



The Case for Shorepower-Ready Idle Free APU

Introduction

The trucking industry is the backbone of the American economy. It dominates the commercial transportation industry, and is expected to grow 21% over the next 10 years. There are three million class 8 trucks registered in the United States today, which log 93,512,000,000 highway miles per year. They run on diesel.

According to The National Petroleum Council, International Energy Agency and ExxonMobil, diesel will remain the predominant powertrain in heavy-duty applications and the predominant global transportation powertrain in the future. While much attention has been granted to emerging fuels such as natural gas and fuel cell, given the inherent efficiency of the diesel engine and the energy density of diesel fuel, alternatives cannot compete with diesel fuel.

A single class 8 tractor trailer typically carries 300 gallons of diesel fuel and travels eight miles on a single gallon. At an average speed of 55 MPH, it uses 6.8 gallons of fuel per hour. Overall, the industry averages 52,300,000,000 gallons of diesel fuel per year.

Situation / Issue

The U.S. Department of Transportation caps the number of hours drivers can be on duty to curb the number of fatalities on highways and improve the health of fatigued drivers. During these down times, truck-tractors drivers idled their trucks to provide the required heating, cooling and electric power for hotel needs during Federally mandated breaks.

In 2007, the Environmental Protection Agency calculated that long-haul trucks were idling 500 to 3,500 hours a year, burning a half-gallon to one and a half gallons of diesel fuel an hour. According to the Department of Energy, truckers consumed up to a billion gallons of diesel fuel a year while spewing 11 million tons of carbon dioxide, 200,000 tons of oxides of nitrogen and 5,000 tons of particulate matter into the air. This is compounded by noise pollution and needless wear-and-tear on truck engines.

Solution

Idle reduction is a rapidly growing trend in U.S. federal, state, local and fleet policy, and is the simplest and easiest way for trucking fleets to reduce fuel costs. Currently, 31 states have anti-idling regulations mandating drivers turn off their engines when not in use.

The most elegant solution is electrified parking spaces (EPS), also known as truck stop electrification. The Shorepower Truck Electrification Project (STEP), funded by the U.S. Department of Energy and administered by Shorepower Technologies, is working to help the trucking industry increase efficiency while decreasing fuel consumption.

Shorepower has deployed 63 sites in 30 states with 1,800 electrified parking spaces. The pedestals provide access to 120-volt or 208-volt power sources, at a rate of \$1 per hour, with cable TV available at a number of locations. The company expects to have 250 truck stops with 10,000 electrified parking spaces up and running with shore power within the next five years along the country's busiest interstates, including 5, 10, 20, 70, 80, 90 and 95.

Shorepower's electric plug-in power pedestals work best in tandem with on-board, shore power-ready auxiliary power units with 120v technology.

The Technology

Idle Free Systems manufactures the only auxiliary power unit (APU) on the market with fully integrated, factory-installed Shorepower technology. By integrating Shorepower into the system, Idle Free APUs can be powered three ways:

1. An independent battery bank consisting of four AGM batteries captures energy produced by the engine's alternator and stores it and, when the truck's engine is off, converts the stored energy into 120 volt electricity using a pure sine wave inverter;
2. Shorepower, which facilitates unlimited runtime when plugged into all-weather electrical outlets; and
3. Reefer Link™, Idle Free's proprietary, patented technology run by the reefer. Idle Free is the only APU on the market that can be powered by the reefer.

The independent battery bank, which consists of four AGM batteries, captures energy produced by the engine's alternator and stores it. When the truck's engine is off, the APU converts the stored energy into 120-volt electricity using a pure sine wave inverter.

Idle Free is also the only APU with Reefer Link™, Idle Free's proprietary, patented technology run by the reefer. When connected to the reefer, the drive will have unlimited run-time of his Idle Free APU.

Additionally, Idle Free APUs use a coolant heater as a fully integrated component of the system providing heat for both the cab / bunk as well as the engine block.

Idle Free APUs are CARB compliant and EPA SmartWay verified. They provide air conditioning and heat; 120-volt electricity for televisions, computers, and other hotel needs; and keeps the truck engine warm when the engine is off.

Benefits / Results

El Paso, Texas-based Mesilla Valley Transportation (MVT) has a fleet of 1,300 power units and 4,700 trailers. In order to remain competitive in spite of the company's geographic location in West Texas, CEO Royal Jones installed Idle Free auxiliary power units on their trucks to cut idling. Where it started with diesel-fired APUs, Jones moved to Idle Free's battery-powered units with shore power to avoid maintaining another engine.

Today, 98% of Mesilla Valley Transportation fleet vehicles have APUs. Because they can be plugged into shore power idling time has dropped dramatically from 50% to 3% and 4% during winter and spring.

Using shore power allows MVT fleet drivers to run the HVAC system and hotel loads such as microwaves, TVs and laptops with an endless supply of power. As a result, many of the fleet's drivers average more than 10 mpg.

The Idle Free Complete Electric APU Solution™ increases overall fuel economy at substantial cost savings, gives fleet managers a way to reduce their environmental impact, and eliminates extra engine wear and tear associated with discretionary idling.