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E-BOOK

Improving Fuel Economy:

Smarter Steps for Getting Drivers On Board

Successful fuel economy strategies look beyond just mile per gallon. Fuel spend is the top-line number, but what happens if you dig a little deeper? Driver behavior is arguably the single biggest contributor to better fuel economy. As fuel costs make up around 30% of fleets' operating costs, it makes good business sense to keep your drivers happy and educated.

Smarter steps for improving fuel economy

Fuel costs are a top priority at the best of times, let alone if prices start to soar. Recently, we've seen diesel and gas prices rise and figures[1] from 2018 show fuel prices are at their highest in three years.

Fleets have access to a variety of options for increasing miles per gallon (MPG) and improving fuel economy – from alternative fuels, monitoring tire pressure, installing drag-reducing technology, adding aerodynamic mirrors or moving air filters below the hood. Yet, before undertaking substantial equipment changes on a large scale, fleets should look to the driver. On the road, it is the driver of the vehicle who has the biggest single potential impact on fuel used.

By improving driver performance, studies have shown that fleets can save up to 20% on their fuel bill, reduce risk, return a smaller carbon footprint and ensure rapid ROI. Understanding and addressing how a driver performs in the cab – and working to improve it – is one of the fastest investments you can make to improve fuel economy and enhance safety practices.

In this e-book, we will look at the steps fleet managers can take to help drivers work towards smarter fuel savings:

- Cast the net wide to capture the right data
- Investigate how drivers are performing in their trucks
- Identify the best and worst performing drivers
- Give drivers the tools to become more fuel efficient
- Replicate good behavior through education and incentives
- Implement in-cab tools

Fleet managers who help drivers perform better are on a road to success with fuel economy.

Section 1

Setting up a successful driver-based fuel efficiency program

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Setting up a driver-based fuel efficiency program can be daunting, but the most successful programs have things in common: deep data retrieval that is fair open and transparent and understanding, driver scorecards, gamification, coaching, training and incentivized rewards.

Use an open, transparent system

You will need driver buy-in to any process that impacts their behavior, so start with a framework you can use to get them on board. When a driver knows the system is fair, they are more likely to trust the data and work to change their behavior.

An in-depth telematics system comes equipped with driving style behavior measurement options. The data retrieval must be fair, open and transparent. The telematics platform needs to be able to specify the most economical driving style for each vehicle type across the fleet.

By using a system to calculate the true, real-world fuel economy for each vehicle in the fleet, drivers can be compared objectively on the behaviors that deliver a good MPG.

Utilize a wide dataset

Scoring drivers across a wide number of different areas gives a full picture of the impact of their behavior. Driver behavior tends to be very individual, with some drivers scoring particularly well in some areas but poorly in others. The data should cover areas such as speeding, acceleration/deceleration, harsh braking, anticipation, over-revving, use of cruise control and idling.

All the data should feed into an overall performance score but can be broken out in sub-groups covering safety, compliance or fuel performance. By establishing a baseline and then scoring drivers across different areas, vehicle types and routes, drivers can see accurate and transparent data based on their performance over time.

Employ driver scorecards

The key to gamification lies with driver scorecards. These scores feed into a leaderboard that showcases the overall driving behavior performance of every driver in the fleet. Using scorecards helps to monitor the direct impact of driver behavior on fuel economy and can be used to identify and set goals.

The scores can be displayed in the cab to the driver, online or in the office with peers. Weekly, monthly or quarterly scorecards based on qualitative driver performance data identify drivers who are the most fuel efficient. Ensuring the scorecard is easily accessible to the driver at any time will result in more driver engagement and less work by management to achieve company goals.

Areas to monitor and action:

- Fuel used
- Cruise control on/off
- Major/minor over-speeding
- Percentage of time idling
- Over-revving
- Harsh braking
- Anticipation
- Harsh acceleration

Gamify driver behavior

Gamification – adding an element of friendly competition to alter behavior – should be an integral part of any fuel efficiency program.

By making a game of the driving experience, fleets have found that drivers start to adjust their driving behavior by their own volition, without fleet managers having to get involved.

Drivers can earn or lose points based on specific driving behaviors. For example, idling for more than 30 minutes per day could cause a driver to lose points.

