

RED PAPER

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Take a fresh look  
at your fleet's fuel  
usage to deliver  
big savings and  
sustainability

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## Take a fresh look at your fleet's fuel usage to deliver big savings and sustainability

Fleet fuel costs can be up to 20% of an operator's costs, and the environmental and public health impact can be significant with transport in New Zealand contributing to 40% of emissions.<sup>1</sup>

An EROAD study found that our customers improved their fuel efficiency by an average of 6% after one year. This paper shares how a focus on safety, idling and active management can deliver these efficiencies, reduce fuel waste and improve your bottom line.

Electric vehicles are increasingly an option for fleet managers. This paper looks at key considerations to take into account when trying to understand if they are for your fleet.

### Savings that go straight to the bottom line

In transport, as in most competitive industries, there can be a fine line between profit and loss. The most recent RTF (Road Transport Forum) Operator Survey 2015<sup>2</sup> reports an average operating profit across transport operators of 6%. It's notable that this value averages a wide range of variable returns across different activity groups; for example from 0.25% for intercity up to 13% for metro fleets.

It's worth remembering that any reduction in expenses goes straight to your bottom line. For example, taking the annual operating profit per truck (after allocated salary) across the industry of \$12,687, fuel savings of 20% for one vehicle will directly lift the profitability of the truck, and your business.

We undertook a study to find out more about our customer's journey with EROAD. We were pleased to find that more than half our customers saw a 6% improvement in fuel efficiency after one year of installing EROAD units and back office system in their business. Moreover, those that have engaged with their drivers to encourage improvement have enjoyed savings of up to 20%.



**MORE THAN HALF**  
OF EROAD CUSTOMERS  
saw **6%**  
improvement in fuel efficiency

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"EROAD has impacted our business in a beneficial way. It has so far brought down our over speed events from approximately 25,000 over speed events per month to 1200. It's reduced our overall fuel bill by approximately 20%."

**Simon Batchelor**, *Fleet & Procurement Manager, McConnell Dowell*

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#### OVER SPEED EVENTS



approx. **25,000**  
per month

#### OVER SPEED EVENTS WITH EROAD



approx. **1200**  
per month

### Safety pays

At EROAD we often talk about safety – not only due to the increased responsibility on operators under the Health & Safety At Work Act April 2015, but because safety is one of our company’s core values. We seek zero harm for all workers in our business, and our mission is to support our customers to achieve the same, and to ensure that all drivers come home safely to their families every day.

The good news is that a focus on safety and improving driver behaviour delivers fiscal benefits through improved fuel consumption.

EROAD’s health and safety suite of products has certainly delivered compelling returns to our customers:

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“EROAD has also had a huge impact on fuel costs. In the first month of using EROAD we received 7000 over-speed alerts. We now see fewer than 150 a week. As a result I’ve seen my fuel cost drop by up to \$3000 per month, with increased utilisation and kilometres travelled by the fleet.”

**Ken McEwen**, *Manager Security & Campus Community Support*  
*The University of Canterbury, Christchurch*

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Focus areas for toolbox meetings on the topics of safe driving and fuel costs are:

- **Target speeding.** Good quality speed analytics can help you actively change drivers on-the-road habits: Reducing peak speed by just 8km/hr saves 10% to 15% in fuel consumption, according to EECA<sup>3</sup> (Energy Efficiency and Conservation Authority).
- **Drive smoothly – reduce harsh braking and acceleration.** When drivers accelerate more than is required they may then need to brake – wasting kinetic energy. The ‘Eco-driving System’ recommends ‘recommend accelerating quickly, but smoothly – a fuel-efficient strategy is to drive in such a way so as to minimise acceleration and braking, and maximise coasting time<sup>4</sup>’.
- **Anticipating the road ahead.** By anticipating other traffic movements, and traffic control device changes such as traffic lights, fuel wasted in excessive braking and acceleration can be reduced. An additional citizenship benefit – is that where a driver gives advance notice of their intentions it helps other road users to drive smoothly and also reduce their fuel usage.



## Know what's happening in your business

*"The most dangerous kind of waste is the waste we do not recognize"*, said Shigeo Shingo, a world expert on manufacturing practices and the Toyota Production System.

