



SMEs and community organisations – enabling best practice energy efficiency

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Executive summary

Australia's small and medium sized enterprise (SME) and not-for-profit (NFP) sectors are a vital part of our economic and social fabric. They engage in a diverse range of activities and range significantly both in size and capacity of organisational management. Collectively SMEs consume 34 per cent of business energy¹ in Australia. However, because they pay more for their energy than bigger businesses, they are responsible for 45 per cent of business energy spending (ABS, 2016a).

The Energy Efficiency Council (EEC) sees significant potential to build on the impact of previous energy efficiency information and grant programs to further expand the capacity of Australian SMEs and community organisations to improve their energy productivity.

Improving SMEs' energy efficiency is an important way to increase their profitability and competitiveness as well as delivering wider benefits in terms of economic productivity, savings and jobs through co-benefits such as improved equipment and increased output. Reducing community organisations' energy bills enables them to focus more of their resources on their core services and deliver greater outcomes to the community. Community based energy efficiency projects also have significant demonstration value beyond the organisation.

Commonwealth, State and local governments, industry and business associations have delivered numerous programs seeking to aid SMEs and community organisations to realise these energy efficiency benefits. Yet the research tells us that SMEs remain considerably less likely to implement energy efficiency initiatives than larger business. They are not motivated by the same sustainability drivers and often view energy efficiency as a carbon reduction issue, rather than a business issue.

Providing the managers of these organisations with information on technical opportunities for energy efficiency and the business case for it may reduce some of the barriers to action, but has proven unsuccessful in eliminating the full range of barriers and therefore resulting in limited implementation of energy efficiency upgrades.

Significant barriers remain. SMEs and community organisations report up-front costs, time limitations and management commitment as the biggest barriers to smarter energy use and controlling energy costs. Yet even if these barriers are overcome, they face another significant hurdle: they just don't know who to trust to provide energy efficiency products and services.

The EEC has reviewed both research and the outcomes of recent energy efficiency programs, and come to a number of conclusions.

SME and NFP organisations are not all alike.

Some organisations have relatively large energy bills, while for others, energy costs are genuinely insignificant. Some organisations are within industries where energy use is dominated by one or two relatively homogeneous pieces of equipment or processes, while for others, differentiation is a competitive advantage and closely guarded secret. Individual staff also have a significant impact – some organisational managers have a strong focus on optimisation and growth, while others tend towards a more 'satisficing', hassle free, approach that continues business-as-usual as long as minimum requirements for the business are met.

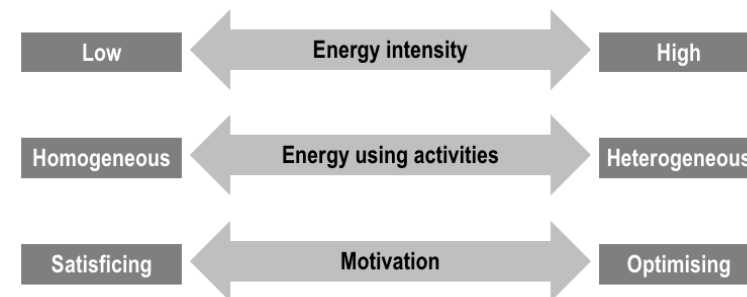


Figure 1: Different factors for categorisation of SME and community organisations

¹ Includes electricity, natural gas, LPG, diesel and petrol and excludes coal, coke, brown coal briquettes and coal by products, other non-renewable fuels and renewable fuels.

Not all energy efficiency opportunities are economic

In circumstances where energy is a very small cost to business and there is a high cost of engagement per business, energy efficiency opportunities are not always economic to capture.

It makes sense to focus energy efficiency programs on the types of organisation where opportunities are most economic delivering the greatest energy efficiency saving for the program investment.

Targeted approaches are essential

As noted previously, there are significant differences between industries and even individual organisations. Overcoming barriers requires development and deployment of different initiatives based on careful segmentation of energy users considering management style, significance of the energy use and efficiency opportunities and the energy using equipment or processes in the organisation. For example, the approach required for an industry with homogenous energy using equipment is quite different to one with heterogeneous equipment, and the best approach for satisfying and optimising managers will also be different.

Simple information-action models are inaccurate

Information programs are low-risk, relatively low cost and popular with policy makers. Yet many information-provision programs are based on the 'Rational Actor Model' that fails to account for the complexity of human and organisational behaviour. These models are inaccurate and, as a result, simple information provision programs have generally delivered limited outcomes, especially in the absence of complementary implementation support.

Efficiency improvements take place in a market and regulatory context

The capacity of SMEs and community organisations to improve their energy efficiency cannot be viewed in isolation. Regulatory and market contexts strongly affect their capacity to improve their energy efficiency. Governments and other parties can influence this context and therefore make it easier and cheaper to improve energy efficiency.

Programs that only address one barrier to energy efficiency investment will fail

Upgrading an SME's or community organisation's energy efficiency requires a complex series of steps that includes decision-making, engaging third-parties and implementation.

Impediments at any stage of this process will prevent energy efficiency improvement, and programs that only tackle a sub-set of the barriers will have limited impact.

The most successful programs include an implementation element

The most successful programs – if success is to be measured by actual and sustained improvements in energy efficiency within the target audiences – include an implementation element. For example, the NSW Energy Saver Program overcomes the 'trust barrier' by supporting the independent detailed assessment of recommended energy efficiency options.

Other parties may be better placed to drive SME efficiency

Where there are site-specific opportunities for energy efficiency that are closely linked to an organisation's core business (e.g. manufacturing processes) they need to be closely involved in efficiency upgrades. However, it may be more cost-effective for other organisations to drive energy efficiency upgrades, particularly where there are homogenous opportunities across multiple sites. For example, network service providers (NSPs) are better placed to drive regional peak-management projects.

Requires focused intensive effort with foundational change

There is no single initiative that can deliver the scale and range of necessary interventions across the SME and NFP sectors.

The Energy Efficiency Council makes the following recommendations to government. To establish a suite of foundational initiatives that will ensure opportunities for all to improve their energy efficiency and to pursue a select number of intensive interventions targeting the areas of greatest energy efficiency potential through end-to-end support in both decision-making and implementation. To deliver this effectively, a multi-faceted, multi-stakeholder undertaking will be required.

Recommendations

A. Foundational interventions

These foundational initiatives do not focus on individual organisations, but rather the context that they operate in, and support upgrades across all sectors of the economy.

Access to information

1. Enforce the licencing condition of Energy Efficiency Information Grants (EEIG) funding and secure all project materials developed.
2. Invest in the development and on-going active curation of a central databank of information and support tools to ensure content remains current and reliable; reflecting the identified characteristics of effective information.
3. Investigate controlled customisation and dissemination of information and tools through trusted sources such as industry associations, possibly through embedding centrally hosted resources in third-party websites.
4. Continue to invest in the development of new information and tools where a genuine gap is identified.

Market improvement - energy market reforms

5. The Council of Australian Governments (COAG) Energy Council set up a national process, similar to CSIRO's Future Grid, to bring a wide range of consumers, suppliers and NSPs together to develop 'model tariff structures' that are fair to energy consumers and encourage economically efficient investment.
6. The COAG Energy Council or an individual government should commission a report on third-parties investing in energy efficiency on behalf of energy consumers.
7. Harmonise and extend energy efficiency obligations nationally, ensuring that the administration is efficient and flexible.
8. Create on-bill energy efficiency finance obligations including targets for energy retailers.

Market improvement - improving the capability and transparency of the energy efficiency services market

9. Establish energy efficiency and energy productivity skills, knowledge and experience requirements for energy efficiency specialists and key trades in priority sectors.
10. Based on the findings of Recommendation 9, develop critical training and certification initiatives with broad benefits and applicability.
11. Expand access to existing supplier panels and invest in the development of new panels where confidence gaps exist.
12. Establish skill, knowledge and experience requirements and identify priority areas for certification.
13. Based on the findings of Recommendation 12, invest in the development of certification schemes for the most important suppliers or installers.

14. Investigate the potential to provide savings guarantees for energy efficiency projects.

Standards and certification for appliances and equipment

15. Keep energy efficiency standards for appliances, vehicles and buildings up to date and harmonise them with leading economies.
16. Expand the number of products that are covered by standards and labels, including commercial and industrial equipment.
17. Support the development of product certification schemes, perhaps based on the work of the TOP TENS.

B. Intensive interventions

Entity specific interventions designed and delivered to elicit large, cost effective energy savings.

Energy Efficiency Networks

18. Invest in a detailed characterisation study to identify the appropriate target industries and pilot Energy Efficiency Networks in Australia.

Dedicated end-to-end support

19. Develop a best practice program model for end-to-end energy efficiency implementation support.

Access to trusted, tailored sources of information

20. Support carefully selected industry bodies to provide targeted information and access to support at key times of disruption within organisations and industries.

Bulk equipment change out program

21. Invest in research to identify priority industries and design models for bulk-purchasing approaches.
22. Facilitate the pilot of a bulk-purchasing equipment or services approach.

Access to finance and incentives

23. Provide limited grants only where true business need can be established.
24. Encourage the expansion and promote the availability of third-party low interest energy efficiency loans.

1 Project approach

The Energy Efficiency Council (EEC) see significant potential to build on the impact of previous energy efficiency information and grant programs to further expand the capacity of Australian SMEs and community organisations to improve their energy productivity.

The Australian Government's Clean Technology Investment Program (CTIP) provided grants for manufacturers to invest in energy efficient capital equipment and low emission technologies, processes and products. The program invested \$285 million to support 575 individual projects to improve energy productivity.

The Energy Efficiency Information Grants (EEIG) program was a \$40 million competitive grants program established by the Australian Government to assist industry associations and non-profits to provide practical, tailored energy efficiency information to small and medium enterprises and community organisations.

Continuing to engage with the individuals and organisations involved in CTIP and EEIG could be a significant opportunity to maintain momentum and encourage further efficiency among both former grant recipients and energy users more broadly.

The initial focus of this scoping study was to identify best-practice network and participant led approaches, including Communities-of-Practice, to achieve significant and sustained energy efficiency improvements in the SME and NFP industries touched by the EEIG and CTIP programs.

Key research questions examined by the EEC directed research and consultation to understanding the appetite for, and any barriers to, the establishment of SME energy efficiency capacity building programs, the potential mix of services and support tools and the needs of different industries.

Given the breadth of industries participating in the EEIG program, the following four diverse priority industries were identified as the focus for consultation for the purposes of this study (Table 1).

Table 1: Project priority industries

Dairy farming	Childcare centres
Meat, poultry and small goods manufacturing	Logistics

Across these priority industries, discussions were held with industry association representatives, both EEIG and non EEIG recipients, SMEs and community organisations. In addition, CTIP recipients in the meat, poultry and small goods manufacturing industry were engaged through an online survey (Appendix E). Key insights from across priority sectors including select survey findings are presented in Appendix A.

Complementing a review of international research and the outcomes of recent energy efficiency programs (Appendix B), input to the study was also sought from energy efficiency program managers, specialist subject matter experts and research institutions. Full details of individuals and organisations engaged is included at Appendix C.

Early consultation findings identified a very limited appetite for network and participant led approaches, including Communities-of-Practice amongst EEIG recipients. International research also indicated only certain circumstances where these approaches are successful – principally when small cohorts of relatively large energy using organisations are established and the networks are very well resourced.

It was therefore agreed to extend the scoping study to seek out other approaches, outside of network learning, that have the potential to deliver against the study's objectives. Research and consultation boundaries were expanded to achieve this along with expanding the focus to the role of other stakeholders in the delivery of other approaches and interventions.

Insights from this broad engagement process, have been drawn together with the latest research findings to develop the pathway that unlocks the energy efficiency potential of these critical sectors of the Australian economy.

2 Understanding Australia's SME and not-for-profit entities

Both the small and medium sized enterprise (SME) and not-for-profit (NFP) sectors make important contributions to Australia's economic growth and well-being.

Australia's approximately 2.1 million (ABS, 2016b) SMEs employ approximately 70 per cent of total employment in Australia (Parliament of Australia, 2015). The approximately 600,000 diverse organisations established for a community purpose that make up Australia's NFPs contribute \$43 billion to Australia's Gross Domestic Product (Productivity Commission, 2010).

