Behavioural change through a fuel efficiency programme

Dom Kalasih
Z Energy

John Doesburg,
Energy Efficiency Conservation Authority

Abstract

This paper shares the approach taken and progress of a New Zealand government led and subsidised heavy vehicle fuel efficiency programme (Programme). The key goal of the Programme was fuel saving however, a number of co-benefits to the transport operator businesses, tangible and intangible, also became evident. The co-benefits could be broadly categorised as financially benefiting the business or benefiting the behavioural aspects of how the business was operated. Tangible co-benefits include reduced downtime and cost savings associated with improved safety, reduced complaints from the public, less time spent at roadside with enforcement agencies and a reduction in repairs and maintenance. The intangible co-benefits include higher levels of staff engagement, personal growth, a shift to a more systemic approach with managing the business and improved discipline. For its 2015 financial year EECA estimated savings of 4.7 million litres could be achieved through its programme.

1.0 Background

Transport accounts for almost 40% of New Zealand's energy use. With almost 100% of vehicles fossil-fuelled, the sector is responsible for more than 50% of New Zealand's energy-related carbon emissions (about 20% of New Zealand's total). The Organisation for Economic Cooperation and Development and the International Transport Forum's Joint Transport Research Centre found that, assuming a business-as-usual scenario, global CO2 emissions from transport are likely to grow by 120% by 2050 if action is not taken.

The Energy Efficiency Conservation Authority (EECA) is a Crown Entity established under the Energy Efficiency and Conservation Act 2000. EECA estimates that savings of more than $2b (NZ) could be achieved by making better choices on how energy is used.

The heavy vehicle sector consumes approximately 20% of all transport energy - about one billion litres of diesel per annum – and it has been estimated there is potential for fleet operators to save up to 15% of their fuel use.

In July 2012 EECA led the implementation of a government funded initiative which is expected to save New Zealand's heavy vehicle fleets a total of 17 million litres of diesel per year, and reduce carbon emissions by approximately 45,900 tonnes a year, which is equivalent to the carbon emissions released by 16,000 light vehicles in New Zealand's fleet.

2.0 The EECA Programme

2.1 Programme Overview

The Programme has a defined structure illustrated in Table 1 below. The 4 key stakeholders include EECA; the Fleet Operator or heavy vehicle transport business/company (Operator); the Heavy Vehicle Performance Advisor (HVPA) for which the role title later changed to Fuel Management Advisor (FMA); and TR Group, a specialist heavy vehicle provider that was contracted by EECA to provide training and support delivery of the Programme.

