FUEL MANAGEMENT FOR FLEETS

Mileage Improvement and Fuel Theft & Fraud Prevention

by Christopher Hammer

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Purpose

I wrote this guide inspired by conversations that I've had with customers that desire to find a methodology to maximize fuel management for their business.

99.9% of the time business owners and fleet managers have a wealth of experience in the 'Art of Trucking', where many of their *feels* are accurate and based on YEARS of experience but they struggle in relaying their experience to their administrative staff.

The guide's intent is to act as a catalyst and help business owners, fleet managers, and administrative staff participate in productive discussions and most importantly *employ potential tools and practices that will help eliminate unwanted fuel consumption, being fuel theft, fraud, or mechanics.

*Employ = Take Action

Hoping you enjoy this guide,
Chris Hammer
CEO and Co-Founder

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Miles per Gallon (MPG) Analysis

Create a matrix, table, or spreadsheet to list the average MPG per fleet vehicle. Helpful categories can include type of vehicle, engine model, tank capacity, and route.

Set up a schedule that works for you to audit and analyze the MPG regularly, whether it's once a week, every 15 days, or once a month. Consistency is key! If you find a vehicle is out of the calculated tolerable MPG, investigate the reasons why. Some common reasons are that the vehicle needs service and that the vehicle is used from local, shorter routes.

This practice benefits you more than having a better understanding of your fleet. Understanding fuel efficiency can help you identify which vehicles are the most fuel efficient and prioritize their use for longer trips or routes. Putting your most efficient vehicles on the longer routes can help you save money long-term.

Vehicles with lower MPG ratings may require more frequent maintenance, such as oil changes and tire rotations. By identifying which vehicles have lower MPG ratings, you can budget for these additional maintenance costs.

You can also identify when certain vehicles are becoming less efficient and plan for their replacement. This can help you avoid unexpected costs associated with repairs or breakdowns and ensure that your fleet is operating at peak efficiency.

Invoices and reports, simplified.

Your invoices & reports can share extensive amounts of data for every transaction (like MPG).

2 Route Analysis

Before the driver leaves, research the origin and destination of the route. This way, you can identify in-route fueling locations and share with your drivers these authorized locations. They save time from finding stations themselves.

To boost morale and enhance the working relationship in your team, work with your drivers on choosing the best fueling spots. Involvement in the decision-making process can help increase their willingness in participate with the operations. This can be especially helpful when the drivers are given new fuel cards.

Don't let go of a good thing! Incentivize your drivers to visit the in-route wholesale fuel stations with a driver recognition program to receive positive reinforcement of their driving and fueling patterns with respect to the MPG analysis and choosing the in-route stations to get the best prices.

Build better routes for drivers.

We can teach you how to find wholesale, in-route fueling stations with the CFN Site Locator website.

3 Fuel Tank Capacity Control

A helpful security setting that you have with your fuel cards is that we can program your cards to set a gallon limit for each transaction. We highly recommend setting your card's per fill limit to be the tank capacity of each vehicle for two reasons: to prevent fraud, theft, and misuse and to keep your fuel costs consistent and predictably low.

Setting your fuel card's transaction limit to match the exact tank capacity of your fleet vehicles can help prevent fraudulent activity. If a fuel card is set to a higher limit than the tank capacity, an employee could potentially purchase more fuel than necessary and pocket the difference, resulting in financial loss for the company. By setting the limit to match the tank capacity, this type of fraud can be prevented.

By matching the fuel card limit to the exact tank capacity, you can ensure that employees are only purchasing the necessary amount of fuel, which can help save money in the long term. This can help prevent over-purchasing, which can lead to wasted fuel and increased costs. Additionally, by monitoring fuel usage, you can identify patterns and trends that may indicate inefficiency or misuse and take corrective action accordingly.

Your restrictions are customizable.

Have access to card parameters and set desired restrictions to reduce risk and fraud.

4 Healthy Ratio of Diesel & DEF

The average ratio of DEF consumption to diesel consumption is between 2%-3%. For every 100 gallons of diesel consumed, vehicles typically consume 2 to 3 gallons of DEF. The more precise ratio, the better!

Maintaining a healthy ratio of DEF to diesel consumption can help improve the fuel efficiency of diesel engines. DEF (Diesel Exhaust Fluid) is used in vehicles equipped with selective catalytic reduction (SCR) technology, which helps reduce nitrogen oxide (NOx) emissions. When the DEF-to-diesel ratio is consistent and within the recommended range, it can help the SCR system function more effectively, which can lead to improved fuel efficiency and lower fuel costs over time.

Consistently maintaining the recommended DEF-to-diesel ratio can also help reduce the maintenance costs associated with diesel engines. If the DEF-to-diesel ratio is too low, the SCR system may not function properly, which can lead to increased wear and tear on the engine. This can result in higher maintenance costs, such as more frequent oil changes and costly repairs. By maintaining a consistent ratio, you can help extend the life of the engine and reduce maintenance costs in the long-term.

