

# P2 Internship 2008

## EPA - Region 1

### *Energy Star Community Wide Energy Challenge*

Adria Fichter and Simon M. Huang worked with the EPA-Region 1 New England to promote EPA's Energy Star Community Wide Energy Challenge.



In 2008, the EPA promoted the Energy Star Challenge to increase the efficiency of New England communities. Adria and Simon targeted municipal buildings and schools in 12 towns and one vocational technology school. To complete the challenge the community must commit themselves to improving energy efficiency and to achieve at least a 10 percent energy reduction in the future. The towns must also promote energy efficiency and use of renewable energy to individuals, companies and organizations in the community.

Adria worked with six Massachusetts towns and one Vocational Technical Institute to benchmark their buildings, to introduce energy reduction techniques and to show them how to save money by implementing these techniques. The results of the towns are as follows.

### **If 10% of energy is reduced...**

<b>Town</b>	<b>Energy Used (kWh/yr)</b>	<b>CO2 not emitted (metric tons)</b>	<b>Cost Savings</b>	<b>Barrels of oil saved</b>
Acushnet	433,749	337	\$39,534	784
Easton	1,609,039	1,251	\$10,589	2,909
Hull	301,729	235	\$31,773	546
Medfield	1,235,370	960	\$85,984	2,234
Plymouth	390,206	375	\$71,358	872
Tisbury	238,437	115	\$10,384	264
SE Rg. Voc.Tech.	689,122	536	\$48,073	1,246
<b>Total</b>	<b>4,897,652</b>	<b>3,808</b>	<b>\$297,695</b>	<b>8,855</b>

Simon worked with six Vermont towns to benchmark their municipal buildings and reduce their carbon footprint. The results of the towns are as follows:

**If 10% of energy is reduced...**

<b>Town (Initial score)</b>	<b>Energy Used (kWh/yr)</b>	<b>CO2 not emitted (metric tons)</b>	<b>Cost Savings</b>	<b>Barrels of oil saved</b>
Brattleboro	154,312	120	\$11,263	279
Essex	96,986	75	\$5,926	175
Hinesburg	237,906	185	\$22,897	430
Putney	46,307	36	\$4,142	84
Richmond	65,288	51	\$4,142	118
South Burlington	434,277	338	\$24,882	785
<b>Total</b>	<b>1,035,076</b>	<b>805</b>	<b>\$73,252</b>	<b>1,871</b>

The EPA Energy Star Community Wide Energy Challenge has the potential to be a huge success. For those communities who get involved, the program will reduce energy consumption. One of the most compelling attributes of the Energy Star Challenge is that it involves and educates members of the community on the effort to reduce energy consumption, therefore improving both their surrounding environment as well as their health.

## **Freudenberg-NOK General Partnership in Bristol, NH**

### *Scrap pallet, landfill waste and hazardous waste reduction*

Darrell Gyles, a UNH student, spent the summer of 2008 working on a pollution prevention project with Freudenberg-NOK General Partnership (FNGP). Mike worked on three projects to eliminate or reduce the waste generated at the plant, which in 2007 cost approximately \$130,000. It was determined that the largest contributors to waste costs were scrap pallet, landfill dumpster disposal and hazardous waste reduction.

Project#1 Eliminate the cost for pallet removal. This proved to be problematic because many pallet recyclers do not take the particular type of pallet that FNGP's supplier uses and the supplier does not recycle its pallets. FNGP now sends the pallets to two local companies that burn the pallets for energy. In addition, an empty FNGP truck, which passed by these facilities twice a week, was assigned to deliver a truckload of waste pallets each time it went out, sufficiently disposing of all the pallets and saving the company \$9,500 a year.

Project #2 Eliminate waste to landfill by 50 percent. Darrell searched disposal alternatives, such as uncured rubber recycling and incinerating with the general trash. There are two companies in New Hampshire that are willing to take the uncured rubber, but final arrangements still need to be made. These options will save the company \$15,000 a year starting immediately.

Project #3 Eliminate the cost of hazardous waste disposal. The disposal costs for hazardous waste was between \$25,000 and \$35,000 per year. Upon completing a hazardous waste activity report, Darrell found that many of the wastes being sent out did not meet specifications and therefore increased the disposal costs. In addition, the rate of off-spec material vs. on-spec had increased tremendously over the last few years. It was recommended to train employees to monitor the system more closely, which will realize a potential savings of at least \$20,000 per year. Also, with less frequent cleanings and smaller tanks, the yearly volumes of residue sent out could be reduced by 50 percent.

What	% Reduction	Amount	Yearly Cost Savings
Wooden Pallets	100	55 tons	\$9,500
Solid Waste	100	At Least 40 tons	\$15,000
Hazardous Waste	50	5,825 gallons	\$50,000

Additional Minor Projects. The company installed hand dryers instead of using paper towels. The company added another crusher that was used for cardboard disposal. These two projects saved the company \$25,000.

Overall, Darrell saved the company approximately \$75,000, with the potential of an additional \$25,000.

## **DePuy Orthopaedics and EPA - Raynham, Mass.**

*Slurry drying, plastic chip drying and car/vanpooling as well as energy reduction*

Frank Salantri split his time with DePuy Orthopaedics and the EPA-Region 1 New England to promote EPA's Energy Star Community Wide Energy Challenge in Raynham, Mass.

In 2008, Frank Salantri explored methods to improve solid waste management at DePuy Orthopaedics (DPO). The environmental staff at DPO wanted assistance to improve communication and energy reduction techniques with the town of Raynham as well as to improve waste handling procedures and reduce waste to landfill at DPO. To complete this goal the company identified three areas that needed the attention of the pollution prevention intern: slurry drying, plastic chip drying and car/vanpooling. The company had been operating using outdated methods and wanted to reduce the amount of waste generated and environmental impact.

- Slurry Drying – By changing the process flow, the pollution prevention techniques the company:
  - Reduced waste to landfill by 30,000 pounds.
  - Reduced cost by \$12,420.
  - Reduced maintenance hours by over 200.
- Plastic Chip Drying – By implementing a simple gravity draining process, the company:
  - Reduced the amount of coolant from 20-60 gallons weekly.
  - Reduced man hours by 624.
  - Received an immediate payback of \$17,000, which will continue annually.
- Van/Carpooling – Of the 1000 employees, 18 travel 25 miles or over to work. If those employees travel in a vanpool, they will:

- Reduce CO2 by 150,000 pounds per year.
- Save 11,500 miles per car per year.

While Frank worked with DPO to reduce its carbon footprint, he also worked with the town of Raynham to get started on the Energy Star Challenge process. To complete the challenge the community must commit themselves to improving energy efficiency and to achieve at least a 10 percent energy reduction in the future. The town must also promote energy efficiency and use of renewable energy to the residents, companies and organizations in the community.

Frank worked with the town to benchmark six buildings, to introduce energy reduction techniques and to show them how to save money by implementing these techniques. The results of the towns are as follows.

**If 10% of energy is reduced...**

<b>Building</b>	<b>Energy Used (kWh/yr)</b>	<b>CO2 not emitted (metric tons)</b>	<b>Cost Savings</b>	<b>Barrels of oil saved</b>
Gilmore Hall	1,180	2	\$400	3
Highway Dept.	10,000	4	\$2,000	9
Parks & Rec	420	1	\$400	2
Police/Fire Dept.	26,000	17	\$4,346	39
Senior Center	4,000	2	\$478	5
Town Hall	26,000	6	\$2,500	14
<b>Total</b>	<b>67,000</b>	<b>32</b>	<b>\$10,124</b>	<b>73</b>

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