YOUR COMPETITIVE ADVANTAGE
Energy efficiency solutions for
Australian transport and logistics SMEs

SUPPLY CHAIN & LOGISTICS ASSOCIATION OF AUSTRALIA

How to guide no.3
Evaluating Opportunities

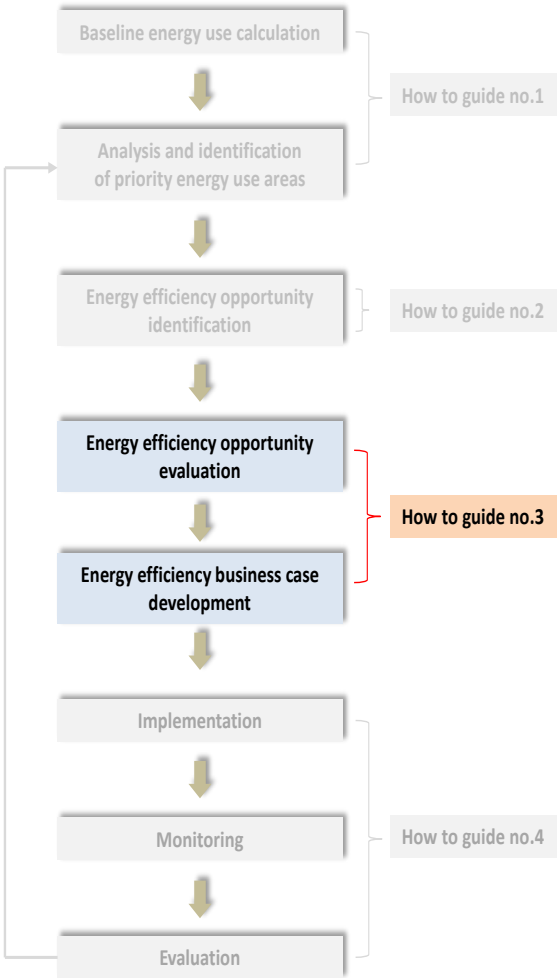
This document provides information and guidance to help SMEs evaluate energy efficiency opportunities in their operations.

It is one of four How-To Guides and other resource material developed by the Supply Chain and Logistics Association of Australia (SCLAA) and its project partners for SMEs in the supply chain and logistics sector.

The full suite of resources can help achieve energy efficiency improvements and energy cost reductions, and is accessible from http://energy-efficiency.sclaa.com.au

➤ Introduction

Within the context of the energy management process, this document covers the steps associated with evaluating promising opportunities and developing a business case for them.



➤ Prioritising opportunities

Assuming you have a list of opportunities that could lead to energy savings, you need a process to begin ranking them. Not all energy efficiency opportunities will be suitable for your business.

How-To Guide No.1 and Fact Sheets 1 and 2 provide a basic understanding of which opportunities suit which parts of your fleet or warehouse, and indicative savings you can expect.

Case studies and supplier information can be more useful in providing detailed information on specifications and costs.

But you may also have to do some research into which things are most suitable for your operation and equipment. Asking a few basic questions can help differentiate the things you can and can't change, and which are most likely to provide good energy savings.

- What kind of plant and equipment do you own? How old is it? Is any due for replacement? An asset inventory can be invaluable in this process; but even without one you can begin to pinpoint things that need attention.
- What factors can you control or at least influence? For example, does your operation run only in the day or around the clock? Are buildings owned or leased? How long are you locked into existing supply/maintenance contracts? Flexibility in some of these arrangements can mean the difference between bargaining with suppliers, and just getting what they give you.
- What are the investment hurdles within the business – i.e. does a project need to achieve a payback of less than 2 or 3 years?
- Does the company have a policy on equipment lifetime/turnover?
- Are any business factors of primary importance and that could justify investment in better equipment? For example, refrigeration equipment failures can lead to product spoilage and loss of customers, so reliability might be the most important consideration.

Understanding the business in these terms can provide important criteria that will help filter out the opportunities most beneficial to your business.

You can evaluate this by scoring each opportunity against the criteria and adding up the scores to see which rates the highest. This will give you a shortlist of the most promising opportunities for further investigation.

➤ Developing a business case for detailed evaluation

After a business has understood its energy baseline and identified potentially suitable efficiency measures, it needs to determine if those measures:

1. Are cost effective
2. Suited to the business
3. Provide an ongoing benefit worthy of investment.

It is important to have a framework in place to both identify and evaluate the merits of each opportunity.

One step along that path is to develop a business case for the project, which can help predict whether it will deliver a worthwhile financial return on the time and money invested.

Preparing a detailed, thorough business case can be challenging – particularly for fleet related projects where there is more uncertainty. This means you may need to engage the support of several areas within the business.

Be sure to include all the costs and benefits that are important to the business; and don't forget: non-financial considerations which can be just as important in deciding the business response to a potential opportunity, particularly if there are strategic or operational benefits. Some often-forgotten benefits are discussed below.