Individually SMEs consume modest amounts of energy, but collectively their energy demand is considerable (OECD/IEA, 2015). While estimates have been made up to 50 per cent (OECD/IEA, 2015), recent figures show Australian SMEs make up about 34 per cent of total business energy² consumption, yet they pay more, making up 45 per cent of business energy spending (ABS, 2016a). An even greater disparity is seen in electricity use, with SMEs accounting for 29 per cent of total business electricity consumption and 45 per cent of business electricity spending (ABS, 2016a).

The International Energy Agency (IEA) reports that improving SMEs' energy efficiency is a key way to increase their profitability and competitiveness. As well as reducing SMEs' energy costs, greater energy efficiency can improve SMEs' product quality and output, reduce risks and liabilities, enhance resilience and enable new business opportunities. Even where fuel prices are low, energy price volatility and uncertainties hamper SME growth; energy efficiency can reduce exposure (OECD/IEA, 2015).

Improving the energy productivity of SMEs has strong impacts on wider economic productivity, savings and jobs through co-benefits such as improved equipment and increased output (Commonwealth of Australia, 2015).

For community organisations, reducing operating costs increases their capacity to provide the core services they were established for, amplifying the community benefit.

Defining SMEs

SMEs are generally defined by number of employees, annual turnover, or a combination of the two. The Australian Bureau of Statistics (ABS) defines a SME as an actively trading business with less than 200 employees - with small businesses employing less than 20 staff, and medium-sized businesses employing 20–199 staff (Commonwealth of Australia, 2012).

Definitions based on annual turnover vary for different purposes, with small businesses with a turnover up to \$10 million annually potentially eligible for small business tax concessions although caps of \$2 million and \$5 million apply for other initiatives (ATO, 2016). Businesses with an annual turnover between \$5 million and \$250 million are included in recent mid-size businesses analysis (Grant Thornton, 2015).

Across SMEs of all types, it is generally accepted that cost-effective energy efficiency measures could shave as much as 30 per cent off energy consumption, including gas (OECD/IEA, 2015). Evidence shows that the potential for energy efficiency in SMEs is typically more cost-effective than in other sectors as relatively few of them have implemented energy efficiency improvements (OECD/IEA, 2015).

However, Australian Bureau of Statistics research shows SMEs are not particularly motivated by recognised drivers of sustainability; cost saving is the greatest motivator (ABS, 2016a). There is also evidence that amongst SMEs energy efficiency has been seen as a carbon reduction issue, rather than a business issue which has led to marginalisation of energy efficiency opportunities and business benefits (Dee & Creagh, 2015). As such, SMEs are less likely than larger companies to undertake environmental management activities (Figure 1).

Despite the efforts of numerous government and industry led programs to change these embedded behaviours, this continued lack of action is generally attributed to SMEs often being poor in time and financial resources, and occupied by their core business. The challenge faced by community organisations is similar but different: they find it hard to invest in energy efficiency because they are focussed on delivering services and have limited ability to pass on costs because they provide services for free, or to those with limited ability to pay (Australia Government, 2012).

² Includes electricity, natural gas, LPG, diesel and petrol and excludes coal, coke, brown coal briquettes and coal by products, other non-renewable fuels and renewable fuels.

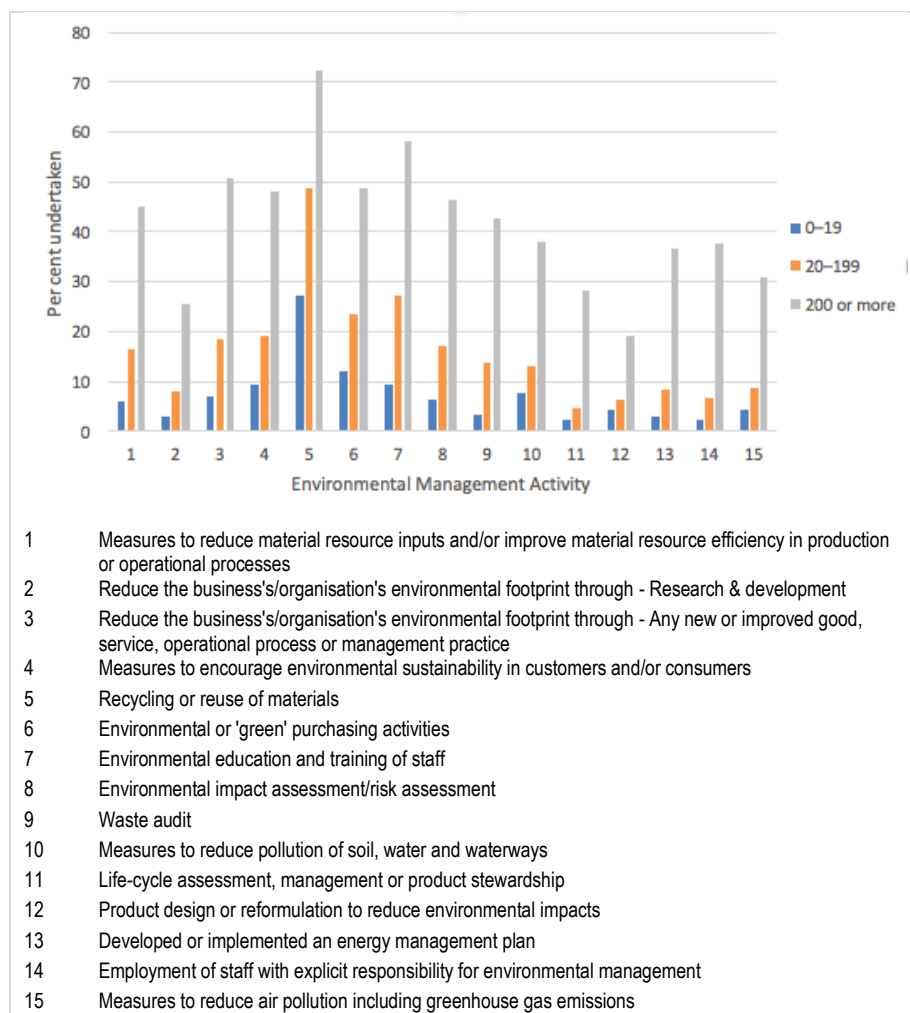


Figure 2: Adoption of environmental management initiatives by business size (ABS, 2016)

SME and NFP organisations are not all alike

However, the SME and NFP sectors are not comprised of homogeneous entities and there are a variety of factors on which different organisations can be classified.

In some businesses, generally those more machinery or vehicle intensive, energy use is a significant business expense and a limitation to growth and profitability. Yet for others energy costs are relatively insignificant or immaterial in relation to other production input costs, with only small gains to be made. For example, service focussed businesses are likely to have much higher staff costs than energy costs.

This variation is present even within the same sectors as shown in the analysis of the generally energy intensive manufacturing sector (Figure 4). Primary metal and metal product manufacturing businesses making up 49 per cent of total sector energy demand and averaging at 118,617 GJ per entity per annum (Figure 4). Efforts should focus on industries of greatest energy use in the first instance.

Beyond differences in energy intensity, there are industries in which organisational processes tend to be similar and energy use is dominated by one or two relatively homogeneous pieces of equipment or processes. For example, some manufacturing processes (e.g. baking) or commercial buildings. In others, differentiation is a competitive advantage and a closely guarded secret.

Individual staff also have a significant impact – some organisational managers have a strong focus on optimisation and growth, while others tend towards a more 'satisficing', hassle free, approach that continues business-as-usual as long as minimum requirements for the business are met (Figure 3).

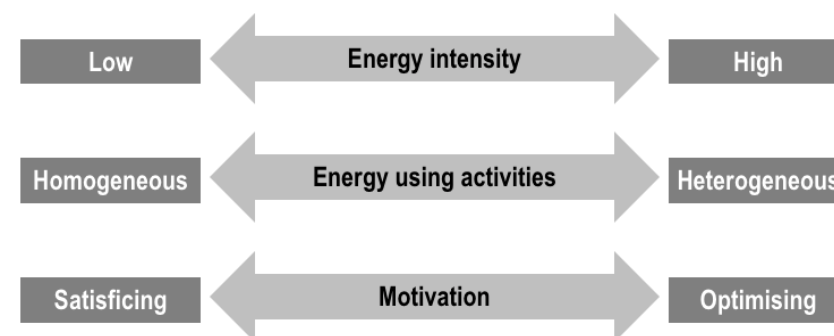


Figure 3: Different factors for categorisation of SME and community organisations

Targeting and design of interventions should be built on this deeper understanding of the nature of SMEs and community organisations.

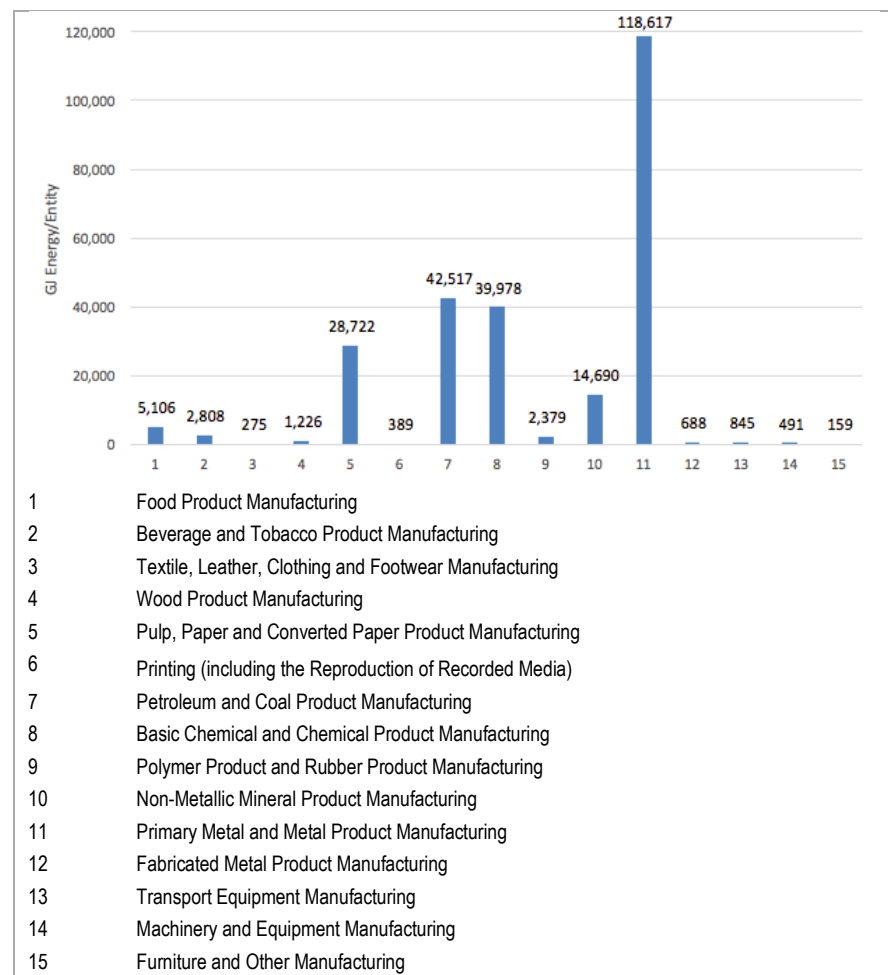


Figure 4: Energy intensity of manufacturing sub-divisions (calculated from ABS 2016a and ABS 2016b)

3 Overcoming the barriers to action

There is much research that examines the theoretical barriers, or hurdles (Figure 3) preventing SMEs from realising their substantial potential for efficiency improvements. While categorisations vary, the barriers are generally consistent with the summary from Trianni, A. *et al.* (2015) presented in Table 2.