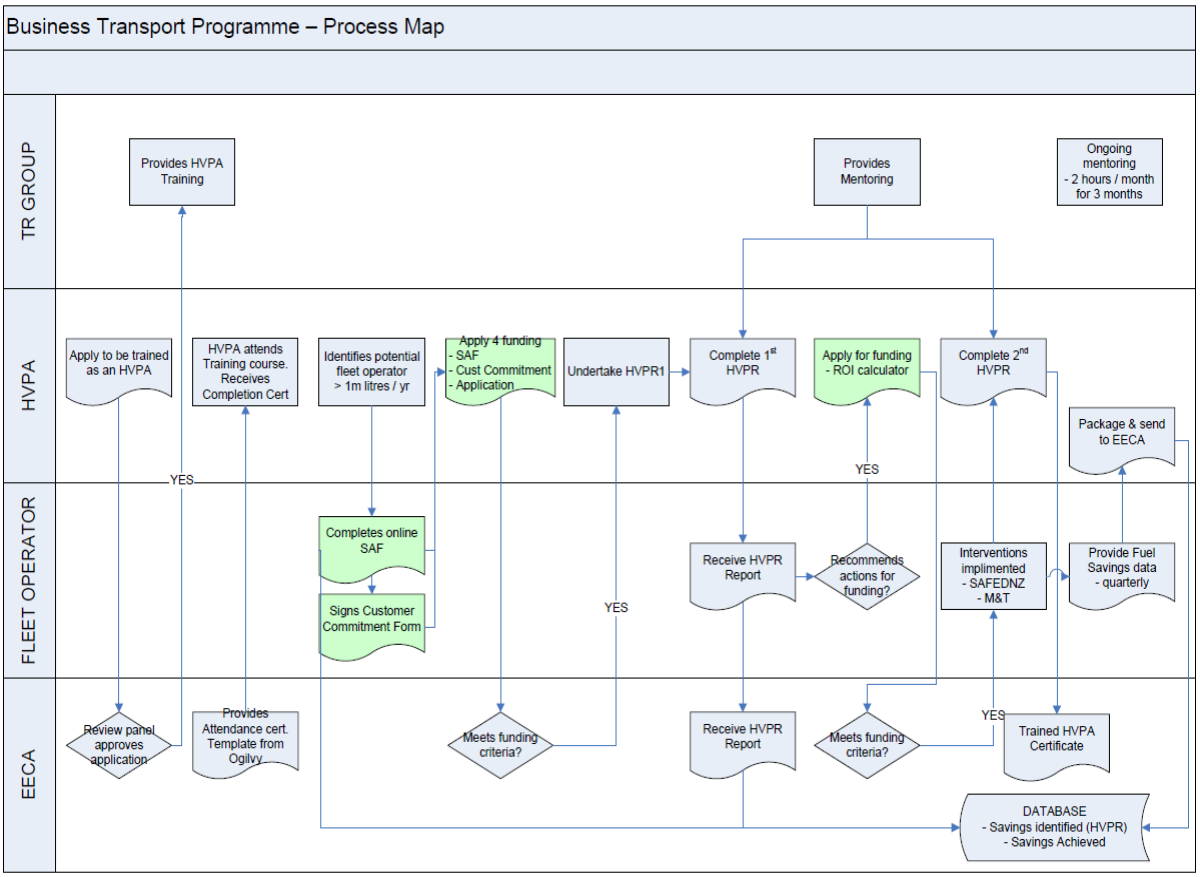


Table 1. Business Transport Programme – Process map

As the Programme evolves learnings and experience are taken into account and the Process Map is modified. The most substantive change to date has been streamlining the process by removing the requirement for the second Heavy Vehicle Performance Review (HVPR). As a consequence, once funding is approved the FMA begins working with the operator to implement the interventions identified.

2.2 Programme Training and Preparation

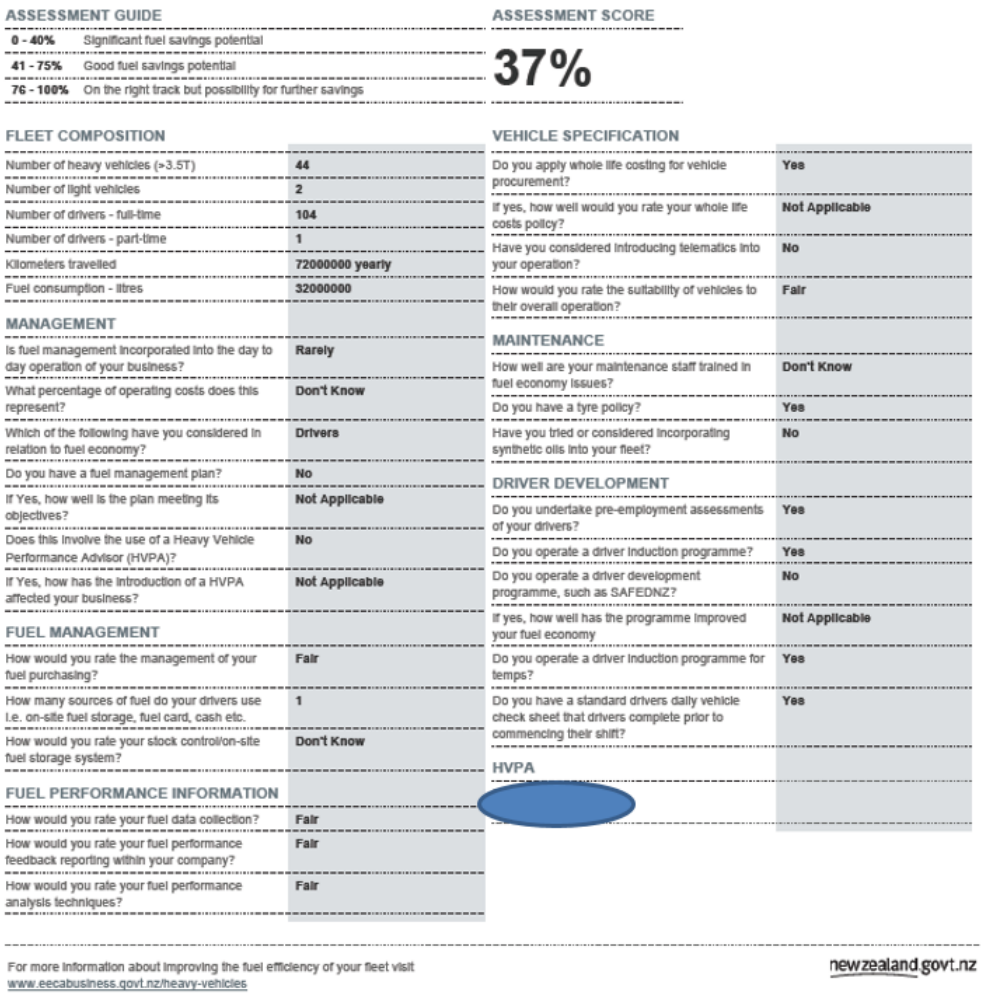
To assist with delivery of the programme EECA trained and accredited a number of Fuel Management Advisors (FMA), 37 FMA's being trained to date. The training provides knowledge to identify fuel saving opportunities and implement a fuel saving programme for

large fleets. It also helps to build fuel efficiency capability in the transport sector. EECA's Programme guides fleets through a review of their business with respect fuel management as well as helping to implement initiatives (interventions) and monitor resulting changes to ensure the savings are sustained over the long term.