Understanding your current fleet fuel spend is central to controlling fuel expenses and finding opportunities to reduce waste.

Some metrics to baseline, monitor and manage on an ongoing basis include:

- **Fuel efficiency** – km/l or l/100km
- **Total fuel usage** – cost and litres per month
- **Fuel expenses ratio** – % fuel contribution to the cost-per-km.

As you engage in a programme to improve fuel efficiency, telematic systems such as EROAD's are critical to providing clear analytics on fuel consumption, and allowing you to monitor progress.

Here are six things to look for in advanced fuel monitoring:

- 1. Fuel purchase details transmitted electronically from your supplier (API capable).** There should be no need for back office staff to spend time manually uploading data into the system. You should be able to enter bulk fuel transactions to supplement fuel card transactions.
- 2. Fuel burn required for auxiliary equipment is excluded.** It should be easy to set up idling reporting so it automatically excludes engine fuel burn required to power auxiliary equipment.
- 3. One fuel card to one vehicle.** Km/l or l/100km fuel efficiency measures are only accurate if all fills for the vehicle are recorded. Ensure that plant or other auxiliary equipment has its own fuel card, otherwise fuel statistics will be skewed.
- 4. Exceptions analytics based on smart algorithms** are required to help you quickly spot fuel card misuse.
- 5. Benchmarking against the national fleet.** Look beyond your own fleet's performance to see how your vehicles compare with national benchmarks per make and model - available in sophisticated reports such as EROAD's Fuel Efficiency report.
- 6. Route monitoring.** The most expensive trip is the trip that wasn't required. Use analytics such as EROAD's Trip Investigator to identify out-of-hours or off-piste travel that is needlessly burning your company's fuel.

## Cut out the idling

When a customer signs up to EROAD, owners and fleet managers are often surprised when the amount of time their vehicles spend idling is revealed.

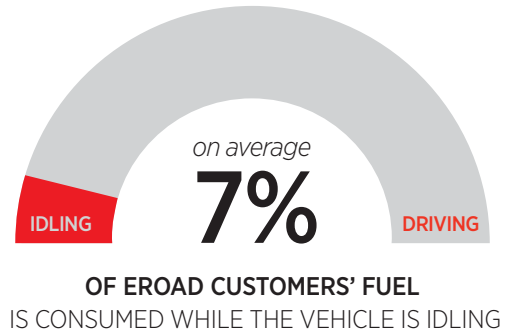
At EROAD we found that idling is a leading factor in fuel waste. In fact in a recent study, on average 7% of customers' fuel consumption was burned in vehicle idling. Moreover this 7% fuel was consumed by non-productive idling only – productive idling such as that required to run compressors, cranes and other auxiliary equipment is exempt.

Non-productive idling is expensive. For a large truck travelling 100,000 km per year, the savings from reduced idling could be worth \$3,000 per year<sup>5</sup>. Across a fleet of 50 vehicles this adds up to an annual saving of \$150,000.



### How easy is it to reduce fuel wasted by vehicle idling?

- **Let your drivers know you care.** If your drivers know you are monitoring idling, regularly and on an ongoing basis, they will respond. Consider pinning up reports on the notice board or displaying the reports dashboard on a TV in the office.
- **Monitor true idling.** Ensure that your telematics provider has the in-cab unit correctly wired to report genuine engine idling only. You probably don't need to know when the driver is parked up, key in ignition, listening to the radio.
- **Alternative power sources.** Heaters, traffic management warning lights, powering in-cab accessories, all account for drivers idling their truck engines. Consider auxiliary power units (APUs), either diesel or electric battery powered. While they may come with a relatively high upfront cost it could save you money in the long run.
- **Start/stop technology.** This eliminates idling by shutting off the engine when the vehicle is stationary, then restarts it automatically when the driver releases the brake. Navigant research reports that by 2021 more than half of all light-duty vehicles sold worldwide will incorporate stop-start capability<sup>6</sup>. While adoption has been slower amongst truck manufacturers it is gaining momentum. Ford anticipates that soon more than 60% of its full-size trucks coming off the assembly line will have start/stop technology<sup>7</sup>.