Tips to consider for gamification:

- **Anonymize the public scorecard**
- **Tie rewards to company values**
- **Incentivize one behavior change at a time**
- **Leave enough time for change to take place**
- **Reward "most improved" drivers to vary results**

Add rewards

Fleets need to stop monitoring MPG alone but instead concentrate on the driving behaviors that lead to good MPG. However, it does allow you to identify drivers who may be underperforming. When you can measure and action change on specific areas of driver behavior, then you will see improvements. Incentivization is a powerful way to bring change and drives momentum for improving behavior.

Choose fair and reasonable rewards based on improving objective metrics that impact MPG. The driver and the organization can keep track of the metrics. Fleets can decide to give individual driver or team-based rewards.

Types of rewards:

- **Clothing like jackets, branded t-shirts**
- **Listed recognition, e.g. in the company newsletter**
- **Team events, breakfast mornings**
- **Monetary rewards or bonuses**
- **Gift cards or vouchers**
- **Time related rewards, extra breaks**

Implement in-cab coaching

In-cab coaching gives drivers a tool to identify the areas they can control on the road that impact their individual fuel economy. Based on performance, in-cab coaching helps to mitigate fuel-wasting behavior over time such as idling, speeding, or over-revving. A combination of intuitive audible and visual notifications encourages good driving habits and discourages poor or wasteful practices.

In-cab coaching helps with long-term changes too. Instead of a quick fix, coaching helps drivers to make changes to their driving behavior and maintain them over time. In-cab devices have the added convenience of helping drivers keep track of their scores, percentiles, and statistics.At a glance, drivers can tell where they rank in the leaderboard or where their individual performance score is at and make necessary changes for future trips, without the need for complex reports.

The EPA reports on two trucking fleets in Canada who documented the impact of driver training and found fuel efficiency improvements of 18 and 20%.[2]

Section 2

Top 7 behaviors that impact fuel economy

Top 7 behaviors that impact fuel economy

As soon as there is a framework in place, you can start to work with drivers to modify their driving behavior to improve fuel economy.

Focus first on the drivers who are costing fleets the most money. By ranking drivers, fleet managers can identify drivers who can benefit most from coaching. Once training begins, it is best to run it consistently to ensure the greatest return.

Start by identifying the driving behaviors where fleets can achieve the largest or fastest improvement. While nearly every action a driver takes in the cab impacts fuel consumption, not all actions deliver the same results. Studies show that areas such idling time and use of cruise control can have the most significant initial impact. A change of habit is key to this behavior modification compared to driving skills adjustment. Habit-based behaviors respond quickly to rewards and incentives programs.

The following seven areas are where the behavior and the rate of fuel consumption have been proven to be significantly related:

- Idling
- Speeding
- Cruise control
- Anticipation
- Over-revving
- Acceleration/deceleration and
- Harsh braking

1. Avoid idling

Idle performance is an important issue. A few minutes chatting with a customer, or an hour of idling during loading or unloading, has a cumulative impact on fuel consumption.