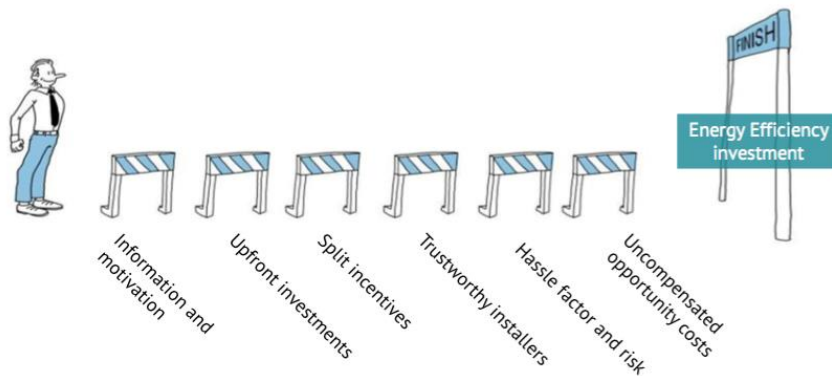


Figure 5: Energy Efficiency from an investor's perspective (Bornholdt, M., 2016)

However, not all organisations will experience all of these barriers and some will have a greater effect than others. Additionally, as highlighted by a recent review of energy and resource efficiency programs from around the country, while issues are typically cited individually, they are also interrelated (First Person Consulting Pty Ltd, 2016).

Australian organisations reported up-front costs, time limitations and management commitment as the biggest barriers to making changes to be smarter in energy use and controlling energy costs (Instinct and Reason, 2015, pp 51) (Figure 4).

Table 2: Theoretical barriers to SME energy efficiency (Trianni, A. *et al.*; 2015)

Categories	Barriers
Technology-related	Technologies not adequate Technologies not available
Information-related	Lack of information on costs and benefits Unclear information from technology providers Trustworthiness of the information source Information issues on energy contracts
Economic	Low capital availability within the organisation Investment costs External risks Intervention not sufficiently profitable Intervention-related risks Hidden costs
Behavioural	Other priorities Lack of sharing the energy efficiency objectives (amongst management and staff) Lack of interest in energy-efficiency interventions Imperfect evaluation criteria Inertia
Organisational	Lack of time Divergent interests Lack of internal control Complex decision chain Low status of energy efficiency
Competence-related	Implementing the interventions Identifying the inefficiencies Identifying the opportunities Difficulty in gathering external skills
Awareness	Lack of awareness

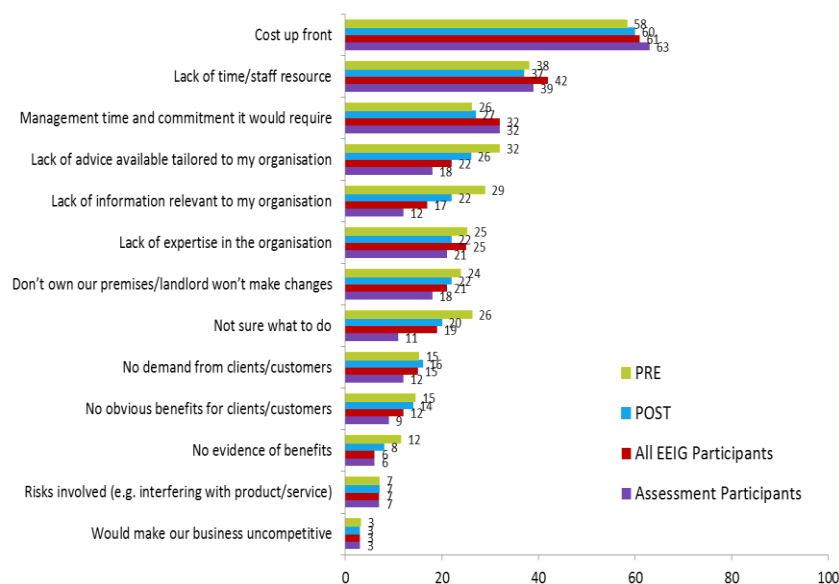


Figure 6: Responses from EEIG Participants to the question - What, if anything, is stopping you making changes in your organisation to be smarter in your use of energy and controlling your energy costs? (Instinct and Reason, 2015).

Is it really time or more a care factor?

However, industry experts have warned that such research must be treated carefully. The results reflect the perceptions of survey respondents, not necessarily the underlying issues and drivers (Pears, 2016). The most obvious example of this is that individuals who lack information are generally unaware of whether they are appropriately informed or not.

Pears (2016) notes, people will make time for the things that they consider to be of the greatest importance. The childcare sector is one where there are very obvious higher order compliance priorities for Centre Directors around the welfare and education of children. This is an example of a highly credible competing priority that *should* take precedence over energy efficiency. The existence of such competing priorities needs to be understood and acknowledged in the execution of energy efficiency programs.

However, there are circumstances where it is reasonable for a SME or community organisation to *not* prioritise the pursuit of energy efficiency. Nineteen per cent of EEIG Participants agreed or strongly agreed that *'the energy bill for my organisation is a relatively small percentage of total operating costs so energy efficiency is a low priority'* (Instinct and Reason, 2016, pp 45).

The authors report there was little or no change on this measure by size of organisation, location or sector. (Instinct and Reason, 2016, pp 74). Given 82 percent of EEIG Participants reported they knew how much they paid for energy per year (Instinct and Reason, 2016, pp 41), this assessment of cost relevance is likely to be reflective of organisational beliefs.

Support for this statement was highest in health care and social assistance (28 per cent) and arts and recreation (17 per cent) businesses, but still held by 15 per cent of manufacturing and retail businesses and 11 per cent of accommodation/food services businesses (Instinct and Reason, 2016, pp 106).

So the underlying issue is that these business people do not see energy efficiency as sufficiently important to displace other activities. It is a question of priorities based on perceived significance to business success; focusing on 'lack of time' does not get to the core barrier.

Overcoming the 'lack of time' barrier

In the first instance, efforts should be focused where there is a 'concern' on energy costs and performance and therefore a greater likelihood of a receptive audience and bigger return on energy efficiency program investment.

There is value in identifying approaches that are not focused on the individual within the business or organisation to prioritise energy efficiency action, but rather taking responsibility and time pressures away from them.

Actual or perceived cost?

The fact that the proportion of organisations reporting upfront costs as a barrier increased after the EEIG program, including among EEIG Assessment Participants, highlights the challenges of an information only approach to energy efficiency transformation. In this case, more information, or an actual understanding of the real costs, meant that the

recipients of that information had their suspicions or fears confirmed, without also being provided with the tools to overcome the barrier.

This indicates a need to better control the content and presentation of energy audits/assessments so that with increased understanding of costs also comes understanding and confidence on how to finance costs. It also shows a need to provide a very clear 'what's next' following the presentation of any assessment findings.

The new Australian/New Zealand Standard for energy audits (AS/NZS 3598:2014) has a strong focus on addressing this issue. It requires auditors to present findings in a way that addresses business needs, including addressing any business specific financial evaluation criteria.

The need to be prescriptive and oversee the information provided to entities is further reinforced by the finding that overall EEIG Participants were no more likely to know exactly what their energy costs were and where they use most of their energy after the program. Only in EEIG Participants that had energy efficiency assessments, was there an increase in understanding (Instinct & Reason, 2015, pp12). Clearly the right information was still not getting through or through to the right person.

Pears (2016) also cites an anecdotal example where project proposals that were supposedly rejected by finance departments had never been presented to them, a result perhaps of technical/environmental staff trying to manage energy efficiency within their existing budgets, instead of communicating the benefits to management in order to access more funding.

There are situations where costs are a genuine barrier. Australia's dairy farming industry is currently facing significant pricing and cost challenges. Under these circumstances, industry representatives have stated that while there is a genuine desire to implement cost saving initiatives, it is likely that only initiatives with zero implementation costs would be considered at this time.

While 50 per cent of meat, poultry processors and small good manufacturers report energy as one of their major expenses, up-front cost is a relatively minor barrier with 43 per cent reporting it as only 'some challenge', while 29 per cent did not encounter it as a barrier at all (Survey of CTIP recipients - Appendix E).

This is not to suggest that grant funding for energy efficiency opportunity implementation would not be welcomed by entities, and certainly the industry associations generally felt it was needed. However, it is likely to be a 'sweetener' rather than the primary motivator and is unlikely to overcome all other barriers. The recent difficulties experienced by Sustainability Victoria in recruiting building owners to the Energy Efficient Office Buildings Program, despite access to funding, supports this finding.

Overcoming the 'cost' barrier

Provide limited grants only where true business need can be established.

There is also significant opportunity to transfer costs away from business owners and governments by supporting existing third-party initiatives such as low interest loans and investigating the potential for new approaches such as energy retailer funded activities employed internationally, and bulk purchasing initiatives that have started to emerge for products such as residential solar and battery storage (<https://suncrowd.com.au>).

Who to trust?

Thirty-seven per cent of EEIG Participants reported 'We don't know who to trust to get advice on improving energy efficiency'. This was down from 51 per cent in the pre-activity survey, but remains a very high figure and was reinforced through discussions with EEIG recipients (Instinct & Reason, 2015). Indeed, the actual figure may be higher, as respondents that think they have access to advice may actually not be receiving high-quality advice.

As they rolled out their projects, EEIG recipients reported that one of the most frequent and persistent queries to arise was which products or suppliers to choose; advice which they were unable to give.

The Central Victorian Greenhouse Alliance noted that the marketplace is saturated with advertising from energy retailers, solar panel installers and suppliers, leading to a desensitisation of the audience and considerable mistrust. This was also noted by Master Grocers, who described the problem as a "lot of noise" in regards to energy savings initiatives with some businesses having been inundated with sales people.

Overcoming the 'trust' barrier

It is therefore important to consider approaches that overcome the trust issues and give confidence to consumers on energy efficiency products and services. Solutions may include pre-approved supplier service panels, product certification and independent guarantees of forecast energy savings.

The competency and credibility of the delivery agency, be it government, a business or industry association or another umbrella organisation, also significantly influences the value of SME and community organisation focussed programs. An important lesson learnt from EEIG was that not all associations have the in-house capacity to manage programs effectively or a strong influence over their members' activities. Understanding this upfront, and carefully choosing delivery bodies – potentially by inviting participation rather than an open application process – is required for effective market engagement.

Is it willingness or readiness?

It is generally assumed that SMEs have a readiness and willingness for change should traditionally recognised barriers be removed. However, Clarke *et al* (2015) suggests these assumptions are ill-informed and that such initiatives are unlikely to counter decision-making habits and organisational routines unless the owner-managers of SMEs are ready and open to change.

In related research, Redmonda *et al* (2016) reports that rather than making 'rational' decisions that ultimately maximise utility to the business, many of the decisions that individuals and businesses make on a day-to-day basis are under the influence of embedded routines or habits. While environmental sustainability programs might be successful in raising awareness, improving skills or generating positive attitudes, current evidence presented by Redmonda *et al* (2016) suggests that sustainability initiatives are unlikely to overcome 'business as usual' habits, routines, internal resistance, and competing goals without more fundamental contextual disruptions.

These disruptions might come in the form of a decline in profit, new leadership, change in premise or more external factors such as new competition or new government policies and taxes.

Because these environmental sustainability programs typically require businesses to alter their habits or routines, even to engage, understanding the current state of embedded

habits that may impede SMEs' progress towards environmental sustainability is critical if funded initiatives are to have the desired impact.

Redmonda *et al* (2016) have developed and piloted a conceptual framework for assessing the effect of disrupting 'business as usual' habits in implementing environmental sustainability initiatives. They also make several recommendations for further research to improve the application of the framework by policy makers.

Overcoming the 'willingness' barrier

Identifying times of business disruption within organisations and industries and deploying interventions at these times will increase the likelihood that energy efficiency can breakthrough the other business noise.

Efficiency improvements take place in a market and regulatory context

The capacity of SMEs and community organisations to improve their energy efficiency cannot be viewed in isolation. Regulatory and market contexts strongly affect their capacity to improve their energy efficiency. For example:

- Current energy market rules and regulations create a supply-side distortion. While NSPs directly invest in supply-side measures to meet consumers' energy needs, there is relatively little demand-side investment.
- Increasing the transparency of key markets lowers the cost and improves the capacity of these small entities to implement energy efficiency upgrades. Examples include energy efficiency ratings for goods and accreditations for services.
- Ability to upgrade efficiency will depend on the accessibility and price of various goods and services. For example, very high-efficiency fridges are relatively high-volume, low-price goods in Europe but hard to source in Australia.

