



Driving down transport energy costs

✓ Key features

- Improving fuel efficiency in Winstone Aggregates' transport fleet
- Fleet audit to identify opportunities
- A suite of solutions for fleet efficiency, fleet management and staff buy-in

✓ Key benefits

- Beat targeted fuel use by 10%
- On track for savings of over \$335,000 per year

When your business depends on your transport fleet, you want to be sure you're getting the most out of every litre of fuel. With diesel representing over 80% of its energy costs and fuel prices rising, Winstone Aggregates was looking for ways to drive down costs and improve its fleet fuel efficiency.

By adopting a suite of solutions to cut their per-kilometre fuel use, this company has improved its margins without the need for dramatic increases in cartage prices – and it has reduced its emissions as well.

The challenge

As New Zealand's largest aggregate company, Winstone Aggregates burns through a lot of fuel moving cargo from A to B – its fleet travels around 5.5 million kilometres each year. It has 26 quarries nationwide extracting 4.5 million cubic metres of material every year for roading, building and industry, and a loaded truck and trailer leaves one of its quarries every 35 seconds.

With diesel representing around 83% of the company's energy costs and 8% of total

company expenditure, energy efficiency is an extremely important area to focus on.

Finding ways to make efficiency gains would improve their overall margins without the need to push through dramatic increases in cartage prices.

As well as improving the bottom line, it would also have positive environmental impacts – an important co-benefit for a company that has been on the road to reduced fuel use and emissions since the early 1980's, when its first Group Environmental Officer was appointed.

"The most tangible way to reduce our footprint is to do more with less and hence we have a very strong focus on efficiencies across all our operations," says General Manager, Bernie Chote.



Covering trucks at all times can create energy savings of around 8%.



Monitoring fuel use enables fuel efficiency targets to be set and measured against.

Identifying the opportunities — the fleet audit

To get a good idea of where it could be improving the transport fleet's fuel efficiency, Winstone Aggregates — with part funding from EECA — hired energy efficiency specialists Envirostate to conduct an independent fleet audit.

Though the audit confirmed the company was already heading in the right direction, Transport Manager Brett Horrobin says it helped to clarify a few important areas, such as identifying what they couldn't control and what they could.

"More of our fleet are now working on 'premium highways' — roads that are undulating or steep — like the Napier-Taupo road, or Matakana Valley to North Shore. These roads have a negative impact on our overall fuel efficiency and, while we can't do much about road terrain or conditions, the report highlighted many other things we can control that will greatly improve our overall fuel efficiency."

As a result of the opportunities identified in the fleet audit, Winstone Aggregates has introduced a range of fuel efficiency policies that are having very positive impacts on their bottom line.

Making it happen

The most obvious place to start was with the choice of power plant, and Winstone Aggregates devoted considerable time researching engine efficiency, identifying a combination of Detroit Diesel and Scania engines as the best fit for their operation. Both options meet the new Euro4 (emission) standards for diesel engines that came into effect on 1 January 2009.

As the company's fleet is leased, it has been replacing less efficient power plant as each vehicle's lease expires, with all but five of the most inefficient vehicles now replaced.

Beyond the power plant, Brett Horrobin says there are five key ways the company has achieved significant savings — and at a very low cost to the business.

Reducing idling time has had a real impact on fuel efficiency. By encouraging drivers to turn their engines off when picking up loads, and better planning journeys to avoid traffic congestion, the company has managed to reduce idling times from 12% to just 6%.

Having covers on trucks at all times — loaded *and* unloaded — could create energy savings of around 8% according to the fleet audit, even though Winstone Aggregates' truck and trailer units are already manufactured to high aerodynamic standards. Loaded Winstone Aggregates trucks are already covered to stop particles from blowing out, so it was an easy step for the company to introduce a policy to cover unloaded trucks too.

Reducing vehicle speed by around 10 kilometres per hour (kph) can reduce fuel consumption by around 0.25 litres per kilometre, which prompted the company to fit all their new electronic engines with 90 kph speed limiters. Not only do speed limiters reduce fuel consumption, they also reduce the number of traffic infringements — and that's good for the company's ambition to have a 5-star ORS (Operator Rating Scheme) rating.