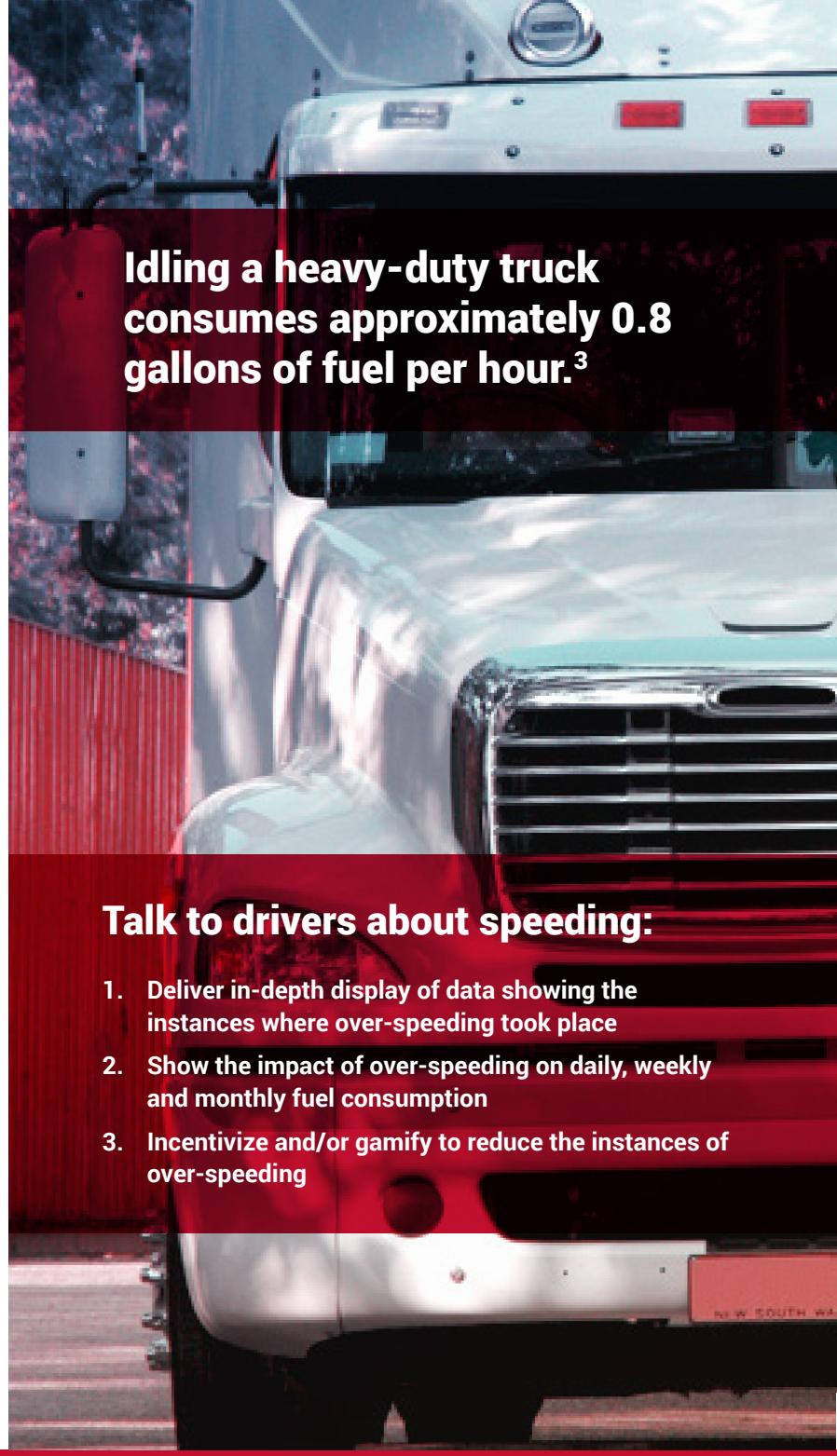
Every minute spent idling has a direct impact on a fleet's overall fuel economy. It is widely accepted that an engine idling for over a minute consumes more fuel than if it is switched off and on again. Take a close look at drivers' idling activity to showcase the gulf where savings can be made quickly and easily. Reducing the instances of idling through corrective behavior can have a significant positive impact.

A fleetwide message can be the marker for change to highlight idling as a problem and have drivers address it there and then. A general rule can be to minimize idling to three minutes at a time to allow for slow moving traffic or stop lights. This provides drivers with a realistic benchmark to adhere to enabling a change in behavior.

2. Cut speeding

Speeding can impact fuel efficiency in many ways. The American Trucking Association says reducing speed is a good safety step and encourages optimal fuel economy.[4] A truck traveling at a rate of 75 mph consumes 27% more fuel than one at 65 mph.[5] Depending on the price of fuel on a given day, the dollar savings stack up.

Fleet managers can take charge by setting the pace and helping drivers see where they can make a difference. If a fleet decides there is a 60 mph limit, but a driver is consistently running at 67 mph, it is a problem that you can address with data and coaching.



Idling a heavy-duty truck consumes approximately 0.8 gallons of fuel per hour.[3]

Talk to drivers about speeding:

1. **Deliver in-depth display of data showing the instances where over-speeding took place**
2. **Show the impact of over-speeding on daily, weekly and monthly fuel consumption**
3. **Incentivize and/or gamify to reduce the instances of over-speeding**

3. Use cruise control

The appropriate use of cruise control has the potential to dramatically increase fuel efficiency. Cruise control reduces fuel consumption by adjusting vehicle speed, engine torque and gear to maintain a safe, steady speed and reduce stress on the engine.