➤ Whole of Life Costs

Capital cost and fuel savings are not the only considerations in calculating the payback period of an opportunity. Don't forget to include co-benefits that can also save money. Two examples are:

- Reduced maintenance costs, increased brake life, and possibly longer warranty periods, for hybrid trucks compared with regular trucks.
- Maintenance cost savings may in some cases outweigh the energy savings of LEDs over conventional lights: they last up to 10 times longer, and the cost of accessing high light fittings (via rented scissor lifts and labour costs) can be more than the light itself.

Strategic and operational considerations can be just as important in determining the suitability of a particular process or piece of equipment.

An example here could be the ability to upgrade warehouse lighting in stages (rather than all at once) by choosing a more advanced energy management system over a more basic one – thereby deferring upgrade costs.

Similarly, using hybrid or electric forklifts not only saves energy but can reduce indoor air pollution in high-traffic areas – making the workplace healthier and reducing costs associated with sick leave and low morale.

➤ TIP: Consider the Full Benefits

Energy efficiency opportunities often have co-benefits beyond the obvious direct cost reductions. Examples include:

- Reduced maintenance
- Reduced energy use
- Reduced air pollution
- Longer life
- Positive OH&S implications
- Lower carbon footprint (GHG emissions)

➤ Investment sensitivity

This is another way of looking at how risky a particular opportunity is. Sometimes, the potential energy savings of a particular opportunity might be difficult to calculate because of the level of uncertainty. This uncertainty could come from

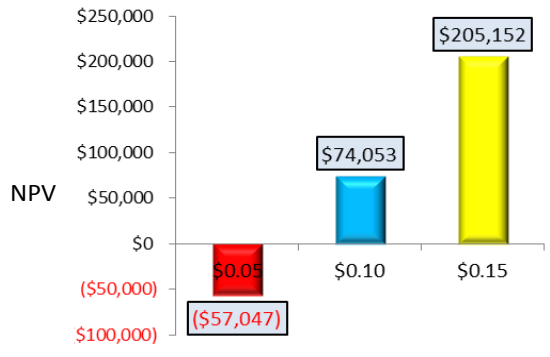
- A lack of confidence in the energy savings likely to be achieved (performance uncertainty)
- Uncertainty about the future price of energy

In other words, the payback of some opportunities depends on the price of energy (and in the case of alternative fuels, the price difference between two fuels).

Where there are high levels of uncertainty, the company can use a sensitivity analysis to determine the level of risk. Put simply, the financial savings can be calculated using several scenarios to see how the financial returns vary under different circumstances.

The LNG table used in Fact Sheet 4 provides a good example of this technique. The graph below also shows how the net present value of an engine conversion changes using different forecasts of diesel price (for illustration only).

Figure 1: NPV of an engine conversion



If the opportunity only looks good when the electricity or diesel price rises quickly over time, then it may be seen as a risky option. Alternatively, if the opportunity provides savings that vary little under different fuel price scenarios (e.g. ecodriving training), then it might be considered a low-risk, high priority opportunity.

➤ TIP: Managing Uncertainty

- Make sure whole of life costs are included
- Make sure co-benefits are considered
- Run sensitivity analysis on the costs as well as the savings to cover both performance uncertainty and financial uncertainty
- In estimating costs, use local (Australian) case study and supplier information, your own labour costs and factory downtime, and local rates for training.
- Run scenarios using different escalation rates for diesel, electricity and gas prices.

➤ Asset life

Looking for short payback periods (e.g. 2-3 years) on long-lived assets can lead to poor equipment choices. Equipment quality is often a much more important factor in the long run than short-term savings, especially if the lower-cost option will result in more breakdowns or earlier replacement. When setting criteria in the opportunity evaluation stage, consider the impact of breakdowns; the incremental cost of good quality equipment (and how that affects payback); and what kind of support is available from suppliers.

➤ Operational impacts

There are at least three operational considerations that might render an otherwise financially convincing opportunity unsuitable:

- Risk of component failure: what are the implications in terms of service delivery and liability to customers, safety risks, and downtime costs
- Additional training and new operational procedures that need to be adopted
- Implications of equipment modifications - on manufacturer warranty or regulatory compliance (e.g. emissions controls)

➤ Reduced risk exposure

Depending on the potential fuel savings achievable, an efficiency measure might reduce the business' exposure to rising energy costs (in addition to providing instant energy savings).

➤ Residual value of asset

In the case of road vehicles in particular, modifications to standard equipment or specifications can have a significant impact on residual value at time of disposal.

This is certainly the case for engine conversions that enable the use of alternative fuels which are not available in all regions, effectively limiting the market for the used vehicle from a national one to only those operators in the vicinity of a refueller.

Given the significant effect of depreciation on whole-of-life costs, any likely reduction in resale value (which may also be difficult to calculate) must be weighed against the potential benefits achievable via fuel savings.

➤ Competitive advantage

Efficiency improvements could also improve the competitive position of the business. The obvious impact is service cost reductions compared with direct competitors, leading to potential growth in customers.