EECA also trained several Safe and Fuel Efficient Driver New Zealand (SAFEDNZ) trainers, these being capable of providing direct instruction to drivers or instructing fuel efficient driving techniques to Driver Trainers already working within the Operators' businesses.

2.3 Programme Implementation

For an Operator, the first stage of the process is to complete an on-line Self-Assessment Form (SAF), an excerpt is shown in Figure 1 below. It is recommended that several SAFs be completed by staff undertaking a variety of related roles across the business activity, such as the Chief Financial Officer, the Operations Manager and the Driver Trainer. The SAF includes a range of questions about fuel management and generates a score and indicates potential fuel savings respectively. In some cases, wide variance in the SAF score across a business activity is a useful insight in itself. In other cases the SAF is useful in terms of being informative and creating awareness for the Operator in regard what is necessary to manage fuel.



ASSESSMENT GUIDE	
0 - 40%	Significant fuel savings potential
41 - 75%	Good fuel savings potential
76 - 100%	On the right track but possibility for further savings

ASSESSMENT SCORE: 37%

FLEET COMPOSITION	
Number of heavy vehicles (>3.5T)	44
Number of light vehicles	2
Number of drivers - full-time	104
Number of drivers - part-time	1
Kilometers travelled	72000000 yearly
Fuel consumption - litres	32000000
MANAGEMENT	
Is fuel management incorporated into the day to day operation of your business?	Rarely
What percentage of operating costs does this represent?	Don't Know
Which of the following have you considered in relation to fuel economy?	Drivers
Do you have a fuel management plan?	No
If Yes, how well is the plan meeting its objectives?	Not Applicable
Does this involve the use of a Heavy Vehicle Performance Advisor (HVPA)?	No
If Yes, how has the introduction of a HVPA affected your business?	Not Applicable
FUEL MANAGEMENT	
How would you rate the management of your fuel purchasing?	Fair
How many sources of fuel do your drivers use i.e. on-site fuel storage, fuel card, cash etc.	1
How would you rate your stock control/on-site fuel storage system?	Don't Know
FUEL PERFORMANCE INFORMATION	
How would you rate your fuel data collection?	Fair
How would you rate your fuel performance feedback reporting within your company?	Fair
How would you rate your fuel performance analysis techniques?	Fair

VEHICLE SPECIFICATION	
Do you apply whole life costing for vehicle procurement?	Yes
If yes, how well would you rate your whole life costs policy?	Not Applicable
Have you considered introducing telematics into your operation?	No
How would you rate the suitability of vehicles to their overall operation?	Fair
MAINTENANCE	
How well are your maintenance staff trained in fuel economy issues?	Don't Know
Do you have a tyre policy?	Yes
Have you tried or considered incorporating synthetic oils into your fleet?	No
DRIVER DEVELOPMENT	
Do you undertake pre-employment assessments of your drivers?	Yes
Do you operate a driver induction programme?	Yes
Do you operate a driver development programme, such as SAFEDNZ?	No
If yes, how well has the programme improved your fuel economy	Not Applicable
Do you operate a driver induction programme for temps?	Yes
Do you have a standard drivers daily vehicle check sheet that drivers complete prior to commencing their shift?	Yes
HVPA	

For more information about improving the fuel efficiency of your fleet visit www.eecabusiness.govt.nz/heavy-vehicles