Concurrently, many energy and climate policies have also had reach into smaller organisations, including the previous Australian Government's Clean Energy Future package, the current Australian Government's Emissions Reduction Fund, as well as energy retailer obligations such as the NSW Energy Savings Scheme and the Victorian Energy Efficiency Target.

Governments and other parties can influence this context and therefore make it easier and cheaper to improve energy efficiency.

Programs that only address one barrier to energy efficiency investment will fail

Upgrading an SME's or community organisation's energy efficiency requires a complex series of steps that includes decision-making, engaging third-parties and implementation. Impediments at any stage of this process will prevent energy efficiency improvement, and programs that only tackle a sub-set of the barriers will have limited impact.

4 Achieving best practice energy efficiency

Commonwealth, State and local governments, industry and business associations have delivered numerous programs seeking to aid SMEs and community organisations to realise the many benefits of energy efficiency. While not intended to be exhaustive, a list of notable programs is included in Appendix B.

The outcomes of these different programs provide very valuable learnings to inform the development of a pathway to unlock the energy efficiency potential of SMEs and community organisations.

Not all energy efficiency opportunities are economic

While there is large technical potential to improve the energy efficiency of SMEs and community organisations, opportunities are not always economic to capture. These will be in circumstances where energy is a very small cost to business and there is a high cost of engagement per business.

It makes sense to focus energy efficiency programs on the types of organisation where opportunities are most economic, delivering the greatest energy efficiency saving for the program investment. The exception being investment in trials that could lead to insights that will lead to lower costs in the future.

Targeted approaches are essential

As noted previously, there are significant differences between industries and even individual organisations. Overcoming barriers requires development and deployment of different initiatives based on careful segmentation of energy users considering management style, significance of the energy use and efficiency opportunities and the energy using equipment or processes in the organisation.

Targeting the right kind of interventions, to the right personalities in the right industries, at the right time is key to achieving the most cost effective energy efficiency impact (Figure 7).

			Energy using equipment/processes	
			Homogenous	Heterogeneous
Large and medium energy users	Management style	Optimising	Large energy users: Initiatives that leverage the optimising nature, high level of interest and large scale of the energy efficiency opportunities. Medium energy users: Initiatives leverage the optimising nature, but that seek out a high savings return on cost of delivery.	
		Satisficing	Initiatives that remove the need for significant engagement and capacity building	Initiatives that allow organisations to access targeted information and implementation support should they seek it out at key times of disruption
Small energy users			Initiatives that create opportunities for improvements without the need for direct investment.	

Figure 7: Structured targeting of energy efficiency interventions based on organisational characteristics.

While energy use and energy using equipment and processes are relatively straight forward to identify, management style is much more subjective and open to change over time. Those with a more optimising style are likely to make themselves known when presented with an opportunity for business improvement, while those with a satisficing style will be harder to engage and more suited for approaches that require only limited new understanding or participation. Yet it is also important that there are avenues for 'satisficers' to seek out support should their mindset change, most likely during a time of disruption.

Other parties may be better placed to drive SME efficiency

Where there are site-specific opportunities for energy efficiency that are closely linked to an organisation's core business (e.g. manufacturing processes) they need to be closely involved in efficiency upgrades. However, it may be more cost-effective for other

organisations to drive energy efficiency upgrades, particularly where there are homogenous opportunities across multiple sites. For example, network service providers (NSPs) are better placed to drive regional peak-management projects.

Requires focused intensive effort with foundational change

There is no single initiative that can deliver the scale and range of necessary interventions across the SME and NFP sectors. The Energy Efficiency Council recommends establishing a suite of foundational initiatives that will ensure opportunities for all to improve their energy efficiency and the pursuit of a select number of intensive interventions targeting the areas of greatest energy efficiency potential through end-to-end support in both decision-making and implementation.

To deliver this effectively, a multi-faceted, multi-stakeholder undertaking will be required.

4.1 Foundational interventions

These foundational initiatives do not focus on individual organisations, but rather the context that they operate in, and support upgrades across all sectors of the economy.

4.1.1 Access to information

The majority of government or industry and business association lead programs have been information based although some are complemented with implementation assistance. Information programs are low-risk, relatively low cost and popular with policy makers.

Energy efficiency information programs typically deliver three kinds of components:

- Information components introduce participants to different energy efficiency opportunities available to them and the costs and benefits associated with their implementation.
- Expertise-building components seek to address areas where internal expertise may be lacking, such as developing and presenting energy efficiency business cases to management.
- Links to financing (if needed) to improve SMEs' access to the capital required to purchase more energy-efficient equipment or to implement energy efficiency projects.

³ Target community organisations were those with an annual turnover of less than \$10 million (Commonwealth of Australia, 2012)

For example, in 2011, the Australian Government established the Energy Efficiency Information Grants (EEIG) program as part of a suite of energy efficiency programs targeting SMEs, local government, community organisations and low income households.

EEIG was a \$40 million merit-based, competitive grants program designed to assist industry associations and NFP organisations to empower the SMEs and community organisations³ they work with to make informed decisions about energy efficiency, thereby reducing their operational costs (Instinct and Reason, 2015).

The EEIG program delivered a wealth of high quality, industry specific information and support tools. Common materials produced and delivered included:

- Good practice guides
- Energy efficiency audit toolkit and templates
- Case studies of organisations successfully reducing energy costs
- Business case tools and templates
- Energy use calculators
- Industry reports and fact sheets
- Workshops and seminars
- Telephone helplines
- Site specific assessment reports
- Online help

The majority of the EEIG recipients engaged for this study still maintain access to EEIG project materials on their industry association or community organisation's websites, however this is not consistent throughout. A situation was identified where an organisation engaged to support an EEIG recipient in the delivery of their EEIG project placed EEIG program materials behind a pay-wall, requiring organisations in that sector to sign up as a member before being able to access the content.

Much of the EEIG materials are accessible in the SME section of the www.eex.gov.au, although some gaps remain. Ensuring all of the EEIG materials are captured and remain

accessible means the investment in development is not lost and allows future programs to leverage, rather than duplicate these materials.

In the first instance, the licencing conditions of EEIG funding contracts should be enforced and all EEIG project materials developed secured.

Recommendation

1. Enforce the licencing condition of Energy Efficiency Information Grants (EEIG) funding and secure all project materials developed.

When the comprehensive suite of EEIG materials is combined with the information and tools developed in other energy efficiency information programs, the issue is more commonly one of duplication rather than the availability of appropriate industry specific tools and information.

As such, investment is needed in the collation and ongoing curation of this extensive bank of existing materials. Existing materials should be thoroughly catalogued and regularly reviewed and updated as new knowledge or approaches emerge. This is a crucial step before addressing any perceived information gaps. New content, addressing any gaps in existing materials, should then be captured as it is developed by any party working to support SMEs and community organisations.

This central curation could support the dissemination of information and tools through trusted sources such as industry associations, possibly through embedding centrally hosted resources in third-party websites.

Such an approach would ensure the constancy of key messages, while allowing for essential industry tailoring. It allows for easy updates and does not require significant in-house expertise and on-going investment by industry and business bodies.

Learnings from the EEIG program point to common characteristics of effective information that could aid the curation process (Table 3).

Recommendations

2. Invest in the development and on-going active curation of a central databank of information and support tools to ensure content remains current and reliable; reflecting the identified characteristics of effective information.
3. Investigate controlled customisation and dissemination of information and tools through trusted sources such as industry associations, possibly through embedding centrally hosted resources in third-party websites.
4. Continue to invest in the development of new information and tools where a genuine gap is identified.

Table 3: Characteristics of 'good' energy efficiency information

Trusted	It is vital that information be delivered by trusted sources, as lack of trust prevents the uptake of advice on energy efficiency. Information from industry associations, for example, has a bigger impact than information from consultants. People also tend to respond best when approached by a relatable peer.
Variety	A variety of information types worked best as different users have different needs and respond to different approaches.
Specific	While core elements should be consistent, context must be industry specific to reflect the very different activities, opportunities and challenges across different industries. Consideration must also be given to the different motivations of the managers within these organisations.
Real	Case studies, showing how other companies captured the benefits of energy efficiency, are an effective form of information. However, it is critical that the case study is one that the audience feel they can replicate. This is often not the case if the gains presented were achieved through support or subsidies that are no longer available.
Convenient	Online videos and podcasts were popular with many SMEs and community organisations in that they could access them out of business hours. Information sessions or workshops need to be short and tools need to reflect the limited information technology capacity of some audience members.
Detailed	Actual information on specific energy efficiency opportunities from a formal audit or assessment does increase the likelihood of progressing to implementation.

Information is an important part of energy efficiency capacity building programs. However, it is also important to acknowledge that information only programs, even those that extend to assessment, have their limitations.

Simple information-action models are inaccurate

Many information-provision programs are based on the 'Rational Actor Model' that fails to account for the complexity of human and organisational behaviour. These models are inaccurate and, as a result, simple information provision generally delivers limited outcomes, especially in the absence of complementary implementation support.

If success is to be measured by actual and sustained improvements in energy efficiency within the target audiences, information programs have delivered only limited success.

4.1.2 Market improvement - energy market reforms

Tariff structures

If the majority of a consumer's energy bill is based on the amount of energy they use (a consumption or demand charge) they have a strong incentive to save energy.

However, several Network Service Providers (NSPs) have used recent tariff reviews to introduce tariff structures with much higher fixed components. These high fixed charges increase NSPs' revenue certainty, but do not reflect the genuine long-run costs of infrastructure and give energy users little incentive to save energy.

Tariff structures must be fair and encourage the right balance of investment in energy supply, networks and demand reduction, in order to deliver lower bills to consumers. However, there is very little guidance about what tariffs should look like. There is a role for the COAG Energy Council to set up a national process, similar to CSIRO's Future Grid, to bring a wide range of consumers, suppliers and NSPs together to develop 'model tariff structures' that are fair to energy consumers and encourage economically efficient investment.

Recommendation

5. The Council of Australian Governments (COAG) Energy Council set up a national process, similar to CSIRO's Future Grid, to bring a wide range of consumers, suppliers and NSPs together to develop 'model tariff structures' that are fair to energy consumers and encourage economically efficient investment.

Obligations on Network Service Providers

Along with government and businesses themselves, energy utilities could also be major investors in energy efficiency. NSPs already invest in poles and wires on behalf of consumers, allowing cheap finance and aligning investment decisions with expertise in network technology.

NSPs are also well placed to invest in reducing demand at certain times and locations, given the need for coordination and the system-wide benefits. However, in practice this is rare and consumers are largely left to manage demand themselves, creating a supply-side bias in the electricity sector.

In the same way that NSPs are tasked to invest in electricity networks on behalf of consumers, NSPs or other third parties may be the best-placed entities to invest in some forms of energy efficiency, particularly where coordination is required across multiple sites.

As a first step in creating such obligations, the COAG Energy Council or an individual government should invest in commissioning a report on third-parties investing in energy efficiency on behalf of energy consumers.

Recommendation

6. The COAG Energy Council or an individual government should commission a report on third-parties investing in energy efficiency on behalf of energy consumers.

Energy retailer obligations

Energy retailer obligations are often referred to as 'energy efficiency certificate schemes' and 'energy efficiency schemes'.

Australia has established wholesale markets and electricity networks that allow the aggregation of supply-side investment, but not demand-side investment. To partially correct this, governments in NSW, Victoria, South Australia and the ACT have introduced obligations for retailers to fund energy efficiency activities. These create small markets for aggregated energy services. Governments specify how much energy various actions will save (e.g. replacing halogen down lights with LEDs), and retailers need to show each year that they have funded a combination of actions that meet their target.

The assessments of these programs show that the benefits of these schemes substantially outweigh their costs. However, there is substantial opportunity to deliver even greater benefits through these schemes by harmonising them, extending them to jurisdictions such as Queensland and ensuring that administration is efficient and flexible.

Recommendation

7. Harmonise and extend energy efficiency obligations nationally, ensuring that the administration is efficient and flexible.

