

Efficiency Technologies for Medium & Heavy-Duty Vehicles

According to the U.S. EPA, the transportation sector consumes approximately 28% of all end-use energy in the United States. Substantially improving vehicle efficiency has the potential to drastically increase the country's economic, energy, and environmental security. On-road vehicles account for nearly 60% of total U.S. oil consumption and more than a quarter of the country's greenhouse gas emissions, the major contributor to climate change. Vehicles that utilize efficiency technologies (i.e., emissions reduction, idle reduction, and drivetrain efficiency) while running on lower carbon-emitting fuels are critical to meeting energy goals and has the potential to provide significant return on investment.

Improving Vehicle Efficiency

Continuous research and development on vehicle technologies not only drives innovation while lowering technology costs which accelerates clean technology deployment, but it also reduces the U.S.'s dependence on oil, strengthens the country's economy, and protects the environment. Some vehicle efficiency technologies that reduce dependence on foreign oil are included below.

Hybrid and alternative fuel vehicles: Hybrid-electric, plug-in hybrid-electric vehicles, and battery electric vehicles can significantly improve fuel economy and displace petroleum. Researchers are making batteries more affordable and recyclable while enhancing battery range, performance, and life. The use of various alternative fuels to replace conventional gas and diesel not only helps the U.S. conserve fuel and lower vehicle emissions but offers an economical and environmental benefit for vehicle owners.

Reducing vehicle weight: Reducing vehicle weight directly improves vehicle efficiency and fuel economy and can potentially reduce vehicle operating costs. Cost-effective, lightweight, high-strength materials can significantly reduce vehicle weight without compromising safety.



Improved combustion technologies and optimized fuel systems: Combustion engine research focuses on improving new combustion strategies that can greatly improve engine efficiency and minimize the emissions formation in the engine itself. Direct fuel injection, when fuel is injected directly into the cylinder barrel, provides more efficient combustion than when fuel and air are mixed outside the cylinder.

Idle Reduction

Idle reduction describes technologies and practices that reduce the amount of time an engine idles. Idling wastes fuel and increases engine wear, so small changes in idling time can lead to noticeable benefits including cost savings, less pollution, and reduced noise.

Did you know? Researchers estimate that idling from heavy-duty and light-duty vehicles combined wastes about 6 billion gallons of fuel annually.

Medium-Duty Vehicle Idle Reduction Strategies

Typical medium-duty trucks include utility, courier, and package delivery trucks. Some utility trucks, such as bucket trucks, idle to provide power for the truck's primary work function. Other trucks idle to provide heating, ventilation, and air conditioning (HVAC) for drivers waiting in queue to make pick-ups or deliveries or who are working in their vehicles.

- * **Air Heaters:** Separate unit that blows hot air into the vehicle cabin using little fuel.
- * **Coolant Heaters:** Keep the engine warm and reduces the impact of cold starts.
- * **Waste-Heat Recovery Systems:** Uses the vehicle's heat-transfer energy recovery system through an electric pump connected to the water line to warm the vehicle.
- * **Battery/Auxiliary Power Systems:** Secondary power plant or storage battery that assists with power take-off throughout the day for medium-duty trucks.

Vanner IdleWatch™ Idle Reduction System: Engine-off AC/DC Power for Trucks

Vanner is a leader in power management and power transformation technologies for commercial transportation that include heavy duty/work truck, bus, ambulance, military, and hybrid solutions.

The IdleWatch™ “Hybrid” Idle Reduction System helps meet the trucking industry’s no idle-regulations while increasing battery life and improving fleet efficiency. IdleWatch™ reduces fuel consumption and exhaust emissions and has silent AC power access for use by work trucks in residential areas. Visit www.vanner.com for more information or to contact a Vanner representative.

IdleWatch™ System Features

- * **The IdleWatch™ recharges a battery fully before shutting off the engine to increase a vehicle’s battery life.** It enables fleets to operate AC and DC power tools and equipment from the battery when the engine is not running.
- * **IdleWatch™ constantly monitors the battery state-of-charge.** Should the battery discharge below the user’s predetermined point, the IdleWatch™ will auto start the vehicle to restart the battery, or notify the driver with a signal, such as a horn or buzzer, to start the vehicle’s engine or turn the equipment off.
- * **Fleets have uninterrupted AC and DC power when the auto start feature is engaged, improving worker efficiency with less on-the-job downtime.** If the battery state-of-charge falls below a present level, the system can **shut off** the load or sound an alarm or start the engine with appropriate safety checks before engaging.
- * **The IdleWatch™ can be installed in any 12-volt or 24-volt electrical system and any make or model vehicle. It can also be used with an inverter.** The system can also be installed on new vehicles at the truck equipment manufacturer before delivery or retrofitted on existing vehicles in the fleet.

- * **Key system features**, such as battery discharge levels, mobile AC power availability and fast-idle **can be programmed and customized to each vehicle’s use.**

IdleWatch™ controls loads, interlocks, engine starts and safety features. The system also contains Vanner’s patented Model Based Battery Monitor (MBBM™) for battery state-of-charge status. It can be used on both 12V and 24V electrical systems, on any make and model vehicle.

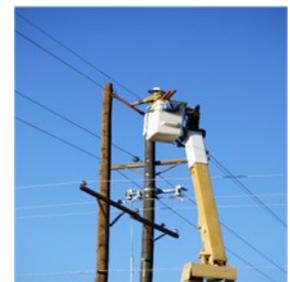
IdleWatch™ Idle Reduction System Acquisition Cost and Savings

Acquisition Cost: The acquisition cost for the IdleWatch™ Idle Reduction System can be found by contacting a Vanner representative. The IdleWatch™ can be installed in any 12-volt or 24-volt electrical system and any make or model vehicle. It can also be used with an inverter. The system can be installed on new vehicles at the truck equipment manufacturer before delivery or retrofitted on existing vehicles.

Savings: The IdleWatch™ Idle Reduction System increases battery life and improves fleet efficiency by cutting down on idling time and monitoring battery life. Fleet users will see fuel savings from 16 -25% or more, operational cost savings, and reliable power management and shut-down solutions for on-board, plug-in devices without idling the engine. Based on specific annual operational and fuel costs for the specific fleet, and an estimated annual savings from using the idle reduction system, fleets can expect to see a significant return on investment.



IdleWatch™



FOR MORE INFORMATION, PLEASE CONTACT:

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