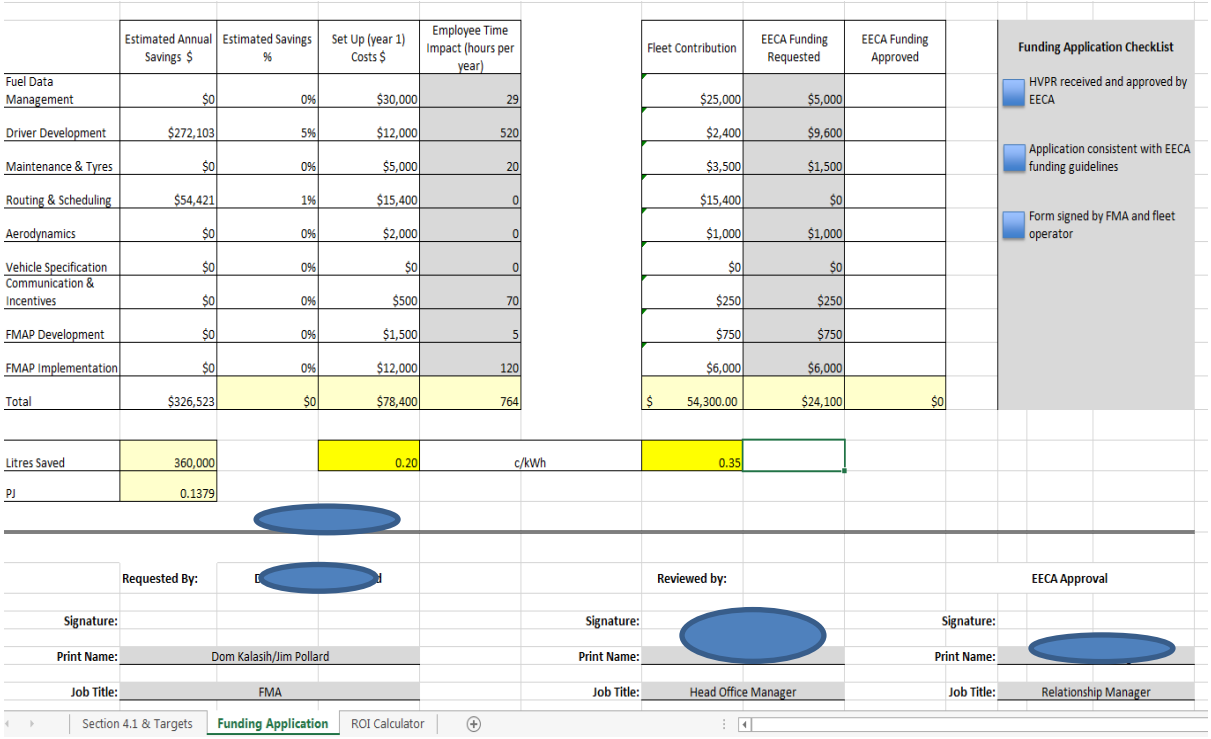
newzealand.govt.nz

Figure 1. Excerpt from Self- Assessment Form

The second step of the process is to formalise the Operator's commitment to the programme by signing a Business Transport Fuel Efficiency Commitment Form. By signing the form the Operator agrees to: have a Heavy Vehicle Performance Review (HVPR) undertaken by an FMA; implement the initiatives, and provide fuel data on a quarterly frequency to EECA.

The SAF provides the Operator with an initial high level understanding and awareness of the potential opportunities and benefits to business resulting from improved fuel management. EECA uses the fuel volume and vehicle kilometres travel data to establish fuel and consumption data being managed within its overall programme. The SAF and the Fuel Efficiency Commitment Form are important for engaging the Operator.

Once funding approval is granted the FMA undertakes a detailed assessment of fuel management (HVPR) across the business activity. This typically takes 4 to 6 hours during an on-site visit to collect data and information and is predominantly completed by interviewing various personnel across the business. EECA provides template questionnaires which can be completed electronically on site and this ensures a view can be formed on the degree of systemic fuel management embedded in the respective business activity. The HVPR focusses mainly on the following 7 areas: Fuel data management; Driver development; Maintenance and tyres; Routing and scheduling; Aerodynamics; Vehicle specification; and Communication (internal and external to the business). Reviews typically include a vehicle walk-around, a tyre inspection and assessment of loading and parking manoeuvres. After completing the data gathering phase the FMA documents findings, the main elements including: a description of the business activity; demographics of the fleet; fuel consumption summary; Observations and Opportunities for each of the 7 areas above; and Recommendations with respective financial costs and benefits. The Review is submitted to EECA and subject to its approval the FMA and Operator develop a more detailed action plan and request subsidised funding, an example is shown in Figure 2 below.



	Estimated Annual Savings $	Estimated Savings %	Set Up (year 1) Costs $	Employee Time Impact (hours per year)	Fleet Contribution	EECA Funding Requested	EECA Funding Approved
Fuel Data Management	$0	0%	$30,000	29	$25,000	$5,000	
Driver Development	$272,103	5%	$12,000	520	$2,400	$9,600	
Maintenance & Tyres	$0	0%	$5,000	20	$3,500	$1,500	
Routing & Scheduling	$54,421	1%	$15,400	0	$15,400	$0	
Aerodynamics	$0	0%	$2,000	0	$1,000	$1,000	
Vehicle Specification	$0	0%	$0	0	$0	$0	
Communication & Incentives	$0	0%	$500	70	$250	$250	
FMAP Development	$0	0%	$1,500	5	$750	$750	
FMAP Implementation	$0	0%	$12,000	120	$6,000	$6,000	
Total	$326,523	$0	$78,400	764	$ 54,300.00	$24,100	$0

Litres Saved	360,000		0.20	c/kWh	0.35
PJ	0.1379				

Funding Application CheckList

- HVPR received and approved by EECA
- Application consistent with EECA funding guidelines
- Form signed by FMA and fleet operator

	Requested By:	Reviewed by:	EECA Approval
Signature:			
Print Name:	Dom Kalasih/Jim Pollard		
Job Title:	FMA	Head Office Manager	Relationship Manager

Section 4.1 & Targets | Funding Application | ROI Calculator

Figure 2. Application for action plan funding

On receipt of EECA funding the FMA implements the respective Programme. The first stage is setting up a Fuel Efficiency Working Group (FEWG), the membership being a representation from those parts of the business that are directly involved in the implementation of the Programme. This group collaboratively develops a Fuel Management Action Plan (FMAP) which includes the intervention and project style delivery times lines assigned to FEWG members.

The business activities included under Programmes are wide and varied as are the degree of systems and processes for managing fuel. Fleet activities include transport of fuel, logs, cars, cement, general freight, milk and stock transport. In most cases the initial focuses are in the areas of data management, driver training and communication. Data management is particularly critical to enabling the operator to report back to EECA on fuel savings.