We recommend creating a matrix or spreadsheet where you can classify the DEF consumption by vehicle. If you've taken advantage of creating the matrix and spreadsheet from Suggestion #1 MPG Analysis, then add another row for DEF consumption! The idea is to create a formula to help you calculate the precise consumption DEF-to-diesel ratio.

The analysis can help you develop a standard of finding, improving, and maintaining ratios and can quickly help detect if there is a negative or disproportionate consumption of DEF and/or diesel.

Put Diesel & DEF in 1 transaction.

Have your drivers purchase diesel and DEF in the same transaction so calculating the ratio is easier.

5 Thorough Gallon Analysis

Combining this fifth suggestion with the matrix or spreadsheet that you've created with the first four suggestions can greatly help you with managing your fleet and gain a better understanding of it. The objective is to accurately calculate the average gallon consumption for each vehicle.

A thorough gallon analysis for each of your fleet vehicles can help you identify patterns and trends in fuel consumption, which can help you save money for your business in the long-term in several ways.

By analyzing the gallons of fuel consumed by each of your fleet vehicles, you can identify which vehicles are the most fuel-efficient and which are the least. This can help you prioritize the use of the most efficient vehicles for longer trips or routes and adjust the routes or usage of the least efficient vehicles, which can lead to lower fuel costs over time.

You can also identify patterns in fuel consumption that may indicate a problem with a vehicle such as a leaky fuel injector or a malfunctioning oxygen sensor. This can help you identify issues early on, before they become major problems, which can help you save money on repairs and maintenance costs in the long-term.

You can identify when certain vehicles are becoming less efficient and plan for their replacement. This can help you avoid unexpected costs associated with repairs or breakdowns and ensure that your fleet is operating at peak efficiency.

Identifying patterns in fuel consumption that may indicate poor driver behavior such as speeding, idling or hard braking can lead to increased fuel consumption and unnecessary expenses. By addressing these issues, you can help reduce fuel consumption and costs.

Overall, by conducting a thorough gallon analysis for each of your fleet vehicles, you can gain a better understanding of your fleet's fuel consumption, identify areas for improvement, and make informed decisions that can help you save money for your business in the long-term.

6 Anti-Siphon Locks

Placing anti-siphon locks on your trucks' fuel tanks can help you save money for your business by preventing fuel theft. Siphoning is a method of stealing fuel by using a hose or other device to extract fuel from a vehicle's fuel tank. Anti-siphon locks are devices that can be installed on the fuel filler neck of a vehicle to physically block access to the fuel tank and prevent fuel from being siphoned.

By placing anti-siphon locks on your trucks' fuel tanks, you can prevent unauthorized individuals from stealing fuel from your vehicles. This can help you save money on fuel costs and lower the risk of financial loss caused by fuel theft.

Anti-siphon locks can also help reduce fuel loss due to leaks or spills. By preventing unauthorized access to the fuel tank, you can minimize the risk of accidental spills or leaks caused by someone tampering with the fuel tank. This can help you save money on fuel costs and reduce environmental impact caused by the fuel spills.

Anti-siphon locks are relatively inexpensive and easy to install, making them a cost-effective solution for preventing fuel theft. The cost of installing anti-siphon locks on your trucks' fuel tanks outweighs the long-term savings you will see on fuel costs and reduced risk of fuel theft.

7 CA Diesel Consumption vs Other U.S. States

With the route and MPG analysis mentioned in the previous suggestions, we recommend the calculation of gallons needed by your vehicle to travel the miles needed to arrive to the first fuel site located in the neighboring states of California.

Depending on the route as your driver is leaving California, we recommend filling up your fuel tanks in Arizona, Utah, Nevada, or Oregon.

In California, fuel the necessary gallons to travel (cover the mileage) from the California fuel site to the first fuel site outside (but neighboring) of California.

Fill-up the tanks either in AZ, UT, NV, OR.
And Continue with your trip driving away from California. This will positively impact your highway taxes/fuel taxes declarations.

By no means do we advise to drive and fuel outside of California with the intent of immediately coming back to the state of California. (Prices per gallon will tend to be less expensive outside of the state of California due to the taxes that are built into the final prices per gallon. However, as a properly operated fleet business, any fuel consumed needs to be reported and by no means do we endorse fuel tax fraud).

If you fuel outside of California and return to California and you consume the foreign state fuel in the state of California, you will have to declare that on your fuel tax declaration and your business will end up owing taxes.

IFTA/DOT compliant reporting.

Save hours of filing and avoid costly errors with an automated solution for IFTA quarterly reporting.

8 Tire Management

Analyze and compare the options available when choosing tires. Look for low-rolling resistance tires.

Research which tires would be the best according to your routes and operation. For example: If your route is a local one, and the driving area doesn't require severe water traction or snow traction tires, then choose a more appropriate tire.

On a regular basis, and with a preventive maintenance mentality:

- Check proper air pressure
- Rotate tires appropriately
- Monitor tire tread depth

Proper tire management can help increase the life of your tires, which can help save money in the long term. By maintaining your tires, you can help extend their life and reduce the frequency of replacements.
Properly inflated tires can help improve fuel efficiency. Underinflated tires can cause increased friction, which can lead to increased fuel consumption. By monitoring tire pressure and properly inflating tires, you can help improve fuel efficiency and lower fuel costs over time.

