



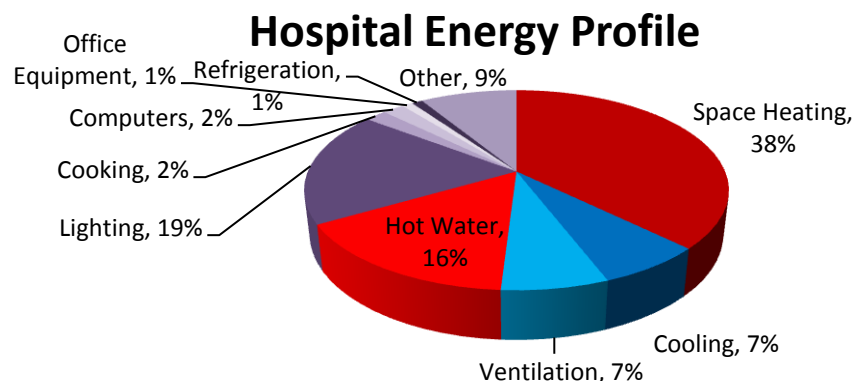
Geothermal Heat Pump Systems: Providing Answers to Growing Financial Challenges in the Health Care Industry

“Ground source heat pumps (GSHPs) are well-established systems that can economically heat and cool buildings. Hospitals are promising settings for GSHPs because of their year-round—and often round-the-clock—heating and cooling requirements” – U.S. Department of Energy’s Energy Hospital Alliance

Hospitals and extended health care facilities are facing enormous financial pressures. Finding ways to meet these challenges – from falling reimbursements to increasingly onerous and costly regulations – takes a surgeon’s skill.

A facility’s energy use is typically the greatest cost factor, yet it is often the last line item to be addressed in terms of potential savings. Equipment cost and the need to prioritize spending to ensure that patients are provided the best health care and attention possible, are mitigating factors. If considered in terms of a MASH unit, the boiler and chiller - although old and inefficient - are often last in line for care and attention.

The Department of Energy’s Hospital Energy Alliance identified several areas of focus to reduce hospital facilities’ energy consumption, costs and carbon footprint, including Heating, Ventilation and Air Conditioning (HVAC):



EnLink Geoeenergy suggests that hospitals can cut their energy use by up to 70 percent by installing geothermal heat pumps (GHP), when compared to a traditional HVAC system, and do so at no capital expense through an attractive and powerfully financed third party offering. Indeed, most new Veteran’s Administration hospital new-build or retrofits include GHP system requirements, saving the facility significantly in energy, water and maintenance costs.

The EPA through its Energy Star Program Suggests:

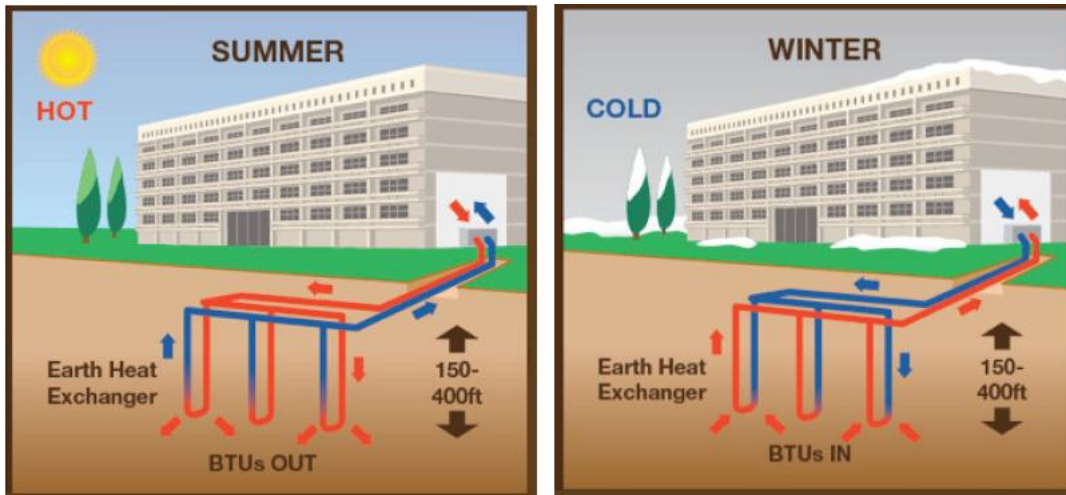
- *Every \$1 a nonprofit healthcare organization saves on energy is equivalent to \$20 in new revenues for hospitals or \$10 for medical offices.*
- *For profit hospitals, medical offices, and nursing homes can boost earnings per share by a penny by reducing energy costs just 5%.*

