One example is a project being conducted by the University of Technology Sydney in collaboration with Ernst & Young and the Chartered Institute of Management Accountants (CIMA), which aims to involve practicing accountants and future graduates more directly in energy efficiency (see <http://www.business.uts.edu.au/energyefficiency/> for more information). The project outcomes have been presented at interactive workshops held as part of the project and will be utilized within other materials where relevant.

The outcomes from this project may also be useful to policy makers by helping them better understand the complexity of decision-making on energy efficiency, the ways in which barriers to the uptake of energy efficiency may be linked, and the strategies that practitioners can use to overcome them. This can support targeted capacity building initiatives and greater

² The slides can be accessed at <http://www.ret.gov.au/energy/Documents/energyefficiencyopps/events-training-consultation/september-2011/ret/6-The-Business-Case-and-Beyond.pdf>

consideration of the complementarity of policies and how policies interact to both enhance and limit policy objectives.

From a research perspective there are a number of potential future areas that could be explored. One of the limitations of this project was the degree of detail that was explored around specific project types. Future research could target particular energy efficiency improvement initiatives and consider the practices that have been used to help develop successful business case proposals for those projects in more detail. As well as providing more specific strategies than those developed in 'The Business Case and Beyond', research of this type could further explore the interaction between the individual, organizational and institutional barriers that constrain the uptake of energy efficiency projects.

In conclusion, the project highlighted that developing successful business case proposals for energy efficiency projects requires technical, communication and influencing skills. The practical, case study-based capacity building material that has been developed is intended to support practitioners and educators that aim to improve the energy efficiency of commercial buildings. By making these materials publicly available, practitioners, policy-makers and educators can use them to further develop the skills required to improve the uptake of energy efficiency projects in commercial buildings.

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