

A MICROCHP CASE STUDY

Car Wash - New Milford, CT

Facility:

A 2-bay touchless car wash.

Hot Water Requirements:

Hot water is required for two different uses at this facility:

1) car washing and 2) radiant heated concrete slabs in the wash bays to prevent freezing in the winter months.

Mechanical Environment before mCHP Installation:

Hydronic heating is provided by two case iron, commercial, duel fuel boilers. Hot water is produced by two megastore 120 gallon indirect storage tanks. System water is heated exclusively by boilers.

Mechanical Environment after mCHP Installation:

A 250 gallon buffer tank and microCHP were installed. The buffer tank supply and return is connected to the heating boilers return piping in series. The unit heats the boiler system water which reduces boiler run time and cycle length. The microCHP provides 4.4 kW of electricity per hour and is used to offset the electric bill.



	2011 Before mCHP		2012 With mCHP	
	January	February	January	February
Electricity (kWhs)*	9,418	8,296	5,588	5,442
Electricity Cost (@ \$0.20/kW)	\$1,883.60	\$1,659.20	\$1,117.60	\$1,088.40
Propane (gallons)*	1,523	1,568	1,233	1,387
Propane Cost (@ \$2.19/gal)	\$3,335.37	\$3,433.92	\$2,700.27	\$3,037.53
Total Energy Cost	\$5,218.97	\$4,992.12	\$3,817.87	\$4,125.93
Savings for Jan/Feb 2012		\$1401.10	\$967.19	

**1st & 2nd
Month
Savings:**

**\$2,368.29
or
23%**

*2011 amounts adjusted down for variations in weather and business activity to produce a more accurate comparison.

Conclusion:

The mCHP system has been an ideal fit for this car wash because of the significant hot water and electrical loads. The unit runs almost 24 hours a day providing constant electricity generation and a steady, available supply of hot water. This hot water supply keep the boilers from going on and off, saving on gas usage. The electricity produced provides the base operating electric load for the facility, which means less electricity is purchased from the utility.