EECA nominated the key performance indicator to be fuel consumption (km/l) aggregated across the Operator's business. EECA's intent was to use the cumulative distance travelled and fuel consumed across all Operator programmes as the primary means of tracking the success of the programme. This approach was taken given the relatively large number of operators and the diversity of the various initiatives being implemented in each of the programmes. Where possible, another key performance metric tracked is Energy Intensity (fuel consumed per tonne-km) however for many Operators this is proving too difficult to measure.

3.0 Reporting and Results

3.1 Operator involvement

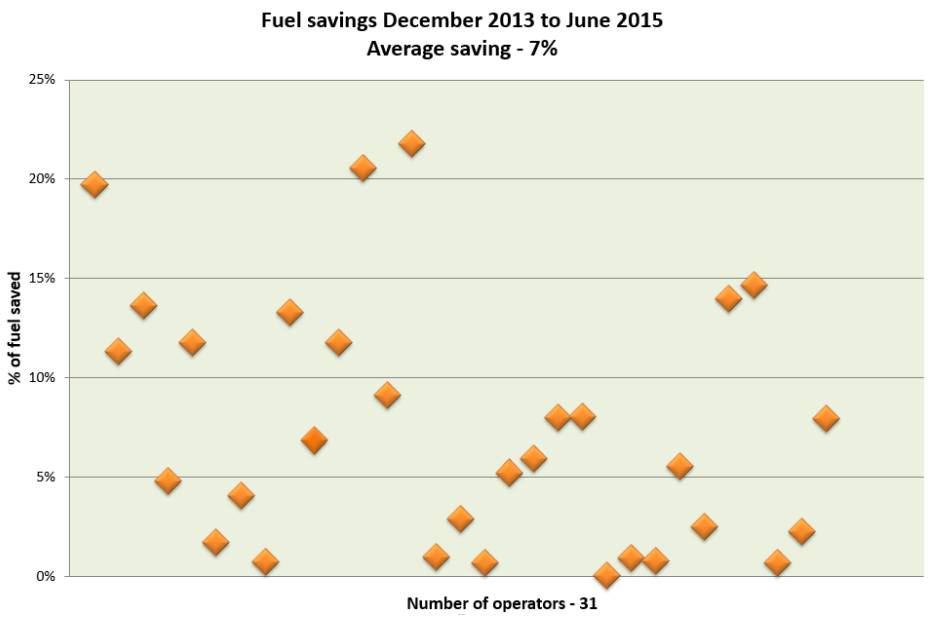
Table 2 below lists are EECA records on the number of Operators enrolled in Programmes and the annual fuel volume attributable to the respective Operators

Financial year	Number of operators joining	Annual fuel use (m/litres)
2012-13	26	52.6
2013-14	48	80.3
2014-15	58	79.8
	132 (total number of Operators)	212.7

Table 2. Operators and annual fuel volumes managed under EECA programmes

3.2 Fuel savings across programmes

Graph 1 below illustrates the average fuel savings made by fleets enrolled in the EECA programmes. For a variety of reasons, a number of Operators have not provided fuel data to the necessary level of quality that EECA required hence the reason for the variance between the total number of Operators and the 31 Programmes in Graph 1.



Graph 1. Operators and % fuel savings

3.3 Examples of individual fleet reporting

3.3.1 Operators typically monitored and tracked individual vehicle consumption.

Some operators use telematics and fuel purchase data to monitor km/l for each vehicle. Others use more manual systems (drivers record distance travelled between refuels to report km/l for each vehicle. A typical report is shown in Table 3 below.

	Totals (July-14 to Jan-15)				
	Distance	Fuel Qty		Consumption	
CODE	(km)	(Litres)	Z DEC	L/100km	km/L
L312	90411	48825.3	0	54.00	1.8517
L313	56663	31703.5	0	55.95	1.7873
L314	37571.7	12392.1	0	32.98	3.0319
L315	20390	11627.1	0	57.02	1.7537
L316	3845	1117.19	0	29.06	3.4417
L317	28574	11993.3	0	41.97	2.3825
312	74387	34494.3	1216.02	48.01	2.0831

Table 3. Individual Fuel Consumption

3.3.2 Quarterly reporting on cumulative fuel consumption and Programme implementation

Figure 3 below illustrates typical Quarterly reporting that was provided to EECA. In this case the Operator was Pacific Fuel Haul, the customer receiving the transport services Z and CCS was a third party engaged to independently validate the data and provide reporting services

Reporting includes a progress report on rollout of the key interventions, in this case vehicle replacement, driver training, tyre audits and telematics installations.

PACIFIC FUELHAUL Ltd.

CCS Innovation in Logistics Ltd.

