



Sure Bet for Schools



School Bus Engine Pre-Heating System

Lyon County School District

Project Description:

Like all commercial diesel powered vehicles, school busses use engine "block heaters" to pre-heat the engine during colder months to simplify starting and reduce engine wear. An electronic timer and thermostatically controlled clock system have been installed to reduce the hours per day the block heaters are running. With this system, the bus heaters are now on for a maximum of only three hours per day as opposed to the 14 to 24 hours possible in the past. Typically, when bus drivers finish their routes on cold winter days, they plug their busses into a 120-volt AC circuit energizing either a 1 kW or 1.5 kW block heater. These heaters do not have a thermostat and consume their rated kW the entire time they are plugged in whether needed or not.

Contractor: District purchased and self-installed

Results/Benefits:

The control systems for the bus heaters have been installed. Equipment was also purchased to allow data logging so that actual operation and hours of use can be analyzed. Work will continue on this project and actual energy and demand savings will be analyzed.

The systems will control 23 busses at the Yerington Bus Yard with six having 1.5 kW block heaters and 17 having 1 kW block heaters. The Fernley Bus Yard timers will control 12 - 1.5 kW block heaters and 20 - 1 kW block heaters for a total of 32. The block heaters are typically used October through March and will reduce the hours of operation to a maximum of three hours per day.

Expected savings are shown below.

Project Details:

	Total
On-Peak Demand Savings	0.0 kW
Annual Energy Savings	89,078 kWh
Total Project Cost	\$11,500
Annual Energy Cost Savings*	\$9,799

* Assumes that the electricity rate is \$0.11/per kWh