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Vegawatt unit provides power, heat to restaurant

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Restaurants may soon be adding a new appliance outside their back doors to convert waste oil into energy. On Jan. 5, Owl Power Co. rolled out its trademarked Vegawatt cogenerator which will burn the restaurant's waste vegetable oil to generate electricity and preheat water. For the past two months, the Boylston, Mass.-based company's prototype has been used in a Boston-area restaurant and has "worked perfectly," according to Ben Prentice, Owl Power vice president of sales.

Interest has been high, Prentice said, from restaurants interested in the unit's energy savings potential. While the unit is not intended to supply all of a restaurant's electrical and hot water needs, the energy savings from the ancillary unit burning 50 to 80 gallons of waste vegetable oil per week should give a return on investment within two years in areas with high electrical costs. If the unit is leased, the energy savings should cover the monthly lease cost.

Electrical rates in the Northeast average 14 cents per kilowatt-hour, explained James Peret, Owl Power's founder and chief executive officer. Massachusetts has the second highest rates in the nation (following Hawaii) at 15.5 cents per kilowatt-hour. In high utility rate areas, the Vegawatt is projected to save $800 per month in a restaurant's utility bill. At those kinds of savings, the value of the oil comes to $2.55 per gallon, Prentice said, which compares to 30 cents to 40 cents per gallon at best, if the restaurant has a buyer for the waste vegetable oil. The unit design is based on the amount of available oil, and not on the restaurant's power load. "Restaurants are power hogs," he said. The restaurant where the prototype unit was tested has an average summer peak load of 50 kilowatt.

The commercial refrigerator-sized unit (6 feet wide, 6 feet high and 2 feet deep) is installed outside the facility. The unit sized for a restaurant with three to five deep fryers contains an oil cleansing system, a standard 5-kilowatt generator and a heat exchange system to transfer waste heat from the generator. For the restaurant operator, the only requirement is to pour the used waste vegetable oil into the unit. Through a service agreement, Owl Power will monitor the unit via an internet connection and handle maintenance.

No modifications have been done to the generator, and Peret added, "we need no secondary fuel stream to initiate the process." Most straight vegetable oil systems for diesel engines use petroleum diesel to startup and switch over to vegetable oil once the oil is warm. The heart of the Vegawatt is its patent-pending four-stage automated cleansing unit which removes particulate contaminants and water from the waste vegetable oil.

Thanks to net metering laws that are in place, Peret said the hook up for the electrical power is straightforward. "The net metering laws have standard procedures to integrate a grid tie inverter," he said. A wire runs from the Vegawatt to a restaurant's power entry box or nearby 30 amp breaker. Waste heat is carried via a glycol-filled waterline to a heat exchanger installed inside the restaurant to preheat water coming from the municipal water supply from around 50 degrees Fahrenheit to between 100 and 110 degrees Fahrenheit.

Owl Power is working with local firms to begin manufacturing the 5-kilowatt Vegawatt unit this spring. Peret is already working on a 12-kilowatt system for restaurants with waste vegetable oil supplies ranging between 120 gallons and 170 gallons per week.