



WHITE PAPER

5-STEP GUIDE TO IMPROVING FUELS
ECONOMY



Beyond today's standards.

Start with the Basics

You can't go wrong with the lightest truck and the latest high performance materials – so long as the vehicle still meets your service and reliability needs.

Your spec unit should include:

- Single wide base tyres with lower rolling resistance
- A disconnecting or lifting drive axle for 6 x 2 operation – this reduces drag
- Driver feedback on gentle driving and reduced idling whenever possible, (some drivers reduce their idling from 25% down to 15% with significant fuel savings)
- A maximum truck speed limit of 65MPH

Optimize All Driveline Components

Start with the heart of the powertrain – the engine – and look for a smaller displacement model that has the power you need. You may also want to consider the following features:

- Choosing a 10–11L displacement over a 13–15L to reduce the weight
- A wide, but lower speed (900–1,200rpm) torque band
- A newer engine with variable speed oil and water pump designs to lower parasitic losses for accessory functions
- Emission control systems, which have become simpler with reduced exhaust backpressure
- Improved overall engine breathing with variable valve timing and reduced EGR
- The best Original Equipment Manufacturer (OEM) specified filtration for air, fuel, coolant and oil systems

Deliver all that engine torque to the wheels via an integrated drivetrain containing:

- Clutches, transmission, shafts and axles capable of the lower speeds and higher torques
- Automated manuals or automatic transmissions with optimized shift times to ensure best fuel economy and lower driver fatigue

- Tag axle disconnects or a liftable axle, which runs 6x2 configurations for better fuel economy (FE) while retaining traction enhancement in poor conditions

Lower the Overall Viscosities of All Driveline Oils

For over 35 years, oil and additive companies have been lowering the viscosity of engine, transmission and axle oils. At the same time, powertrain OEMs have been improving their designs and the manufacturing of their components to utilize the new oils.

Perfectly fitted parts, with the optimal thermal management of oil, experience lower friction and drag.

- Monograde engine oils are being pushed out of the North American markets and replaced by higher quality motor oils made with lower viscosity basestocks like API Group II+ and III to promote better fuel economy
- Moving from a traditional SAE 15W-40 diesel engine oil to a 10W-30 or even a 5W-30 can improve FE by 1.5–2.5% for many users
- Starting this December, API will begin licensing a split category of engine oil, CK-4 and FA-4, which will deliver improved oxidation resistance, better shear stability and improved aeration control (foaming resistance). These superior oils will maintain their improved fuel economy benefits longer over the life of the drain interval. The good news is, the CK-4 oils are fully compatible with previous API CJ-4, CI-4 and older similar categories. The FA-4 oils intended for some 2017 and newer engines will have a slightly lower high temperature high shear (HTHS) viscosity than CK-4 oils of the same SAE grade to deliver even better fuel economy
- Heavy duty transmissions have been moving away from straight SAE 50 viscosity oils in favor dedicated low viscosity oils (often synthetic for longer drain intervals)
- Heavy duty axles have migrated from straight SAE 90 gear oils to lower viscosity multi-grades, such as 75W-90 with extended drains and warranty periods. OEMs are looking at even lower SAE grades
- Utilizing lower viscosity transmission and axle oils could provide up to 2.5% improvement in fuel economy under optimal conditions

Best of all, many of these newer lower viscosity oils can be implemented right now into your existing fleet.

Connect Everything with Electronics and Telematics

The electronics and communication revolution wasn't just for phone and video devices. Commercial vehicles are adopting the latest electronics to track data and enable intra and inter communications for improved fuel economy, utility and driver satisfaction:

- Speed controls now come with adaptive control to maintain a specified safe distance from vehicles ahead
- Greatly enhanced fuel tracking is available via fuel cards to:
 - Monitor fueling locations, volumes and amounts
 - Cross-check the engine ECM indicated fuel economy
 - Provide direct driver feedback
- After "learning" the route terrain or tiling GPS/3D maps, today's powertrains can optimize shifts and speeds for maximum efficiency over all types of geography
- Trials are underway to produce semi-autonomous vehicles capable of travelling in "platoons" of multiple units in convoy. It's estimated that this will improve fuel economy by 3% for the lead unit, 7% for the second and 9% for those after that.

About the Author

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