Hamilton Sundstrand
A United Technologies Company

Industrial Placement Intern: Joseph Komenda
Major: Mechanical Engineer
School: University of Nebraska-Lincoln

Company Background:
Hamilton Sundstrand in York, Nebraska does business internationally and within the United States as part of the United Technologies Corporation's (UTC) aerospace and industrial products division. With the plating, lamination, and heat treating capabilities Hamilton Sundstrand's aerospace customers range from commercial airliners to military aircraft. To meet the market demand, Hamilton Sundstrand operates 24 hours a day, utilizing three eight hour shifts.

Project Description:
In 2011, Hamilton Sundstrand in York, Nebraska sought help in reducing their greenhouse gas (GHG) emissions produced directly or indirectly. Reducing power drawn from the electrical utility, Nebraska Public Power District, investigating energy efficiency of equipment and the current energy back-up system and identifying general energy efficiency opportunities were the main goals of the project to reduce GHG emissions.

Pollution Prevention Benefits:
Several opportunities were examined that held many benefits for Hamilton Sundstrand. Combining a solar panel array and a hydrogen electrolysis emergency power system reduces dependence on electricity from the grid and reduces greenhouse gas and other harmful air emissions. Other research and investigations would help optimize shipping of hazardous waste by the best dewatering procedure for wastewater treatment sludge, reduce compressed air waste through a regular leak detection program, increase energy efficiency of ceiling fans, replace paper towels in restrooms with hand dryers to reduce solid waste generation, and prolong generator equipment life and reliability with proper maintenance practices.

Results
The pollution prevention recommendations resulted in benefits which are quantified in the table below:

Table 1. Environmental and Economic Benefits from Pollution Prevention Suggestions

Pollution Prevention Category	Amount Reduced	Annual Cost Savings
GHG Emissions	996 MTCO2E	~
Electricity	1,103,000 kWh	$26,200
Solid Waste	4,300 lbs	$80
Other	~	$3,500
Total	**~**	**$29,780**

Other intangible benefits include:

- Reduce ordering and inventory demands for paper towels
- Maintain low transportation demands for hazardous wastes
- Improve monitoring of energy use and management of energy related project with the use of several of EPA'S ENERGY STAR tools