On-bill finance

Energy users may not always be the best-placed investor for energy efficiency projects. In 'on-bill' financing, organisations work with their energy utility to install and upgrade energy efficiency equipment which is financed by the energy utility.

Repayments are made by the organisation through a 'repayment charge' on the power bill and ownership is transferred on final payment of the finance. Up-front capital is not required and repayments can be equal to or less than the energy cost savings achieved.

In recent years only AGL and Origin Energy have offered this form of financing, and it's currently only available to medium to larger businesses (Energy Cut, 2016).

Given their established business relationships and direct connection to energy costs, energy retailers are exceptionally well positioned to introduce cost saving measures to their clients. It is believed that creating such an obligation, potentially including energy savings targets within SMEs and community organisations, could be introduced to great effect.

Recommendation

8. Create on-bill energy efficiency finance obligations including targets for energy retailers.

4.1.3 Market improvement - improving the capability and transparency of the energy efficiency services market.

Making it easier to access skilled energy efficiency product and service providers is a critical part of improving the energy efficiency performance of Australia's SMEs and community organisations. Yet there is a general lack of trust in product and service providers, and challenges in creating successful transactions between buyers and sellers.

Approaches should be considered that support access to high quality services, transparent assessment of product and service options, and provide independent assurance of quality.

Upskill energy efficiency professionals

Some energy efficiency service providers require deep skills in energy efficiency (e.g. energy auditors), others such as certain trades only require discrete skills, such as how to install a specific technology.

Programs that train energy efficiency specialists are essential to improve energy efficiency in all areas (including residential, industrial and commercial buildings). The industry is already taking action, with industry associations including the EEC, delivering training on subjects including measurement and verification.

We know that investment in certain training and certification initiatives – such as the new energy audit standard – is warranted due to the very broad benefits of establishing a cohort of trusted energy auditors.

Yet the key skill, knowledge and experience requirements for energy efficiency specialists and key trades to service the many different subdivisions of industry across the economy are not yet well understood. Establishing these requirements is an essential first step toward the development of more focused training and certification schemes

Supporting businesses to improve energy productivity requires a skill set additional to that of traditional energy efficiency. Research is needed to identify global best practice in energy productivity services and identify the range of essential skills, knowledge and experience to provide these services to Australian businesses.

Recommendations

9. Establish energy efficiency and energy productivity skills, knowledge and experience requirements for energy efficiency specialists and key trades in priority sectors.
10. Based on the findings of Recommendation 9, develop critical training and certification initiatives with broad benefits and applicability.

Supplier panels

Effort has been made to develop central registries of service providers such as the Melbourne Carbon Services Directory or the WA Clean Technologies and Renewable Energy Services Directory. However, directories with no vetting process do not provide much value to users as they still did not know:

- who is best placed to respond to their specific needs
- which suppliers are trustworthy.

Supplier panels are likely to be a more effective approach. Government organisations frequently establish panels of suppliers from which providers are selected to provide services to government and others. The panel process generally involves a detailed pre-assessment of an individual or organisation's technical, financial and other relevant credentials to give confidence of their ability to deliver the services covered under the service panel agreement. Examples include the NSW Sustainability Advantage Program Module Delivery Panel and the Sustainability Victoria Energy Efficient Office Buildings panel of service providers. The ability to access supplier panels was strongly supported throughout consultation as a means of creating buying confidence in the consumer.

These supplier panels could be expanded to a broader suite of services, harmonised between programs and jurisdictions and new panels established for particular products or services within specific target industries when a confidence gap is identified. While there is a significant resource commitment in the initial assessment process and on-going review to ensure standards are being maintained, access to suppliers 'vetted' by a trusted independent organisation would be well received by users looking to take the next step towards implementation.

There may also be a role for industry bodies such as the EEC to develop and maintain panels of approved products and suppliers.

Recommendation

11. Expand access to existing supplier panels and invest in the development of new panels where confidence gaps exist.

Supplier certification

Supplier certification programs play a role similar to supplier panels, giving users confidence that the individual or organisation they are engaging has the knowledge and skills to deliver the particular process as claimed. Accreditation protects users against aggressive or overly optimistic benefit claims or against inferior quality work standards.

The UK Carbon Trust maintains the 'Green Business Directory' of certified suppliers or installers of energy efficient equipment or renewable energy technology, as part of their 'end-to-end' service delivery approach.

South California Edison (SCE)'s HVAC Optimisation program is based on the SCE's training and certification program for best practice HVAC maintenance and equipment rating. SCE helps energy users to sign long-term agreements with certified (SCE vetted and trained) maintenance providers. Contractors participating in the HVAC Optimisation program must be approved by the HVAC Optimisation team and undergo training to offer the specific repairs and maintenance prescribed by the program. A contractor recognition program with Gold, Silver, Bronze levels advertises the quality of the maintenance work based on a points system.

The EEC administers the Energy Efficiency Certification Scheme which certifies professionals that have the skills and experience to lead and manage all types and scale of building energy upgrades, up to and including an Integrated Building Energy Retrofit (IBER) and to work effectively with their clients (<http://www.energycertification.org.au>).

Developing new certification schemes is a costly and time consuming process, but can be worthwhile in certain circumstances, i.e. where the addressable market is very large, or where the certification will support a common and critical step in the energy efficiency project pipeline (i.e. energy auditing). In these cases, ensuring standardisation of approach and consistency of delivery will boost consumer confidence.

Recommendations

12. Establish skill, knowledge and experience requirements and identify priority areas for certification.
13. Based on the findings of Recommendation 12, invest in the development of certification schemes for the most important suppliers or installers.

Savings guarantees

Energy Performance Contracting (EPC) is a mature market offering, developed to overcome the major barriers to delivering cost-effective energy efficiency.

EPC is when an energy service company (ESCO) is engaged to improve the energy efficiency of a facility, with the guaranteed energy savings paying for the capital investment required to implement improvements. Under a performance contract for energy saving, the ESCO examines a facility, evaluates the level of energy savings that could be achieved, and then offers to implement the project and guarantee those savings over an agreed term.

In Australia, EPCs are largely utilised by government, however the standard model does not overcome the trust and confidence issues many SME and community organisations face when seeking to select energy efficiency service providers.

In stakeholder discussions, the inclusion of an independent intermediary, such as the government, into the contracting relationship to underwrite the savings guarantee was generally thought likely to increase the uptake within the SME and NFP sectors.

There is already precedent for government savings guarantees in the Financial Claims Scheme (FCS), an Australian Government scheme that provides protection to deposits in banks, building societies and credit unions, and to policies with general insurers in the unlikely event that one of these financial institutions fails (<https://www.fcs.gov.au/about-apra>).

What is likely to be a very low risk, low investment option for government is highly likely to significantly increase consumer confidence and energy efficiency action.

Recommendation

14. Investigate the potential to provide savings guarantees for energy efficiency projects.

4.1.4 Standards and certification for appliances and equipment

The Greenhouse and Energy Minimum Standards (GEMS) program is jointly run by the Australian, New Zealand, state and territory governments. The GEMS program protects consumers from the ongoing hidden costs of products through:

- Minimum standards for the energy efficiency of goods such as fridges, televisions, air conditioners and electric motors; and
- Energy labels to help consumers identify the efficiency of appliances.

GEMS is one of the biggest drivers of energy efficiency in Australia, annually delivering around \$1 billion in avoided energy costs and cutting emissions by over 1.5 per cent. GEMS saves the average consumer around \$300 per year, and the estimated benefit-cost ratio is between 1.7 and 5.2 for the period 2014-2020 (Databuild, 2015).

Australia's major trading partners have standards for a wide range of products that are regularly updated. In order to lower costs for industry and ensure that standards remain effective, government action should be taken to:

- Keep standards up to date and harmonise them with leading economies.
- Expand the number of products that are covered by standards and labels, including commercial and industrial equipment.

As with supplier certification, product certification gives buyers the confidence that the performance and energy saving claims of a product have been independently validated. This significantly simplifies the product assessment for the buyer and gives manufacturers a very clear performance benchmark against similar products.

Also costly and time consuming to develop, further research is needed to identify the product categories of greatest need and opportunity. The work undertaken by the International Partnership for Energy Efficiency Cooperation Top Ten Energy Efficiency Best Practices and Best Available Technologies Task Group (TOP TENS) to identify best available technologies provides one approach to identify the highest priority product categories, based on their potential energy savings resulting from widespread uptake.

To be effective, up to date information about an expanded GEMS would need to be incorporated and accessible through the central materials databank (Recommendation 2).

Recommendations

15. Keep energy efficiency standards for appliances, vehicles and buildings up to date and harmonise them with leading economies.
16. Expand the number of products that are covered by standards and labels, including commercial and industrial equipment.
17. Support the development of product certification schemes, perhaps based on the work of the TOP TENS.

4.2 Intensive interventions

Entity specific interventions designed and delivered to elicit large, cost effective energy savings in selected target audiences. The targets should be identified based on careful segmentation of energy users considering management style, significance of the energy use and efficiency opportunities and the energy using equipment or processes in the organisation.

The most successful programs include an implementation element

The main focus of intensive interventions is the provision of implementation support. Using the definition of success defined previously – actual and sustained improvements in energy efficiency within the target audience – the most successful government energy efficiency programs include an implementation element.

A number of EEIG projects included one element of implementation support in the form of an energy assessment. EEIG Assessment Participants were provided with a tailored energy site assessment of some form and specific recommendations for improvement.

Some very encouraging results were reported. The percentage of EEIG Assessment Participants installed energy monitoring and/or control equipment increased from 13 per cent to 26 per cent post assessment. The number of changing production processes and work flows increased from 16 per cent to 25 per cent. Meaningful improvements were also seen in adoption of improved insulation and draught-proofing better servicing and maintenance of equipment or heating/aircon. In all cases the proportional increase in Assessment Participants taking action exceeded that of general EEIG Participants (Instinct and Reason, 2015, pp 66-69).

Although there is also research that indicates that audits alone are insufficient, with experience showing that most audit reports were 'left on the shelf' and few recommendations were adopted (Pears, 2016).

This experience is likely partly due to the previous audit standard (AS/NZS3598:2000), which did not require auditors to recommend actionable energy conservation measures. The new Australian/New Zealand Standard for energy audits (AS/NZS 3598:2014) addresses this issue, as it requires standards compliant audits to include clear next action steps on the pathway to implementing specific energy conservation measures. However, awareness and uptake of the new standard is currently low.

A key recommendation from the EEIG evaluation process is for implementation support to be given along with information. The evidence to support this can be seen in a number of final project reports. For example, Food SA noted that combined delivery of measures addressing different stages, such as toolkits and then one-on-one coaching, was pivotal to success.

It was also commonly reported that following awareness of energy saving opportunities, some businesses sought further guidance on equipment purchase decisions such as size and brand of equipment, but that this was outside the scope of the support on offer.

Implementation support can take a number of different forms including energy efficiency consultancy support to independent evaluation of recommendations, advisors or case managers to provide on-going guidance and grants to lower the up-front costs of implementation.

Energy Efficiency Networks

A recent report from the International Partnership for Energy Efficiency Cooperation (IPEEC) examines existing Energy Efficiency Networks (EENs) across G7 and some non-G7 countries, and highlights their best practices and success factors (OECD, 2016). A summary of findings, supplemented by additional insights from Koewener *et al* (2011) and Paramonova *et al* (2014) is provided below.

The IPEEC report EENs have been established in various forms and with various functions to address the many barriers to energy efficiency. In most cases, networks focus both on identifying energy saving potential and supporting the process of implementing an appropriate savings program. Some aim to share expertise in a given sector. There are also networks that focus on the training and certification of energy managers and

consultants, or that are established to play an advocacy role and liaise with government institutions towards improved energy efficiency policy design.

EENs generally consist of 10–15 medium-sized companies located in a close proximity and often not in the same sector. They serve a number of functions including knowledge-sharing, capacity-building, consultation with experts, as well as uniting companies with a common interest. Coordinators are generally external to the network participant and based in energy or environmental agencies or private energy service companies. In their early phases EEN are financed by the initiating organisation but transitioning to participant financed. A summary of the key characteristics of EENs established in Europe, Canada, Japan and Mexico are included in Appendix D.