Set cruise control thresholds for every vehicle for the fleet and then measure each driver's use of cruise control. Thresholds need to be set for individual trucks, because although all trucks tend to perform better at a steady (usually slower) pace, the optimal use of cruise control varies by make and model. Using cruise control also has safety benefits, as it can reduce truck speeds to legal limits.

On upslopes, cruise control will add power to keep the truck in as high a gear as possible for efficient cruising, and on downslopes, it will put the truck into neutral and allow it to use inertia to coast, facilitiating the best possible fuel economy.[6]

4. Anticipate traffic

Anticipation is displaying a greater awareness of what's happening on the road around the driver. It involves keeping a close eye on vehicles in front of the tractor-trailer and adjusting speeds to compensate as they speed up or slow down.

The idea is to keep the driver in cruise mode as much as possible and to avoid burning fuel unnecessarily as a driver brakes and then applies full throttle to get back up to cruising speed.

With manual transmissions, drivers can reduce the number of gear changes by anticipating traffic ahead and gently slowing the vehicle to reduce the amount of energy consumed by a full restart.

5. Stop over-revving

Over-revving – using excessive revs in lower gears – is one of the more obvious signs that a truck is not being driven efficiently. It is the opposite of smooth driving; it burns fuel unnecessarily and causes wear and tear on the engine. The higher the RPM, the more fuel is used.

Instead, drivers should look at keeping their revs within the green band indicators on the rev counter. This will indicate that they are operating within the most economical band for that truck, reducing the amount of fuel used by the vehicle. For most trucks, the green rev bands lies between 1,000 and 1,500 RPM. In modern trucks, this can be as narrow as 200 RPM. Drivers need to change their driving style to suit newer engines and find that 'sweet spot."

6. Avoid fast acceleration

Fast acceleration or deceleration puts extra stress on the engine, consuming more fuel. You can monitor how the driver is managing the accelerator pedal and help them to achieve better fuel economy through a smoother use of it.

Drivers should know the limitations of the vehicle. You can provide helpful tips to the driver to help maintain smoother movements:

- Avoid fast take-offs
- Start in a lower gear with gentle movements, before shifting to higher gears for when the vehicle is moving faster
- Always aim to accelerate slowly using progressive shifting techniques to minimize excess fuel burn through the engine. Although the overall acceleration is slower, fuel efficiency improves

By staying in top gear 75% of the time, you are gaining 3%–4% in fuel economy. That translates to $1,800 to $2,400 in fuel costs.[7]

7. Resist harsh braking

Harsh braking in combination with the other areas mentioned can have a significant impact on fuel consumption. If you can encourage drivers to adopt a smooth driving style and keep their own harsh braking instances in check, you will see the changes to monthly fuel consumption.

Of course, there are instances when harsh braking happens, such as in the event of preventing an accident. Monitoring the statistics of harsh braking can also indicate instances of unsafe driving. For example, a driver who is consistently driving too close to the vehicle in front may have higher than average instances of harsh braking.

Aggressive driving, such as speeding or harsh braking wastes fuel. It can lower gas mileage by up to 20%.[8]

ORBCOMM® helps drivers improve on fuel economy

ORBCOMM® provides advanced driver analytics and coaching tools that improve driver performance by managing driving styles and reducing fuel costs by up to 20%. Drivers can see the impact of inefficient vehicles and their driving styles with performance reviews based on idling, harsh braking, over-speeding, cruise control, harsh acceleration and other contributing factors. Coaching information is specific to each truck and fully customizable by the fleet. Coaching advice identifies 'good' behavior and suggests changes to earn a better scorecard.

Our data-led approach gives fleets the information, comparisons and analysis to set clear, attainable performance objectives for every driver and across every vehicle in the fleet.

The solution provides measurement, over short, medium and long-term timeframes as well as real-time data across multiple points of measurement ensuring you and your fleet sees the full picture. With live, onboard driver scoring and feedback, drivers can help deliver immediate fuel savings, reduced maintenance costs and lower CO2 emissions.

Sources

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