Tyre management for its North Island fleet is outsourced to a specialist tyre company, but Winstone Aggregates operates an internal programme alongside this that checks one truck and trailer unit per day for tyre pressure and general wear and tear. While this may seem excessive, overseas research has found that operating tyres at optimal pressure can result in fuel savings of up to 3%.

The final area that Winstone Aggregates focuses on is **travel planning and management**, using GPS route monitoring to minimise idling times and maximise backloading opportunities to reduce overall mileage. For example, a truck taking a load from the Hunua quarry into central Auckland will often pick up a load from either Three Kings or Puketutu Island on the way back.

The company also tries to send trucks on routes or destinations that eliminate the need to travel on congested highways during peak times. This can be a challenge in places like the Auckland region, but Horrobin says this is what you should strive to do if you are serious about fuel efficient despatching. Winstone Aggregates operates two trucks at night (there is an estimated 10% efficiency gain from transporting aggregates between 6 pm and 6 am).

Together, Horrobin says, these steps are key to running a fuel efficient fleet. “Reducing idling times, covering loads, reducing speeds, maintaining tyres and better travel planning — five really simple improvements that will significantly reduce fuel consumption.”

Getting drivers on board

Horrobin is quick to highlight that the Winstone Aggregates’ ambitious fuel efficiency targets won’t be achieved without the full support of their drivers.

It’s for this reason the company sent its Auckland drivers on a specialist fuel efficient driving practices course.

Making drivers part of the fuel efficiency solution is also why the company’s actual fuel efficiency performance is monitored against targets each month and every driver’s performance (versus the company target) is displayed on the smoko room wall for all the other drivers to benchmark against.

The importance of being able to show drivers how they’re performing was illustrated when the company recently spent three months changing their fleet GPS tracking devices, says Horrobin.

“During this period we couldn’t access any data so were unable to provide our drivers with individual performance feedback — our average idling times increased from 6% to 9% as a result.”

“With the changeover complete drivers are once again receiving regular feedback and we’re heading back down towards 6%, but it was a very clear example that you need to stay on top of things if you want to keep any efficiency gains.”



Every driver’s performance against the company target is displayed on the smoko room wall.



Operating tyres at optimal pressure can result in fuel savings of up to 3%.



It all adds up

Winstone Aggregates has set itself a fleet fuel use target of 2 kilometres per litre (km/L) for 2009. The company is currently on track to achieve the target and, if it continues this way, will better its 2008 results by 0.2 km/L.

While an improvement of 0.2 km/L doesn't sound much, it's a 10% saving that would reduce fuel use by 305,000 litres and result in all-round savings of \$335,000 a year (at \$1.10 per litre fuel prices). It would also mean a significant reduction in emissions.

Brett Horrobin says it's sometimes difficult to quantify individual components within the company's overall savings — but he can live with that.

“The low implementation costs mean they are all contributing to the bottom line and providing a compounding effect to our overall savings.

One key measure in fuel efficiency is km/L travelled, so if we can see this improving, we know the changes are having a positive impact.”

Tips for improving fleet efficiency

- Start monitoring your fuel use
- Do your homework on your engine choice
- Limit speed
- Cover trucks and trailers, loaded or not
- Reduce excessive idling
- Keep tyres at optimal pressure
- Plan trips and optimise vehicle use
- Get your drivers on board

EECA enables organisations to increase their domestic and international competitiveness by adopting energy efficiency and renewable energy practices.

We work with businesses to identify the opportunities for energy management that are available to them and help them develop energy management action plans to make the most of these opportunities.

Good energy management has many benefits for businesses, including lower costs, increased productivity, reduced greenhouse gas emissions and a positive effect on the brand.

We have a particular interest in:

- encouraging new or under-used technology that can make processes more efficient
- projects that reduce greenhouse gas emissions, and
- developing the wood fuel industry.

 For more information contact
The Energy Efficiency and
Conservation Authority:

EECA HEAD OFFICE:

PO Box 388, Wellington, (04) 470 2200

EECA AUCKLAND:

PO Box 37444, Parnell, Auckland, (09) 377 5328

EECA CHRISTCHURCH:

PO Box 13983, Christchurch, (03) 353 9280

www.eecabusiness.govt.nz

JULY 2009