Proper tire management can also help improve the overall performance of your vehicles. Worn or damaged tires can negatively impact the handling and braking of a vehicle, which can lead to increased risk of accidents and costly repairs.

Preventive Maintenance

Adding on to the master matrix or spreadsheet that you've been building, create columns where you can consider planning and scheduling:

- Motor oil
- Transmission oil (hydraulic)

Not all oils, synthetic blends, or synthetics are created equal. Good quality oils have demonstrated to significantly increase mileage and life of oil itself. Research and test which one is the best option for you.

- One Box – DPF Filters

Develop a preventive maintenance schedule to regularly clean these filters. Doing this will greatly reduce auto-regenerations on your truck, consequently improving fuel economy, torque, life of DPF filters and One Box filters.

- Fuel System

Gas and diesel source and quality matters and for the most part in the U.S.A fuel will be filtered and be good quality thanks to national and/or state quality standards.

However, accidents are inevitable, and they happen when fuel is being loaded/unloaded from the fuel rack to the fuel tanker, and from the fuel tanker to the fuel deposits at sites all over the U.S.

Therefore, it is recommended to use fuel additives that will help in the cleaning of your fuel system lines and vehicles.

- Filters (Oil, Air, Fuel)
- Radiator/Engine Cooling System
- Tire Pressure and Rotation
- Fluids (Antifreeze, Brake Fluid, Wiper Fluid)
- Leak Visual Inspection
- Electrical System and Wiring
- Lights Inspection
- Brake System
- Mounts – Engine, Transmission, etc
- Lubrication of axels, joints, and steering

10 Air Deflection and Resistance

If possible, invest in air deflectors and spoilers for your fleet, especially if you have a large vehicle like a van or a 18-wheeler. A robust air deflecting system will help reduce air resistance which will in turn benefit the vehicle's fuel economy, and makes your fleet look cooler.

5 examples of air deflectors that can be retrofitted onto an 18-wheeler are:

- Trailer skirts
- side fairings
- trailer tails
- roof fairings
- wheel covers

Another tip is to make your truck glide through the air by narrowing the gap between the tractor and trailer. A study conducted by the Lawrence Livermore National Laboratory found that the US saved $21 billion per year on fuel from improved aerodynamics of the truck's build. Adding modifications to close that gap reduces air resistance by 6% and boasts 2% fuel savings.

According to the North American Council for Freight Efficiency, nearly 30% of trailers are equipped with trailer skirts. As a result, this offers 1%-5% in fuel savings versus trailers not equipped with trailer skirts.

Adding on these skirts do a lot; it lowers the trailer side walls, preventing wind from going under the trailer and into the bogie. The skirts have a payback period of about 7-14 months, so making it a worthwhile investment for years to come!

For flatbed transports, if the loads are too tall, it's important to attempt to reorganize the load with the intention of reducing air resistance and weight distribution.

Put a tarp over your load if you're a flatbed driver! Not only do they secure your load to be safer in transit and protect against the elements, tarps smooth out the shape of your load, making it more aerodynamic.

There are different types of tarps on the market that boast various fuel savings. Mechanical tarp systems advertise saving on fuel expenses by 15% while simpler poly tarps save about 7-8% on fuel.

11

Smart Driving and Autopilot

Speeding isn't the only bad habit that decreases your fuel efficiency. Other aspects of aggressive driving like rapid acceleration and hard braking disrupts your truck's fuel economy, in a severe way. According to the Office of Energy Efficiency & Renewable Energy, aggressive driving can lower your gas mileage by 15%-30% at highway speeds, costing $0.20-$0.80 per gallon of fuel.

Also, braking technique also affects your truck's fuel economy. If you drive faster, the chances increase of having to do a hard brake to avoid a collision on the road. After a hard brake, accelerating will take more power and fuel to gain momentum again.

Practice giving yourself enough distance between you and the vehicle in front of you. This gives you more time to brake and accelerate, meaning that it'll be a smoother and more gradual transition in speed and ensures safety for everyone on the road. The use of the autopilot will help regulate the acceleration and deceleration of the vehicle. In recent models, the autopilot is programmed to achieve the best fuel economy by reducing the need for human input and allowing the 18-wheeler to optimize its speed and routing. When it's safe to use, autopilot also reduces idling and unnecessary acceleration and braking, which can result in the reduction of fuel consumption and costs.

Conclusion and Key Takeaways

There are changes that you can make now with your fleet that help you increase your long-term savings. Planning a route before leaving to find and use wholesale stations.

Most importantly, we will help you maximize your savings to ensure your company's competitiveness with our fuel card program at over 60,000 locations nationwide and throughout Canada!

With software and easy-to-read invoices to help you follow your team members' transactions, to knowing where very penny is being spent, you'll have more time to focus on growing the business.

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