There are quite specific criteria for establishing and operating successful EEN that can be summarised as follows:

- Participant company/site with annual energy costs of about €1 million to €2 million with annual expenditures material to the business operational costs.
- The EEN includes a variety of different sized companies.
- EEN participants do not have the same customers.
- Participants should not be situated far from each other to ensure a good meeting frequency.
- EEN representatives participate in an active and constructive way – they must be sufficiently informed and with authority to make commitments and facilitate action.
- Top management of the participants are included in the flow of essential information and participate in the network once a year.
- The initiating institution has the trust and confidence of EEN participants.
- A network manager/coordinator is a driving force – they have to be educated to be capable to run the network activities and operate in a very professional manner.
- Supporting policy conditions, such as the Swiss CO2 law⁴, are in place to incentivise participation.
- The EEN is able to access well-qualified energy consultants and external experts.
- A common target is established to create a social coherence between the companies, supporting their exchange of information and experience.

⁴ The Swiss CO2 law allows companies achieving results through EENs to be exempted from the payment of a CO2 surcharge

- Participation in EEN brings a profit.

Given the initiating and on-going resourcing requirements for EENs, they are a costly intervention and should be employed only where they are likely to deliver large scale, cost effective energy savings. Large energy users with the necessary management mind-set should be the target. A detailed characterisation study should be undertaken to identify the appropriate target industries and locations to pilot EENs in Australia.

Recommendation

18. Invest in a detailed characterisation study to identify the appropriate target industries and pilot Energy Efficiency Networks in Australia.

Dedicated end-to-end support

Providing SMEs and community organisations with one-on-one coaching or a ‘case manager’ has proven effective in driving implementation.

The recent Sustainability Victoria ‘Energy Efficient Office Building’ Program achieved excellent energy savings from building tuning using a model of end-to-end support. Participants could select a provider from the panel. The providers – sometimes a consortium of two or more businesses – coordinated their services and communicated within their team to guide a participant from assessment through to implementation and monitoring of energy efficiency outcomes.

In the Swiss AEnEC “modèle PME” program, an advisor employed by the agency participates in the initial assessment, advises on the best measures to implement, helps set objectives collaboratively with the SME, and assists in the implementation and in the verification and monitoring of the outcomes.

This is something that organisations want. The Lake Macquarie Business Centre found that SMEs needed access to a project manager to simplify their interactions as they did not have time to deal with multiple suppliers across multiple technologies.

Providing organisations with this kind of support to help them at various steps of the energy efficiency journey is akin to giving them access to a part-time resource to undertake project

management tasks and ensure the efficiency project progresses and does not become deprioritised.

This type of intervention, whether delivered by governments or other bodies, should be targeted at large and medium energy users where an optimising mindset can be identified.

To guide future Federal government programs and support others in the delivery of energy efficiency implementation support programs, it is recommended that a best practice model be developed.

Recommendation

- 19.** Develop a best practice program model for end-to-end energy efficiency implementation support.

Access to trusted, tailored sources of information

For industries where there is an optimising mind-set, but perhaps less economic energy efficiency savings to be found, providing access to tailored information from trusted sources can support organisations to take self-directed energy efficiency action.

It is vital that support be delivered by trusted sources, as lack of trust prevents the uptake of advice on energy efficiency. Information from industry associations, for example, has been shown to have a bigger impact than information from consultants.

Victoria's Moreland Energy Foundation (MEFL) see their role as a partner/advisor that is available at each step of the way, making sure support is available but not forcing progress when the SME is not ready. MEFL stresses the importance of their role in advocating in favour of energy users when seeking quotes from service providers; they are unambiguously on the 'side' of the client and leverage their expertise and experience in the industry to recommend, select and even bargain with providers on behalf of the SMEs.

An important lesson learnt from EEIG was that not all associations have the in-house capacity to manage programs effectively or a strong influence over their members' activities. Understanding this upfront, and carefully choosing delivery bodies – potentially by inviting participation rather than an open application process – is required for effective market engagement.

Recommendation

- 20.** Support carefully selected industry bodies to provide targeted information and access to support at key times of disruption within organisations and industries.

4.2.1 Bulk equipment change out program

There are segments within the SME and community organisation sectors for whom energy costs are a concern and a limitation to growth, but that lack the time and internal capacity to upskill and make the energy saving changes. As such, it is unrealistic to expect this cohort to respond well to information-only programs and develop the level of understanding necessary to drive change.

For these cohorts, alternative approaches that remove the need for internal upskilling and capacity building should be considered. An emerging option that was tested through consultation was the centrally coordinated roll-out of suitable upgrades to common energy-intensive equipment within these industries. The bulk purchasing approach is gaining traction in the residential sector for products such as residential solar and battery storage (<https://suncrowd.com.au>).

The concept was generally very well received in discussions with EEIG recipients, other industry associations and the Clean Energy Finance Corporation (CEFC). This warrants further detailed investigation and design work, particularly as an option for a small number of energy-intensive sectors, such as laundries and bakeries.

There may be a role for industry associations, banks or other influential entities to take on the coordination role, potentially financed through a CEFC type partnership.

Recommendations

- 21.** Invest in research to identify priority industries and design models for bulk-purchasing approaches.
- 22.** Facilitate the pilot of a bulk-purchasing equipment or services approach.

4.2.2 Access to finance and incentives

It is now generally accepted that access to finance is generally not a major barrier when an organisation is convinced of the value proposition of a resource efficiency project. However financial hurdles regularly feature in lists of reasons projects do not get implemented.

Similarly, the availability of financial incentives was flagged by many energy users as a driver of energy efficiency action, albeit not the first one (which remains cost savings).

While not a major barrier, financial incentives are useful when playing a complementary role in packages of measures that get companies “over the line”. Examples of incentives for implementation include:

- Bonuses for implementation of recommended/identified measures. Sustainability Victoria, for example, found that a \$3,000 incentive bonus for implementation in their ‘Sustainable Business, Sustainable Resource’ program saw 50 per cent take-up rates. Similar incentives were offered by the OEH.
- In Switzerland, participation in the SME program leads to a rebate in environmental taxes.
- Market-based incentives, usually using certificates (such as VEET and ESS) with or without obligations imposed on energy retailers.
- Low / no interest loans such as those offered by National Australia Bank and Westpac in partnership with the CEFC.

Grants

As discussed, grants for implementation are often deal sweeteners rather than deal makers, so while there are often good uptake rates, it is difficult to ascertain the additionality value of these interventions.

It is also important to understand the impact of the ‘stop-start’ nature of many grant programs. Significant investment may be made in developing a business case predicated on access to a grant only to have a program conclude and the business case collapse, with business confidence along with it. The addition of grant funding within a business case also limited its transferability to other organisations which may not have access to that same level of grant funding.

Generally funds allocated for grant programs, especially competitive, limited grant funding, would be better invested in targeted, evidence based program investment or to support the initial commercialisation of new approaches.

Recommendation

23. Provide limited grants only where true business need can be established.

Loans

More could be done to expand access to low interest loan programs – including integration with information materials and linkages to energy assessment reports – that would increase the number of organisations aware of and accessing these finance options.

Recommendation

24. Encourage the expansion and promote the availability of third-party low interest energy efficiency loans.

4.3 Targeted deployment

A targeted deployment approach would see the most resource intensive initiatives driving cost effective change in the largest energy users. The intensity of intervention is scaled with the scale of opportunity and also the receptiveness of the target audience. Foundational interventions ensure those with only relatively small gains to be made are enabled to do so through a beneficial regulatory and market structure (Figure 8).

			Energy using equipment/processes	
			Homogenous	Heterogeneous
Large and medium energy users	Management style	Optimising	Large energy users: Energy Efficiency Network for large energy users Medium energy users: Targeted end-to-end decision & implementation support – case managers Market improvement and standards	
		Satisficing	Bulk change out programs Market improvement and standards	Targeted information and access to implementation support at key times of disruption Market improvement and standards
Small energy users			Market improvement and standards	

Figure 8: Structured targeting of recommended energy efficiency interventions based on organisational characteristics.

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Appendices

Appendix A - Focus industry insights

Dairy Cattle Farming				
ANZSIC classification ⁵	Number of businesses:	Percentage SME:	Description:	Key industry contacts
Division: A - Agriculture, Forestry and Fishing Subdivision: 01 - Agriculture Group: 016 - Dairy Cattle Farming Class: 0160 - Dairy Cattle Farming	11,310	100%	This class consists of businesses mainly engaged in farming dairy cattle. Also included are businesses mainly engaged in sharemilking i.e. where the unit is contracted to milk the herd and/or perform other farm duties for a share of the milk income.	Dairy Australia Roderick Glass, Principal - Systems Ag, University of Southern Queensland James Bentley, Manager Natural Value, Corporate Responsibility, National Australia Bank
<p>There were a number of EEIG projects that focused on the agricultural sector, some industry specific and others such as the projects of the NSW Farmers' Association and North East Farming Futures that were more regional rather than industry focused.</p> <p>Dairy Australia received funding in both EEIG funding rounds for the development and rollout of the 'Smarter energy use on Australian dairy farms' project and has a strong track record of building the sustainable farming practices within the dairy cattle farming industry.</p> <p>Given this experience, dairy cattle farming was selected as a focus industry for this scoping study. Interviews were held with Dairy Australia as well as others with a stake in agricultural sector energy efficiency.</p> <p>The Dairy Australia project included an intensive program of on-farm energy assessments and the development of a significant amount of environmental support material including the 'Saving energy on dairy farms' booklet; 8 case studies; 14 fact sheets; and the collation and analysis of the on-farm energy assessment data within a National Database. These materials are still accessible on the Dairy Australia website.</p> <p>The industry responded particularly well to the on-farm assessments with the farmers preferring information to be specifically laid out for their situation. However, there were difficulties in translating assessments into reducing energy use as the project focused on knowledge and awareness as an important first step rather than on rapid adoption of energy efficiency practices. The cost of replacing existing equipment and machinery is the major barrier to implementing change.</p> <p>Australia's dairy farming industry is currently facing significant pricing and cost challenges. Under these circumstances, while there is a genuine desire to implement cost saving initiatives, it is likely that only zero cost initiatives would be considered at this time. Options that overcome the need for any up-front cost would be necessary, and a bulk change out approach would be worthwhile investigating given there is significant information about the type of energy using activities on farms.</p> <p>Dairy farmers also benefited significantly from dedicated review of their electricity contract and tariff. As part of the EEIG project, farmers in Tasmania were able to access a dedicated helpline with a local energy retailer to undertake an assessment of their needs and offer an alternative tariff structure. An obligation on retailers to ensure farming customers have the most cost effective contract would likely generate worthwhile cost savings and offer some relief from current cost pressures.</p>				

⁵ The Australian and New Zealand Standard Industrial Classification (ANZSIC) has been developed for use in the compilation and analysis of industry statistics in Australia and New Zealand (ABS, 2006)

