Case Study of EarthLinked® Heat Pump In Hardware Store - Metered by Public Service Company of New Hampshire

Project Year: 2007

Location: Goffstown, New Hampshire U.S.A.

A 21,000 square foot Ace Hardware store in the northeastern U.S. is saving an average of more than $1,000 per month in heating and cooling costs by using six 6-ton EarthLinked systems. As fossil fuel prices rise to unprecedented levels, the new store is spending an average of $330 per month or approximately $0.10 per square foot for heating.

The system is separately metered for monitoring purposes by Public Service Company of New Hampshire, who recommended that the building owner Larry Brown consider a geothermal heat pump as he was planning construction.

"On an ongoing basis, our heating and cooling costs are much lower. We're not going to be burning fossil fuels or contributing to global warming concerns," said Brown.

The energy and environmental savings projected by Public Service Company of New Hampshire are:

Estimated Energy Savings

138,000 kWh	X	25-year measure life	=	3,450,000 lifetime kWh savings
X $0.10563 per kWh				$ 0.10563 per kWh
$ 14,577 annual energy savings				$ 364,424 lifetime energy savings

Reduced Oil Consumption

138,000 kWh	X	0.069 gallons of oil/kWh	=	9,522 gallons/year

Reduced Power Plant Emissions

CO_2 (a "greenhouse" gas)
138,000 kWh X 0.897 lbs/kWh = 123,786 lbs/year

SO_2 (a "greenhouse" gas and cause of acid rain)
138,000 kWh X 0.004 lbs/kWh = 522 lbs/year

NO_X (a "greenhouse" gas and a cause of acid rain)
138,000 kWh X 0.0015 lbs/kWh = 207 lbs/year

The above calculations assume fossil fuels are burned to provide incremental energy to the PSNH distribution system. Nuclear power plants provide baseload energy and their operation would not be affected by this energy efficiency project.