## Go electric

The Tesla Roadster debuted in 2008 and reignited the electric vehicle revolution with the first road legal vehicle to be fully powered by lithium-ion battery cells<sup>8</sup>. Today a growing range of electric light vehicles including vans, utes and even light trucks such as Fuso's eCanter are rolling out into dealerships, with the promise of the Tesla Semi to come in 2019.

So are EVs right for your fleet? The cost of running an EV is equivalent to 30c per litre at the pump, but the upfront cost can be a disincentive for some. Ask yourself these questions if you're considering going electric:

**How far do you travel?** Range is a key EV metric, and range anxiety is to be avoided. Use advanced analytics such as EROAD's Trip Investigator to understand average and peak daily travel by vehicle, which is likely a critical input into fleet selection.

**What activities does your fleet undertake?** Your fleet composition will be informed by your businesses activities. Survey your drivers to fully understand vehicle activity and which equipment is essential to your fleet.

**How are you going to charge your vehicles?** Based on vehicle trip patterns it may be most cost effective to invest in an on-site fast charger at your premises. If you expect employees to charge vehicles overnight, consider a reimbursement plan.

**Does the cost of ownership stack up?** While the initial outlay may be higher, manufacturers claim a payback (including amortisation) in three years<sup>9</sup>. Fiscal benefits are numerous:

- Zero petrol or diesel costs, and low electricity charges.
- Reduction in maintenance costs since the vehicle has fewer parts.
- RUC exemption for EVs until they make up 2% of the heavy vehicle fleet<sup>10</sup>
- EVs may be granted access to special vehicle lanes, saving time and delivering productivity savings (including transit, high occupancy vehicle, priority bypass, and bus lanes)<sup>11</sup>

Reports such as EROAD's Fleet Summary can help you understand and monitor cost of ownership across the lifetime of the vehicle.



## References

- <sup>1</sup> <https://www.eecabusiness.govt.nz/sectors/transport/#fuel-efficiency>
- <sup>2</sup> [https://www.rtfnz.co.nz/download/26/downloads/950/frank\\_scrimgeour.pptx](https://www.rtfnz.co.nz/download/26/downloads/950/frank_scrimgeour.pptx)
- <sup>3</sup> <http://www.nzta.govt.nz/assets/resources/research/reports/482/docs/482.pdf>
- <sup>4</sup> <https://pdfs.semanticscholar.org/ef87/fcde668df78279f4d5e8cc45ba8343e5b1c0.pdf>
- <sup>5</sup> <https://www.eecabusiness.govt.nz/sectors/transport/driver-behaviour/idling>
- <sup>6</sup> <http://www.hybridcars.com/stop-start-technology-found-on-half-of-vehicles-by-2021>
- <sup>7</sup> <https://gearheads.org/full-size-ford-trucks-gain-startstop-technology-in-2017>
- <sup>8</sup> <https://www.tesla.com/about>
- <sup>9</sup> <http://www.transport.govt.nz/ourwork/climatechange/electric-vehicles>
- <sup>10</sup> <http://www.transport.govt.nz/ourwork/climatechange/electric-vehicles/special-vehicle-lanes>
- <sup>11</sup> <http://fuso.co.nz/news/fuso-leads-charge-light-truck-brigade>

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EROAD Fuel Usage Study completed in August 2017, authored by **Nishita Balamuralikrishna**, Analytics Engineer.

## ABOUT EROAD

EROAD modernises road charging and compliance for road transport by replacing paper-based systems with easy-to-use electronic systems. The company is headquartered in Auckland, New Zealand, and listed on the New Zealand Exchange (NZX). Its US business is based in Portland, Oregon, serving customers with vehicles operating in every US mainland state, growing outward in concentration from the Northwest. In 2009 EROAD introduced the world's first nationwide electronic road user charging (ERUC) system in New Zealand and, in 2017, more than 50% of heavy transport RUC is expected to be collected electronically, representing a rapid transition to e-commerce on a voluntary, industry-led basis, due to the cost-savings and benefits to customers. EROAD is also a leading provider of health and safety compliance services, including vehicle management and driver behaviour and performance measures.