Meat, poultry and small goods manufacturing				
ANZSIC classification	Number of businesses:	Percentage SME:	Description:	Key industry contacts:
Division: C Manufacturing Subdivision: 11 Food Product Manufacturing Group: 111 Meat and Meat Product Manufacturing Class: 1111 Meat Processing, 1112 Poultry Processing, 1113 Cured Meat and Smallgoods Manufacturing	1,215	95.56%	Description: The 1111 Meat Processing (1111) and Poultry Processing (1112) classes consist of businesses mainly engaged in slaughtering animals, boning, freezing, preserving or packing meat or canning meat. Businesses mainly engaged in manufacturing meat from abattoir by-products and rendering lard or tallow are also included. The 1113 Cured Meat and Smallgoods Manufacturing class consists of businesses mainly engaged in manufacturing cured and preserved meats, such as bacon or ham, and in manufacturing smallgoods or prepared meat products not elsewhere classified.	Food South Australia Australian Food and Grocery Council Australian Meat Industry Council (AMIC) 'Meat, poultry and small goods manufacturing' (56) CTIP recipients (56)
<p>As the Australian Meat Industry Council (AMIC) was an EEIG grant recipient and a large number of its members also received CTIP funding, 'Meat and Poultry Processing and Smallgoods Manufacturing' was selected as a focus industry for this scoping study.</p> <p>The EEIG projects of the Australian Food and Grocery Council (AFCG) and Food South Australia also had the potential to touch on organisations within this industry. Interviews were held with AMIC, AFCG and Food SA and CTIP recipients engaged through an online survey (Appendix C).</p> <p>The EEIG projects included a delivery of a mix of energy efficiency toolkits, workshops and access to customised energy efficiency audits. AMIC and Food SA have maintained access to tools and resources online, but the AFCG site has been taken down as it is no longer resourced.</p> <p>AMIC report that the red meat industry is the largest trade exposed industry in the economy with approximately 70 per cent of production exported. They are a high cost supplier, but maintain competitiveness through the quality of the product produced. Livestock costs are the largest operational cost, but energy costs are also a notable cost for the majority. Survey respondents cost impact ranged from less than one per cent of sales to over 10 per cent.</p> <p>For other food manufacturers, energy costs remain significant, especially for those with refrigeration and other equipment that needs to operate irrespective of production. For many, peak rates have increased significantly.</p> <p>Within the red meat industry, a high level of expertise generally resides on site, with most plants or organisations having an environmental officer. The survey also indicated that the broader industry of 'Meat and Poultry Processing and Smallgoods Manufacturing' considers itself well informed about steps to smarter energy use (Figure 6).</p> <p>A reported persistent barrier is access to trusted service providers and ongoing support for implementation. There was very strong support amongst survey respondents for a trusted body to establish a pre-approved panel of suppliers and for offering project savings guarantees. On-bill finance and further grant support was also strongly supported to overcome upfront capital costs.</p> <p>The issue of a retailer obligation to ensure customers are on the most cost effective contract was again raised as a means of reducing cost pressures for manufacturers across industries.</p>				

There is also already a culture of peer-to-peer learning with high levels of participation with industry funded forums for different roles. 25 per cent of survey respondents felt talking to peers was very helpful. It is likely to be an industry that would respond well to energy efficiency learning networks.

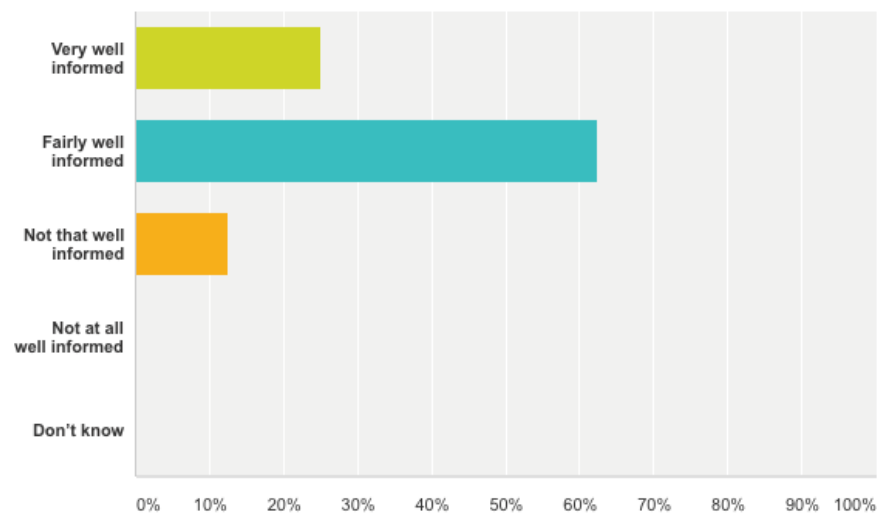


Figure 9: Q. How well informed is your organisation about the steps you can take to be smarter in your use of energy and controlling energy costs? (Survey of CTIP recipients - Appendix C).

Childcare centres				
ANZSIC classification	Number of businesses:	Percentage SME:	Description:	Key industry contacts:
Division: Q Health Care and Social Assistance Subdivision: 87 Social Assistance Services Group: 871 Child Care Services Class: 8710 Child Care Services	9,764	99.63%	This class consists of businesses mainly engaged in providing day care of infants or children including child care services, family day care service and before and/or after school care service.	Community Children's Centres South Australia G8 Education
<p>The childcare industry spans for profit as well as the not for profit sector. The Community Children's Centres South Australia received an EEIG grant and a number of other EEIG projects had the potential to reach organisations in this sector.</p> <p>Community Children's Centres South Australia delivered the Small Green Steps EEIG project developing, through the appointment of a consultant, sector specific materials, a Carbon Footprint calculator, options for visual energy assessment and support through workshops, newsletters and email and telephone help line. Attempts to contact the project manager were unsuccessful.</p> <p>The Community Children's Centres website does not contain any project content (or sustainability information) and it does appear that the material is now only available through the 'Small Green Steps' program nationally for a fee (http://www.smallgreen.com.au) by Sustainable Directions Pty Ltd.</p> <p>The industry has been the focus of other information programs with a range of other support materials and programs available:</p> <ul style="list-style-type: none"> • Little Green Steps – NSW government resources • NSW Early Childhood Environmental Education Network (ECEEN) Eco Smart resource www.eceen.org.au <p>To gain insights to the industry, a consultation session was held with Directors from the G8 Education group. G8 Education Limited is the largest ASX listed (ASX: GEM) child care centre operator in Australia. Over 75,000 children attend a G8 Education service in any given week.</p> <p>The activities of Australia's childcare centres are governed by the National Quality Framework (NQF) which includes the National Quality Standard (NQS), a rating and assessment process, a regulatory authority in each state and territory and a national body, the Australian Children's Education and Care Quality Authority (ACECQA).</p> <p>The National Quality Standard (QA3) includes a number of requirements that relate to sustainable practices:</p> <ul style="list-style-type: none"> • 3.3 The service takes an active role in caring for its environment and contributes to a sustainable future <ul style="list-style-type: none"> ○ 3.3.1 Sustainable practices are embedded in service operations. ○ 3.3.2 Children are supported to become environmentally responsible and show respect for the environment. <p>In assessing centres, assessors may observe:</p> <ul style="list-style-type: none"> • sustainable practices—such as recycling, use of recycled resources, energy efficiency and water conservation—embedded in daily routines and practices at the service. • children participating in planned experiences that engage them in appropriate sustainability practices within the service. • educators and coordinators sharing information and providing children with access to information about the environment and the impact of human activities on environments. • the service's environmental strategy being consistently implemented. 				

Assessors may discuss examples of:

- the service's approach to promoting sustainability.
- sustainable practices used at the service and the ways in which children are involved in them.

Assessors may sight:

- the service's environmental and sustainability strategy
- evidence that information and ideas about sustainable practices are regularly shared with families.

Beyond this very general level of guidance on what assessors may observe, discuss or sight, centre Directors are given very little guidance on their opportunities for delivering against the NQS requirements.

Directors also highlighted lack of time as the most significant barrier to action. The competing priorities the NQS were specifically highlighted. A general lack of interest by staff was also considered common.

The discussion with centre Directors highlighted lack of time, especially with the competing priorities the NQS such as health and welfare of the children, as the most significant barrier to action and should not to be understated. This is an example of a highly credible competing priority that *should* take precedence over energy efficiency.

For the majority of centre Directors and staff, there is a very strong desire to act on sustainability issues, especially as an activity integrated into the education of children. However, this desire has led to effort in areas such as gardens, chickens, recycling. It is harder to connect the children with lighting and air-conditioning and therefore less motivation to act on energy efficiency opportunities.

Greater guidance on implementation of the NQS potentially including minimum energy efficiency performance standards, would help centres better understand obligations and increase uptake of existing materials to implement opportunities.

Logistics				
ANZSIC classification	Number of businesses:	Percentage SME:	Description:	Key industry contacts:
Division: I - Transport, Postal and Warehousing Class: 4610 Road Freight Transport, 4710 Rail Freight Transport, 5101 Postal Services, 5102 Courier Pick-up and Delivery Services, 5309 Other Warehousing and Storage Services	70,935	99.87%	These classes consist of businesses mainly engaged in the transportation of freight by road and rail, pick-up and delivery of letters, documents and parcels and/or operating warehousing and storage facilities.	The Supply Chain & Logistics Association of Australia Ltd National Retail Association Ltd
<p>As a priority area in the National Energy Productivity Plan, transport and freight was also selected as a focus industry for this scoping study. The Supply Chain & Logistics Association of Australia Ltd (SCLAA) received an EEIG grant to engage with this industry and the National Retail Association Ltd EEIG project had some supply chain considerations.</p> <p>The SCLAA project assisted SMEs in the warehousing and transport sectors to reduce their energy use and operating costs through the development of an online assessment tool, case studies, guides, a national program of workshops and ongoing education through webinars and podcasts. The website and tools are still available online but the SCLAA no longer has the resources for further training.</p> <p>The industry is a low margin industry, and participants are always looking for cost savings opportunities.</p> <p>Webinars and other online services were the participants' preferred methods of engagement. This removed the need to travel to participants and enabled access out of standard business hours. Feedback from participants at the time was for the online tool and education to be more widely available and additional training to be held for specific sub-industries.</p> <p>The SCLAA did build up significant internal expertise to run the project, but as a volunteer organisation with leadership changing on standard terms of service, there is a real risk that this knowledge is lost.</p> <p>The industry is receptive to training and further capacity building. Ensuring the educational tools and materials remain current and accessible should be a priority.</p>				

Appendix B – Energy efficiency programs

Jurisdiction	Agency	Program/s
Australia	Department of Industry, Innovation and Science	Energy Efficiency Information Grants program Commercial Building Disclosure Program
ACT	Environment and Sustainable Development Directorate	ACT Smart Energy and Water Program
VIC	Sustainability Victoria	Beyond Waste Fund Energy Efficient Office Buildings Smarter Resources, Smarter Business Building Business Capability (BBC)
	Essential Services Commission	Victorian Energy Efficiency Target Scheme
	Victorian Chamber of Commerce and Industry (VECCI)	Carbon Compass
Melbourne	City of Melbourne	1200 Buildings Multiple others
Hobsons Bay	Hobsons Bay Council	Hobsons Bay Business Engagement Program
South East VIC	South East Councils Climate Change Alliance (SECCCA)	Multiple
NSW	Office of Environment and Heritage	Building the Business Case training course Energy Efficiency for Small Business Program Energy Saver Program Energy Efficiency Training Program Energy Saving Scheme (ESS) Sustainability Advantage
City of Sydney		CitySwitch Multiple others
Brisbane	Brisbane City Council	CitySmart
SA	Department of Manufacturing, Innovation, Trade, Resources and Energy	Residential Energy Efficiency Scheme

Jurisdiction	Agency	Program/s
	Zero Waste SA	Resource Efficiency Assistance Program Industry Program Better Resource Use Grants Sustainable Business in Food Guide
Queensland	Queensland Chamber of Commerce and Industry (CCIQ)	EcoBiz
International	Indian Bureau of Energy Efficiency (IBEE) (and partners),	Energy Efficiency Programme for Small and Medium Enterprises
	New York State Energy Research and Development Association (NYSERDA)	Flexible Technical Assistance Program (FlexTech)
	Carbon Trust	UK Green Business Fund
	Southern California EDISON (SCE)	Various programs, including: Continuous Energy Improvement; HVAC Optimisation; and Direct Install.
	Pacific Gas and Electric Company (PG&E)	Various programs (rebates, financing and advice)

Appendix C - Interviews

Organisation	Contact
Catholic Earthcare Australia	Simon Habel, Program Manager
Australian Meat Industry Council	Stephen Martyn, Director
Dairy Australia	Catherine Phelps, Land Water and Carbon Program Manager - Farm Profit and Innovation
Food South Australia	Catherine Sayer, Chief Executive Officer
Supply Chain & Logistics Association of Australia	Mark Skipper, National Director
National Retail Association	Yvonne Williams, Director of Training and Industry Projects
G8 Education	Hunter and Central Coast Directors Network
	Jon Jutsen
Sustainability Victoria	Meredith Jackson, Project Advisor - Business Productivity Jaimie Wallis Katrina Woolfe
NSW Office of Environment and Heritage	Bradley Anderson Karinne Taylor
ARTD Consultants	Keryn Hassall, Senior Consultant
VECCI	John Griffith Kate Elborough
NSW Chamber of Industry	John Cooke
Queensland Ecobiz	Andrew Chamberlin
ZeroWaste SA	Aubrey Thomas
MEFL	Kate Nicolazzo
Ecodev / DELWP	Peter Hansford
AI Group	Jason Walker Tennant Reed, Principal National Adviser – Public Policy
National Australia Bank	James Bentley, Manager Natural Value, Corporate Responsibility
University of Southern Queensland	Roderick Glass, Principal - Systems Ag, Senior Vice Chancellor's Research Fellow
NEEA	Warren Fish