3 Month Benchmark Starts	Nov-13
KM/L Benchmark Consumption	2.22

	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Distance	572,575	567,236	595,967		
Fleet KM/L	2.24	2.24	2.24		
% Difference in KM/L	0.99%	0.87%	1.07%		
Litres at Benchmark	258186	255778	268734		
Litres - Actual	255657	253566	265,891		
Total savings for month	2529	2212	2843		
Accumulated Savings (L)	27227	29439	32282		

Initiatives	Fleet replacement	SAFED Training	Tyre Audits	EROAD Installs
Planned		71 – NI 31 – SI	12 / month	52
Completed (This Month)	2	5	0 – check Matt for plan?	
Completed Total	3368, 3365, 3805, 3806, 3807, 3350, 3808, 3809	20	15	52
Met Standard	8	20 (see notes below)	1	20

Fuel Efficiency Figures October 2014

Reporting Group	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Average to Date		3 month B/mark starts	Benchmark
Whole Fleet Avg - Z Energy	2.21	2.27	2.24	2.25	2.24	2.26	2.23	2.24	2.24	2.24	2.24	1.0%	Nov-13	2.22
PC 59 Z Energy NI (MP)	2.16	2.28	2.23	2.22	2.23	2.22	2.21	2.22	2.21	2.22	2.22	-0.3%	Nov-13	2.23
PC 61 Z Energy SI (MP)	2.31	2.24	2.28	2.30	2.26	2.34	2.29	2.27	2.29	2.28	2.28	0.8%	Nov-13	2.26

Action Required:

- Discuss Z fuel target
- Tyre policy review

Completed Recently	In Progress	Planned
• Fuel data investigation vs Z target • All trucks with idle wiring issues highlighted to EROAD	• SAFED Driver Training – some duplication of drivers trained had previously been reported – a new process has been established to get correct numbers. • EROAD installations and checks – a significant number of vehicles require revisit by EROAD – this is underway to get true idle and PTO recorded accurately. • Refuelling policy – compliance is an ongoing challenge	• *Address to management meeting – initiatives and opportunities around fuel efficiency* • *Programme review meeting (Nov)* • *Maintenance Audits (PFH to action)* • *Focus on reduction in unproductive idling (when EROAD installs are complete)* • ***Tyre management policy review (resolve compliance issues)***

Figure 3. Monthly Progress report

3.3.3 Operator customer reporting

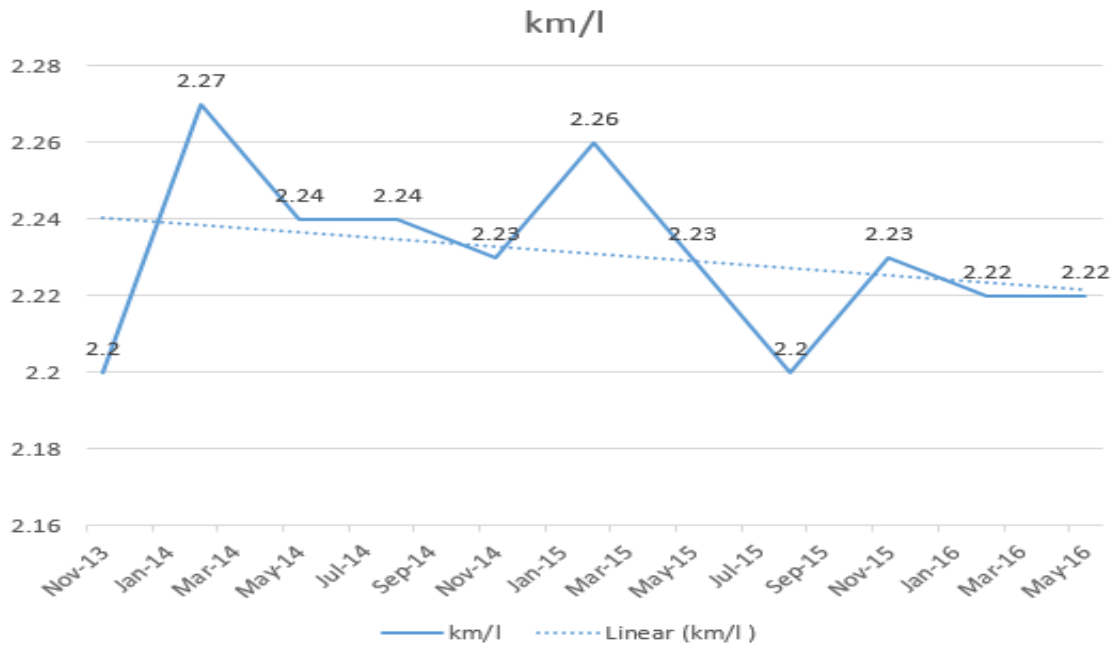
Table 4 below is an example of engagement in the Programme across stakeholders in the supply chain. The table is an excerpt from a Z quarterly report to its Executive management team. It describes the goals, targets, programmes and performance to date. Importantly, the customer of the Operator, in this case Z, is supportive of the EECA Programme being implemented, in this case SAFED training, and the EECA work is integrated into a wider programme of work.

