CASE STUDY: Renewable Energy, City of Eau Claire

The City of Eau Claire generates methane gas from its Waste Water Treatment Plant to help co-power the facility. The following is a summary of computed savings at the plant using the methane gas produced during the Anaerobic Digestion of biosolids, and the generators to unitize this gas. The volume of the plant's gas production is 24,000 kWh or as indicated below.

Assumption: Generator will operate at 50 kW for 16 hours per day, 12 hours on peak, and 4 hours off peak.

1. Peak Controlled Rate (PCR) is an alternative electric rate available for customers that are able to shed a portion or their entire electric load during times of Xcel Energy electric system peaks. Customers who participate in the PCR receive a monthly discount on their electric costs whether or not they are asked to reduce their load.

Estimated 2008 PCR Savings= $13,464

2. kW Savings: On peak- 12 hrs/day x 30 days x 50 kW = 18,000 kWh
18,000 kWh x $0.068440/kWh = **$1,232/month**

Off peak- 4 hrs/day x 30 days x 50 kW = 6,000 kWh
6,000 kWh x $0.039060 = **$235/month**

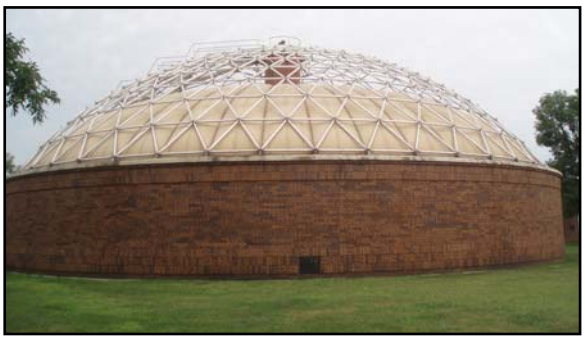
Peak Demand- 50 kWh x $7.20/kW= **$360/month**

3. Hot Water Savings: 1,200,960,000 BTU/month / 100,000 BTU/therm= 12,000therms/month

12,000 therms/month x $1.17/therm = **$14,040/month**

4. Annual Savings

- **a. Peak Controlled Rate = $13,464**
- **b. kW Savings = $21,924**
- **c. Hot Water Savings = $168,480**
- **d. Total = $203,868 per year**



Anaerobic Digester producing methane

Thus, an estimate of $203,868 of annual savings occurs at the Waste Water Treatment Plant using a by-product of the anaerobic digestion process. However, because of the higher price of energy, the City has been running the generators typically from 18-24 hours per day, so the savings have been greater. The City has been using this gas in generators for over 27 years, so the savings have been very significant.