

## YOUR COMPETITIVE ADVANTAGE

Energy efficiency solutions for Australian transport and logistics SMEs



### Fact sheet no.3

## Energy efficiency on a shoestring

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This fact sheet provides basic information about energy efficiency in freight vehicles.

It is one of six fact sheets and other resource material developed by the Supply Chain and Logistics Association of Australia (SCLAA) and project partners to help SMEs in the supply chain and logistics sector with energy efficiency improvements and energy cost reductions.

The full suite of resources is available from <http://energy-efficiency.sclaa.com.au>

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#### Obtain expert advice

To help identify the most suitable opportunities for your business, consider obtaining advice from a professional energy auditor or your supplier. Whilst an audit will come at a cost, it can save you both time and effort, and ensure you invest in the most beneficial opportunities.

#### ► Low Hanging Fruit

There are many examples of best practice energy efficiency within the supply chain and logistics sector. Some of these have required a 'leap of faith' (or at least a calculated gamble) as one ingredient in their success – as pioneering ideas often do. Another ingredient is often a substantial resource investment of time and/or capital, so it's no surprise that the biggest energy savings are being won by large companies with the capital and people to make them happen.

But what can a small or medium sized business do? Most have limited capital, and the financial resources they do have must be allocated to the most urgent needs. Can investment in energy efficiency be prioritised against these competing demands?

A priority list of the 'best' opportunities for an SME can look quite different to one for a large company, given the different priorities and investment capacity available.

The most suitable opportunities still depend on particular circumstances – truck type, duty cycle, annual mileage, type of loads, even the price of fuel – but we can generally say that financial viability will be the most important determinant for SMEs.

The most financially attractive actions are often called 'low hanging fruit' because they are the easiest to obtain.

Given the financial constraints of most SMEs, capital cost and fuel savings will be the most important considerations. These can be used in a decision making hierarchy like the one below, to help identify the priority opportunities for analysis or implementation.

- 1 Opportunities requiring the least capital (or establishment) costs
- 2 Opportunities with the best return on investment, or shortest payback
- 3 Opportunities producing the largest energy saving

### ► Least-cost opportunities

Prioritising least cost opportunities in the vehicle fleet as per the hierarchy, and applying some basic assumptions (\*see last page) for an average fleet, suggests the opportunities in Table 1 would be the most appropriate for SMEs.

**Table 1:** Least cost fleet opportunities for SMEs

Opportunity	Fuel saving (%)	Nominal cost (\$)
<b>Light Commercial Vehicles (vans, utes)</b>		
Remove aerodynamic clutter (roof racks, aerials, bullbars)	2%	\$100
Low rolling resistance tyres	2%	\$400
Environmental driver training	10%	\$500
<b>Light rigid trucks</b>		
Preventive maintenance	5%	\$600
Low rolling resistance tyres	3%	\$600
Tyre pressure monitoring	4%	\$650
<b>Heavy rigid trucks</b>		
Tyre pressure monitoring	4%	\$750
Environmental driver training	10%	\$850
Preventive maintenance	5%	\$900
<b>Articulated trucks</b>		
Limit top speed (e.g. 90km/h)	3%	\$1000
Reduce engine idling	2%	\$1000
Environmental driver training	10%	\$1200

From the results above, it is clear that a focus on low-cost opportunities favours changes in practices and policies, rather than upgrading equipment.

While this can prove effective, the long-term fuel saving will only be achieved if the change in behaviour/practice is properly implemented and maintained.

The maximum benefit achievable assumes that current practices are poor. Achieving these savings should therefore not be seen as assured or easy.

Applying a similar analysis to warehousing opportunities provides the results in Table 2.

Note, however, that the costs for refrigeration and materials handling are only described broadly rather than specifically – mainly because the costs would vary too greatly across different kinds of facilities and operations to nominate a single figure.

Prioritising return on investment (quick payback) would produce results that look somewhat different, as seen in Table 3 which represents the fleet opportunities with a payback focus.

Similarly, a focus on maximising fuel savings (in litres or as a %) would produce different results again. These can be seen in Factsheet 1 and Factsheet 2 as the opportunities with the highest fuel savings potential (%).