HIGH LEVEL GOAL	FY14 targets (based on activity of 7.4m km and 1.54bl) 9,408,570 kg CO2	Programmes	YTD Achieved	Forecast position at EoFY14 based on performance YTD
Reduce the distance we travel to deliver fuel by an average of 15% for every litre of fuel delivered.	Scheduling efficiency gain of 5% would reduce CO2 by 470,643kg	increasing average drop size to retail and commercial sites (via larger vehicles and more efficient scheduling)	41,100kg to date	82,207kg reduction vs plan of 470,643kg
		Reintroduce NPL storage; alternatives to road and/or use of sub-terminals . Potential to remove approx 400,000km by railing to NPL or Palmerston North	0 to date	0
		Delivery optimisation	0 to date	tba
		Implement HPVs	0 to date	tba
2011 Baseline = 2km/l Delivery emissions are reduced by 25% independent of the reduction of kilometres travelled	Drivers improve vehicle fuel consumption by 10% (from 2.1km/l to 2.31km/l) would reduce CO2 by 940,857kg	SAFED driver training	YTD: 2.26km/l Equates to 7.6% reduction in CO2 from 2.1km/l (FY13 benchmark) Or 358,412 kg YTD	716,843 kg reduction vs plan of 940,857kg
Using more than 10% biodiesel in our business biodiesel produced from tallow delivers a 78% reduction in carbon emission over mineral diesel	Get 33% of fleet using B10 would reduce CO2 by 244,622 kg *	New fleet to be at least B10 compatible. New tanker fleet selections (DAF XF Model and MAN Trucks) approved to use B10	0	Insufficient fleet (less than 30%) approved to use B10
		Make biodiesel available for truck running tanks	0	0 kg reduction Vs plan of 244,644 kg

Table 4. Transport Fuel savings

3.3.4 Fleet fuel consumption over time

Graph 2 below shows an example of fuel consumption (annual distance travelled (km) /annual fuel volume (l)) over time. This case is for Z Energy bulk fuel road tanker fleet November 2013 to May 2016.



Graph 2. Z Energy bulk fuel road tanker fleet km/l November 2013 to May 2016

The improvement in fuel consumption over time is approximately 1% and is less than what might be expected given the implementation of fuel savings initiatives. This was not dissimilar to the results of other Operators with 13 of the 31 Operators experiencing a savings of between 1 and 5% as shown in Graph 1 above. For commentary on the results refer to the Discussion section of this paper.

3.4 Qualitative Operator feedback provided to EECA

In addition to fuel consumption data EECA collected the following verbatim feedback from Operators:

- "If you don't measure something you don't manage it. The fuel usage, driver training, make the drivers better drivers."
- "It's just become part of the culture of our business".
- "Fuel is an ongoing cost, so we have to do something to drag it back. We weren't doing a good job of tracking fuel and that has improved since the programme."
- "It assists the driver and the company moving forward not only financially but with health and safety changing."
- "I've just seen real benefits from it, so we want to continue those benefits."
- "It prompted us to think about things that we hadn't thought about before. It motivated us to take action."
- "…..the programme in itself is one of the best I have seen and I have been in the industry 45 years……, it's very very good, the best thing about it, is the drivers have

embraced it as well. They are on board with it and that is the key to saving fuel…….., the other thing is there are clear indicators that it is working."

- "It opened our eyes to savings that were possible without having a lot of monetary input to make it happen."
- "It had a lot of value. At the end of the day you can improve the efficiency of the vehicles, you're educating your drivers and you're saving money on fuel. It'd better for the environment and also good for the business."
- "Demonstrating the return on investment to the board; lower fuel burn, better tyre wear, lower maintenance cost, fewer incidents sets us up for future investment."
- "It's also about getting the culture right at all levels."
- "The fuel efficiency programme helped create the structure and momentum for broader cultural change as part of a risk management programme."
- "We put 117 drivers around the country through the fuel efficiency driver training, leading to a 80% drop in speed alerts in just one month."
- "This programme in continuous improvement has been the biggest behavioural change initiative in the heavy transport industry."
- "When we turned the warning lights on, we saw a 75% reduction in speed events."
- " we are now seeing lower operating costs, and we can point to better environmental management too, which is increasingly important for many of our customers."
- "There's an excellent cross section of people on the working group and it enables us to talk about subjects from all angles of the business."
- "We discussed putting systems into place, tyre management, health and safety and drive training, a lot more than just how to save fuel."
- "That's a huge barometer of the culture change with the driver team. We are we now getting bugger all complaints."
- "It's a great tool for galvanising the team. The fuel savings, whilst pleasing, are not the only driver for us joining the Programme, it is as much about engaging the whole team, drivers and management and providing best practice for our stakeholders, customers and the general public."
- "We wanted to make the drivers more aware of the value of their vehicles and also that the standard of their conduct whilst in the vehicle was a direct reflection on the company."
- "Fuel efficiency is not just about efficient and safe driving, it's also about efficient communications to the drivers, and efficient scheduling of freight movements through better use of technology…."
- "It took around eight months for us to crack the momentum amongst the 40 drivers, but once we did, we just went from strength to strength."