Organisation	Contact
Carbon Trust	Myles McCarthy
Minus 40	Michael Bellstedt, Managing Director
Outperformers	Michael Weiner, General Manager
Balance Energy	Tom Cawley, Managing Director
Genesis Now	Geoff Andrews, Engineering Manager
Northmore Gordon	Craig Morgan, Managing Director
Clean Energy Finance Corporation	Darren Utz, Analyst, Portfolio Management Yolande Pepperall, Associate Director - Aggregation Partnerships

Appendix D - Snapshot of International Energy Efficiency Networks

Germany	<ul style="list-style-type: none"> • The first energy efficiency network in Germany was established in 2002. • Now there are more than 80 functioning networks. • Usually referred to as energy table or learning energy efficiency networks (LEEN). • The LEEN management system comprises a set of tools for energy consultants to guide companies through the network approach. • Energy consultants using the LEEN standard have to be certified. • Membership fees of LEEN networks usually range between EUR. 4.500 to 7.000. • During the pilot phase membership was free. • Each network consists of 10 to 15 regionally based companies from different sectors. • Primarily suitable for participating companies with energy costs between EUR 0,5 and 50 million p.a. • German government is cooperating with 20 industry and business associations (covering nearly all sectors of German industry) to scale up EENs through the "Energy Efficiency Networks Initiative". • The ambitious goal of the initiative is to initiate 500 networks until the end of 2020.
Switzerland	<ul style="list-style-type: none"> • The first to introduce energy efficiency networks in the 1987. • Supported by the Swiss Energy Agency. • Participating companies were exempted from a fossil fuel surcharge. • Now there are around 70 energy efficiency networks in Switzerland involving approximately 2,000 companies. • Energie-Agentur der Wirtschaft (EnAW) now works closely with the Swiss Department of Energy to: develop a methodological approach to networks; agree on service provision; and provide financial support.
Japan	<ul style="list-style-type: none"> • EENs are established and implemented namely in the form of Energy Conservation Neighbourhood Associations (ECNA) and Voluntary Associations of Designated Energy Management Factories (DEMF). • Most networks generally follow a top-down approach, whereby the programme is initiated by the government, and industry organisations and associations perform the role of program office and implementing agencies. • ECNAs follow a similar approach to the German EENs. • Each district association of the DEMF is in charge of its own activities, which commonly involve: factory tours, seminars, lectures, and case study meetings held several times a year. Moreover, the DEMF runs an Energy Conservation Commendation, which is an award scheme that promotes distinguished achievers in energy management and business operators for excellence in energy management.

Canada	<ul style="list-style-type: none"> • Canadian Industry Program for Energy Conservation (CIPEC) set up in 1975. • CIPEC is coordinated by the Office of Energy Efficiency within Natural Resources Canada. • Canada's EENs, coordinated through CIPEC, follow an effective and clear top-down structure, with all services and training centrally provided through CIPEC. • The CIPEC works through 27 'task forces', which consist of a number (from 12 to several hundreds) of companies and trade associations. These task forces are organised by sectors. • CIPEC activities currently encompass more than 2,400 companies and more than 50 trade associations. • Members participating in CIPEC task forces represent 28 per cent of Canada's gross domestic product (GDP). • CIPEC's members are primarily large companies which limits the programme's inclusiveness and reach.
Norway	<ul style="list-style-type: none"> • Industrial Energy Efficiency Network (IEEN) is an industry-led energy efficiency program funded through grants by the government. • Established in 1989 concluded in 2004 • Fully funded by the government throughout the project and entirely free for companies. • The IEEN worked through a standard two-step approach and specific guidelines on benchmarking, monitoring and reporting. However, there was no active exchange between companies through the network.
Mexico	<ul style="list-style-type: none"> • Mexico GiZ financed the PRONASGEEn project (Programa Nacional para Sistemas de Gestion de la Energia - National Program for Systems to save Energy) with CONUEE (Comisión Nacional para el Uso Eficiente de la Energía), which is building EENs in order to introduce Energy Management Systems (EnMS) according to ISO 50001 in energy-intensive SMEs. • PRONASGEEn broadly follows the German LEEN approach, but includes a stronger capacity building component. In addition to energy audits and the exchange between companies within a network facilitated by a trained consultant, an energy manager within each company will be identified, trained and supported during the introduction of the EnMS.

Appendix E – CTIP online survey

Section A – ABOUT YOUR ORGANIZATION

Q1. Which of the following best describes your industry?

Meat Processing	<input type="radio"/>
Poultry Processing	<input type="radio"/>
Cured Meat and Smallgoods Manufacturing	<input type="radio"/>
Other	<input type="radio"/>
Don't know	<input type="radio"/>

Q2. Which State or Territory does your company primarily operate in?

New South Wales	<input type="radio"/>
Queensland	<input type="radio"/>
Victoria	<input type="radio"/>
South Australia	<input type="radio"/>
Western Australia	<input type="radio"/>
Tasmania	<input type="radio"/>
ACT	<input type="radio"/>
Northern Territory	<input type="radio"/>

Q3. What is your annual turnover?

Less than \$5 million	<input type="radio"/>
\$5 million to \$10 million	<input type="radio"/>
\$10 million to \$20 million	<input type="radio"/>
\$20 million to \$50 million	<input type="radio"/>
More than \$50 million	<input type="radio"/>
Don't know	<input type="radio"/>

Section B – ABOUT YOUR ENERGY USE

Q4. What was your company's electricity spend as a percentage of sales in 2015-16?

Less than 1 per cent	<input type="radio"/>
1 percent to 2 per cent	<input type="radio"/>
3 percent to 5 per cent	<input type="radio"/>
6 percent to 10 per cent	<input type="radio"/>
More than 10 per cent	<input type="radio"/>
Don't know	<input type="radio"/>

Q5. How do your energy costs compare with other costs such as labour, materials, rent, advertising, etc?

Energy is our most significant expense	<input type="radio"/>
Energy is one of our major expenses	<input type="radio"/>
While important, energy is not a major expense	<input type="radio"/>
Our energy costs are relatively low	<input type="radio"/>
Unsure	<input type="radio"/>

Q6. Do you know where your organisation uses most energy in its operations?

Yes, exactly	<input type="radio"/>
Yes, approximately	<input type="radio"/>
No	<input type="radio"/>
Unsure	<input type="radio"/>

Section C – ABOUT YOUR ENERGY MANAGEMENT

Q7. How well informed is your organisation about the steps you can take to be smarter in your use of energy and controlling energy costs?

Very well informed	<input type="radio"/>
Fairly well informed	<input type="radio"/>
Not that well informed	<input type="radio"/>
Not at all well informed	<input type="radio"/>
Don't know	<input type="radio"/>

Q8. How has your company's energy efficiency improved over the last 5 years (measured by the amount of energy used per \$ of sales revenue)?

More than 15 per cent	<input type="radio"/>
11 percent to 15 per cent	<input type="radio"/>
6 percent to 10 per cent	<input type="radio"/>
1 percent to 5 per cent	<input type="radio"/>
It is about the same	<input type="radio"/>
It has deteriorated	<input type="radio"/>
Don't know	<input type="radio"/>

Q9. Has your site taken action to improve energy efficiency in the past 3 years? Are any actions planned for the next 3 years? (Tick all that apply)

	Done in the past 3	Planned in the next 3	Don't know	NA
Conduct a formal energy audit or assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify major uses of energy in the business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Install additional energy monitoring equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Change staff practices to encourage energy efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replace small equipment with more energy efficient alternative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replace major equipment with more energy efficient alternative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lighting upgrade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Optimise compressed air systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Optimise heating, ventilation or air conditioning (HVAC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fuel switching (eg. from electricity to gas)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Installation of cogeneration or tri-generation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Installation of renewable energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10. In making changes in your organisation to be smarter in your use of energy and controlling your energy costs, what challenges have you encountered? Please rank their significance.

	Very significant challenge	Significant challenge	Some challenge	Insignificant challenge	No challenge	Not encountered	Don't know
Lack of time/staff resource	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of expertise in the organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost up front	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to finance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No demand from clients/customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support of senior decision makers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choosing the right energy efficient product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disruption to business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk to product/service quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of advice available tailored to my organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting good advice and assistance for implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please Specify)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D – ENERGY EFFICIENCY INFORMATION AND SUPPORT

Q11. Thinking about your organisation, how useful have you found these sources of advice or support?

	Very useful	Useful	Neutral	Not very useful	Of no use	Not used but planning to use	Not planning to use	Don't know
In house expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist energy efficiency consultants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your professional body or trade association	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other organisations in my industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other organisations outside of my industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your bank or financial institution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your energy retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
None of these	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12. What types of information resources on smart energy use do you find of most use? Please choose one only per row

	Very useful	Useful	Neutral	Not very useful	Of no use	Not used but planning to use	Not planning to use	Don't know
Workshops and seminars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone helplines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online helpline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking to others in my industry							<input type="radio"/>	<input type="radio"/>
Business case tools and templates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good practice guides	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy efficiency audit toolkit and templates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Case studies of organisations successfully reducing energy costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy use calculators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Industry reports and fact sheets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 To what extent do you agree or disagree with the following statements...

	Strongly disagree	Tend to disagree	No opinion either way	Tend to agree	Strongly agree	Don't know
My organisation has done everything it can to make improvements to energy efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My industry association/s are a good source of information on smart energy use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist energy efficiency consultants are too expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independent quality certification gives me buying confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialist energy efficiency consultants don't understand my organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14. Many different ways of helping business to improve energy efficiency have been considered. Look at the following options. How useful would they be for your organisation if they were available?

Assistance option	Very useful	Useful	Neutral	Not very useful	Of no use	Don't know
Provision of information on actions that can be taken to improve energy efficiency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of training for staff on practices that can improve energy efficiency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A subsidy to help business pay for an energy audit An energy audit assesses how your business uses energy and what opportunities there are for you to improve energy efficiency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competitive grants from government to pay for part of the cost of an energy efficiency improvement project Businesses would apply for government funding, with the most meritorious applications selected by a government panel. Not all applicants would succeed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accelerated depreciation allowances for investments that improve energy efficiency Accelerated depreciation would enable your business to write off an investment in energy efficiency improvement faster than the standard rate of depreciation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased depreciation rates for investments that improve energy efficiency Increased depreciation rates would enable your site to claim more than 100% of the cost of an energy efficiency improvement for tax purposes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rebates on energy efficiency improvement investments Businesses would be entitled to a rebate for part of the cost of purchases/investments on a list of pre-approved efficiency measures, such as high-efficiency appliances replacing low-efficiency ones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loans for energy efficiency improvement projects at market interest rates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low-interest loans for energy efficiency improvement projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Businesses would be able to access loans for actions to improve energy efficiency at an interest rate below the market rate of interest						
Loan guarantees for energy efficiency improvement projects: The government agrees to repay the lender if the borrower is unable to, allowing businesses to access more (or cheaper) commercial finance than otherwise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Savings guarantees for energy efficiency improvement projects: The government agrees to make up the difference if forecast energy efficiency savings are not realised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-bill finance An electricity retailer implements an energy efficiency improvement at your site; they bear upfront costs, and are repaid over time on your (reduced) bill	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy performance contracts An energy service provider implements an energy efficiency improvement at your site; they bear upfront costs, and are repaid over time through a share of energy cost savings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to a panel of pre-approved energy efficiency service providers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15. Would you like to receive a summary report on the results of this survey?

Yes please	<input type="radio"/>
No thank you	<input type="radio"/>