GHPs must be considered the foundation of any health care facility’s sustainability strategy, whether building new or retrofitting existing buildings. This is one reason why the U.S. Department of Energy considers GHPs “the most efficient technology available today.”

How Does a Geothermal Heat Pump System Work?

The earth holds a tremendous amount of free energy that is acquired from the sun, and GHPs utilize this energy to heat and cool buildings. At shallow depths (10 – 600 ft) the earth remains a constant, moderate temperature. Instead of having to work with high and low degree ambient air temperatures, GHPs work with the moderate earth temperature, decreasing

energy use as much as 70% compared to a traditional HVAC system. Depending on the region, the earth's temperature will be in the range of 45-70° F.



GHPs heat exchange is more reliable than “traditional renewable”, as the earth’s constant temperature is always available at the point of use, providing heating and cooling 24 hours a day, 365 days a year, presenting ideal accommodations for hospitals.

Geothermal Heat Pump System Benefits for Hospitals:

- 300-600% efficiencies, reducing energy consumption up to 70% compared to conventional systems.
- GHPs are closed loop systems and are cause for significant water conservation
- GHPs own the lowest operation, maintenance and replacement cost of any other HVAC system
- GHPs work at every point of use regardless of outside conditions
- GHPs reduce peak demand and therefore peak costs
- GHPs eliminate fossil fuel boilers, resulting in zero on-site emissions and getting rid of all HVAC related combustion processes (reducing hazards on hospital grounds); this also adds additional space to a health care facility’s footprint
- GHPs produce free hot water, helping to address a significant cost issue for hospitals
- GHPs eliminate other types of cooling equipment associated with mold and bacteria build up which could prove to be less than beneficial for hospitals
- GHPs serve as an excellent foundation to achieve milestones such as LEED certification and Net Zero Energy

In addition to VA Hospital GHP programs, examples of non-VA facility GHP experiences include:

- Elgin, Illinois: Sherman Hospital – GHPs costs = \$4.5 million, Annual Savings = \$1 million, ROI = 4.5 years without incentives or financing
- West Burlington, Iowa: Great River Medical Center – GHPs costs = \$2 million, Annual Savings = \$400,000, ROI = 5 years without incentives or financing
- Boise, Idaho: Boise VAMC – GHPs was expected to have a payback of 9 years (1988) with rising gas and electricity prices the payback period ended up as 6 years.

Geothermal Heat Pump System Economics:

GHPs are considered a renewable energy technology by the federal government, and therefore are eligible to receive a 10% Investment Tax Credit and qualify for the 5 year MACRS depreciation schedule. Federal depreciation incentives also are available. Aside from federal tax incentives, most states and utility providers have incentive programs available for geothermal heat pump system equipment and installation. Third-party financing is another viable option for GHPs projects. Financing is available in a variety of different structures: loop leasing, savings based contracts, thermal purchase agreements, micro – utilities and loan financing, all of which remove initial cost barriers.

GHPs usually have more favorable economics compared to conventional systems. But for those who want to avoid capital costs altogether, third party financing is available, moving that capital to an operating expense. This provides immediate cost savings, in addition to all of the other benefits cited above.

Please visit www.enlinkgeoenergy.com for more information about EnLink Geoenergy, our technology, and questions about third party financing options. Call 424-242-1200 and inquire about a webinar tutorial.