4.0 Discussion

4.1 The tracking of the benefits in fuel savings

In many cases the change in fuel consumption at cumulated fleet level over time has not reflected the level of fuel savings expected. However, it is undeniable that fuel savings would have resulted from many, if not the vast majority, of the fuel savings initiatives given they are tried and tested approaches, be they engineering or behavioural based. The issue with tracking overall fleet fuel consumption is the influence of other factors, both internal and external,

occurring over the same period. These factors include changes in the following areas: regulatory; economy; and internal business.

Regulatory changes have allowed higher gross mass limits (typically from 44 tonne to 50 tonne and higher GCM under special permit). Consequently the traditional 8x4 rigid prime mover is now towing a larger trailer (from 4 axle dog to 5 axle dog) as illustrated in Photograph 1 below.

Photograph 1: 50 MAX (50 tonne GCM) Fuel Tanker

Truck size and weight changes have created considerable productivity benefits. For example on the Z bulk fuel activity the traditional 3 axle semi (A123) and truck trailer (R22T22) had respective volumetric capacities of 29,000 l and 30,000 l. The recent trend has been to replace tri semis with quads (A224) and replace 4 axle dog trailers with 5 axles. As a consequence vehicle combination capacities have increased to 32,500 l and 36,600 l respectively. While a different prime mover is required for the A224 the same prime mover is used in the R22T23 combination and the higher mass results in higher fuel consumption. Regardless there is a desirable improvement in terms of fuel intensity.

Economic factors influence market changes which in turn impact the business environment and consequently fuel consumption. For example, in the fuel sector shifts in customer demand impact fuel consumption. Typically a shift in volume from commercial customers to retail sites is more likely to increase fleet fuel consumption due to the lower average trip speed of most retail deliveries which are local and in city environments. Furthermore, the state of the economy can influence the level of traffic congestion experienced in cities which in turn impacts vehicle utilisation.

Business factors in others sectors that can impact fuel consumption, positively or negatively, include fleet diversification and productivity improvements. Examples of this include 8x4 prime movers transporting general freight but with capability to semi-permanently attach a stock crate with twist-locks to undertake stock movement. Several freight Operators also now hold their vehicles in its respective location until it is fully loaded rather than operate to pre-planned fixed departure and arrival times.

The factors above are neither a complete or exhaustive list influencing fuel consumption. The purpose is to demonstrate the complexity of issues and the challenges these bring to measuring improvements of fuel savings initiatives particularly over a considerable period of time.

4.2 Programme Co-Benefits to Operators

The prescribed systemic structure associated with the Programme implementation, for example documenting and publishing policy documents, setting up an across-business working group (FEWG), and regularly and frequently publishing driver or vehicle fuel consumption figures is for many Operators a new way of managing their business. There is anecdotal evidence that these Operators have realised the benefits of a more systemic approach and are applying this to other areas of their business.

Data management is a large focus of the Programme and for many Operators the use of GNSS telematics is new. Had they not enrolled in a Programme and benefited from the subsidy, it is most unlikely these Operators would have implemented and utilised telematics as early as they have. Some Operators have reported significant improvements in compliance with regulatory speed limits and whilst it does not appear to have been explicitly shown in this particular trial to benefit motor vehicle incident rates, there are perceptions by Operators that their fleet safety performance has improved and this is consistent with other research.

The vast majority of small to medium enterprise operators do not have in-house driver training and there is no regular driver-training or assessment programme in place. As a consequence, for many Operators the SAFEDNZ training and investment in drivers is relatively novel. A consequence is that some drivers are appreciative of the Operators' investment in them and this is increasing driver loyalty and correspondingly has the benefit of improved driver retention rates.

The establishments of FEWGs is presenting opportunities for staff to take greater responsibility and accountability across the various fuel saving sub-activities. There is beneficial to leadership development and personal growth for many staff members.

Some Programmes included initiatives involving the Operators' third party service providers, for example undertaking an audit of the maintenance provider. The audits have identified a range of issues, commercial and no-commercial, that would not have surfaced had it not been for the Programme.

5.0 Recommendations

Care needs to be been taken when assessing the effectiveness of a fuel savings programme and particular thought given to the impact of other external influences. Traditional methods of isolating a particular change, controlling the conditions and measuring the change are demanding and time consuming. Understanding the exact amount of change for respective initiative may not be necessary or useful, particularly if the initiatives are well proven. An alternative is to assess each initiative in terms of the delta between the historic fuel volume that would have been used to complete the baseline task and the fuel used had the initiatives/improvements been in place at the time when the baseline task was completed. The latter approach would significantly reduce the effort and resource requirements associated with data management and benchmarking and shift the focus to tracking the implementation

progress of each initiative. If there is a desire to understand the total value of a fuel savings programme, then the impacts of the programme across the business need specific consideration.

Promoting engagement and exploring synergies across other stakeholders involved in the supply chain, in particular the customer or the direct user of the transport provider, can benefit the Programme.

For these Programmes to succeed in any operator's business there needs to be clear direction and leadership from senior management. There also needs to be commitment across the business to support the FEWG members and ensure the progress of agreed tasks and interventions are monitored and completed on time. A quality system enables staff recognition and reward schemes which can be useful initiatives to promote and sustainably engage various parties in some initiatives.