**Table 2:** Least cost facility opportunities for SMEs

Opportunity	Energy saving (%)	Nominal cost (\$/m <sup>2</sup> )
<b>Warehouse</b>		
Replace halogen lights to CFL	0.3%	\$0.10
Replace Minimum Energy Performance Standard (MEPS) motor with High Efficiency (HVAC)	0.1%	\$0.50
Upgrade to HE pumps (HVAC)	0.1%	\$1
<b>Coldroom</b>		
Set temperature to warmest safe setting	8%	LOW
Maintain thermal sealing	10%	LOW
Turn off lights when unoccupied	1%	LOW
<b>Material handling</b>		
Forklift driving practices	5%	LOW
Equipment timers/controls	2%	LOW
Fix compressed air leaks	3%	LOW



**Table 3:** Best payback fleet opportunities for SMEs

Opportunity	Payback (years)
<b>LCVs (vans, utes)</b>	
Environmental driver training	1
Remove aerodynamic clutter	1
Low rolling resistance tyres	2.4
<b>Light rigid trucks</b>	
Preventive maintenance	1
Tyre pressure monitoring	1.4
Aerodynamic roof scoop	1.5
<b>Heavy Rigid Trucks</b>	
Environmental driver training	0.3
Preventive maintenance	0.5
Tyre pressure monitoring	0.5
<b>Articulated Trucks</b>	
Environmental driver training	0.1
Reduce top speed (e.g. 90km/h)	0.2
Aerodynamic roof scoop	0.3

**\*Assumptions**

- Light commercial vehicles
  - > Annual mileage 30,000km
  - > Fuel consumption 11 L/100km
- Light rigid truck
  - > Annual mileage 45,000km
  - > Fuel consumption 17 L/100km
- Heavy rigid truck
  - > Annual mileage 80,000km
  - > Fuel consumption 30 L/100km
- Semi-trailer
  - > Annual mileage 160,000km
  - > Fuel consumption 50 L/100km
- B-Double
  - > Annual mileage 220,000km
  - > Fuel consumption 56 L/100km
- Diesel price \$1.50/L

**► More information**

**Case Study No.1 - Keysborough Spec 1**

New warehouse purchase case study  
<http://energy-efficiency.sclaa.com.au>

**Case Study No.2 - McGills Transport**

Transport company case study  
<http://energy-efficiency.sclaa.com.au>

**Energy Efficiency Assist**

A series of videos covering energy efficiency opportunities for the manufacturing sector: Motors &

Drives, Lighting, Process Cooling & Refrigeration, Boiler, Compressed air, Heating Ventilation Air Conditioning (HVAC), Easy wins, Demand Management, Energy Data Management, Understanding your bill

<http://energyefficiencyassist.com.au/onlineinteractivetools>

**Green Truck Partnership**

Trials of fuel-efficient technology under the Green Truck Partnership

[www.rms.nsw.gov.au/heavyvehicles/greentruck/](http://www.rms.nsw.gov.au/heavyvehicles/greentruck/)

**Fuel for Thought**

A federal government resource (under the EEO program) identifying energy saving opportunities in the road and rail freight sectors

<http://eex.gov.au/files/2012/03/Fuel-for-Thought.pdf>

**Green Vehicle Guide (for light commercial vehicles)**

The Green Vehicle Guide helps you by rating new Australian vehicles based on greenhouse and air pollution emissions

[www.greenvehicleguide.gov.au](http://www.greenvehicleguide.gov.au)

**EEX Case Study: Linfox Ecodriving\***

Linfox Energy Efficiency Opportunities (EEO) example - driver training program that teaches ten key techniques including driving in the lane of least resistance, using the appropriate gear and avoiding heavy braking

[http://eex.gov.au/case-study/linfox-eco-driver-training/#Linfox\\_Eco-Driver\\_training](http://eex.gov.au/case-study/linfox-eco-driver-training/#Linfox_Eco-Driver_training)

**The following are private sites. SLCAA does not endorse these sites but is supplying the links for user reference only.**

**Forklift driver tips for cost efficient driving\***

20 simple tips for keeping drivers and load safe and moving up to speed and reduce needless energy wastage and wear and tear

<http://www.toyota-forklifts.eu/en/Support/Pages/CB-driving-tips.aspx>



Learn more on how to make your business more energy efficient at [sclaa.com.au](http://sclaa.com.au)

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