However, it can also make a significant difference in other ways – for example, by enhancing reputation or brand image as a socially responsible business, or by positioning the business as a leader in the industry.

➤ TIP: Consider funding opportunities

Investigate the availability of government grants (see http://www.grantslink.gov.au/). Co-investment can also fund energy efficiency measures. Some suppliers of renewable energy such as solar panels allow them to be leased rather than purchased outright, and energy performance contractors use the savings identified in an energy efficiency audit (assuming the company implements them) to pay for their fees.

You could even talk to customers about joint projects if they will benefit from energy savings. In leased premises, other tenants might collaborate on projects that could benefit them.

If you own buildings in Melbourne or anywhere in New South Wales, you can now get up to 100% financing for a range of building upgrades - including lighting replacements, hot water system improvements, heating and cooling upgrades and solar power systems - through Environmental Upgrade Finance.

This means you can improve your building and reduce your energy and water costs without any upfront capital expenditure.

Further information is available from the Sustainable Melbourne Fund or the NSW Office of Environment and Heritage.

➤ Budget, cash flow and capital considerations

Apart from the potential cost savings which might be achieved by an efficiency opportunity, the capital cost may be the most important consideration.

Regardless of the savings accrued, the upfront costs may be prohibitive for some businesses. Fact Sheet 3 provides information on opportunities most suitable for companies with limited capital.

➤ Barriers to business case development

There are several barriers that can impede businesses moving from the identification of energy efficient opportunities to implementation. These barriers can include:

- Lack of business processes to inform management about energy efficiency improvement options
- Energy use and energy efficiency perceived as a relatively low priority for management
- Limited resources (people and time) spent on understanding or improving energy efficiency
- Business silos reducing communication between key decision making personnel within the organisation
- Decision-makers unaware of the potential for cost savings through energy efficiency
- Improving efficiency not defined as a business goal by senior management

While you may not encounter all of them, the barriers are real and you will need a strategy to overcome them if your business improvement is to succeed.

➤ What next?

- Use the other How-To Guides and Fact sheets to guide your energy efficiency activities
- Set up a matrix to evaluate opportunities against criteria that are important to the company
- Quantify the co-benefits and non-financial benefits of the shortlisted opportunities
- Use case studies and supplier information as an initial resource for estimated costs and savings
- Develop a business case for the most promising opportunities
- Seek management approval (including capex budget) to implement prioritised opportunities
- Engage people throughout the organisation to help in the research and analysis – use internal knowledge wherever possible to ensure relevance and secure buy-in

➤ More information

Save Energy, Cut Costs: energy efficient warehouse operation

A UK based guide to enable organisations to identify prioritised opportunities, develop a business case and implement an energy reduction programme

http://www.ukwa.org.uk/_files/23-carbon-trust-23.pdf

Energy Efficiency Training Program

NSW government training in energy efficiency

http://www.environment.nsw.gov.au/sustainbus/greenskills/eneftraining.htm

Ecostation Fleet Assessment Tool

Tool for developing a fleet baseline of fuel and emissions, as well as fleet structure

http://www.ecostation.com.au/ReducingEmissions/

Vic: Smarter Resources, Smarter Business

Government support programs for energy efficiency

http://www.sustainability.vic.gov.au/Services-and-Advice/Business/Smarter-Resources-Smarter-Business

NSW: Energy Saver

Government support programs for energy efficiency

http://www.environment.nsw.gov.au/sustainbus/energysaver/

NSW: Sustainability Advantage

Government support programs for energy efficiency

http://www.environment.nsw.gov.au/sustainbus/sustainabilityadvantage.htm

QLD: EcoBiz

Government support programs for energy efficiency

http://www.cciqecobiz.com.au/

The business case and beyond

The Business Case and Beyond section of the Energy Efficiency Exchange website has been developed to help you improve the success-rate of your business case proposals for energy efficiency projects

http://eex.gov.au/energy-management/the-business-case-and-beyond/

The Strategic Case for Energy Management

Overview of need for and benefits of energy efficiency

http://eex.gov.au/energy-management/the-strategic-case-for-energy-efficiency/

Grantslink

Website which allows you to investigate the availability of government grants

http://www.grantslink.gov.au/

Measurement and opportunity evauation in transport sector

Federal government guide to evaluating opportunities in transport under the Energy Efficiency Opportunities (EEO) program

http://eeo.govspace.gov.au/files/2012/10/Measurement-and-Opportunity-evaluation-in-the-Transport-Sector.pdf

Environmental Upgrade Agreements - Melbourne

Alternative funding for warehouse upgrades

http://www.sustainablemelbournefund.com.au/euf

Environmental Upgrade Agreements - NSW

Alternative funding for warehouse upgrades

http://www.environment.nsw.gov.au/sustainbus/eua.htm

Energy Savings Scheme NSW

Projects and equipment rebates

http://www.ess.nsw.gov.au/Projects_and_equipment

Learn more on how to make your business more energy efficient at **sclaa.com.au**

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