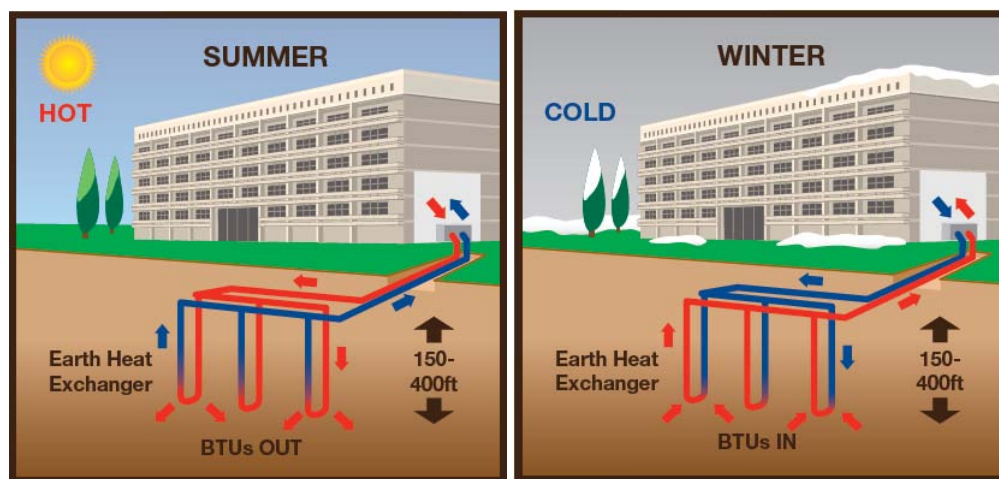


Geothermal Heat Pump Systems and Third Party Financing

What are Geothermal Heat Pump (GHP) Systems?

GHP systems are highly efficient air conditioning and heating systems powered by the moderate and stable temperature of the ground beginning just a few feet below the surface. Also known as ground source heat pumps, GHP systems are considered both a renewable and demand side efficiency technology. No conventional chillers or boilers are required. According to the U.S. Department of Energy, GHP systems can save up to 70% of the energy used to heat and cool buildings compared with a conventional HVAC system. GHP systems have been in use for over 40 years, their efficiencies and benefits are well documented and they can be used for all building types. In addition to the energy savings, benefits include: water savings; no on-site use of water or fossil fuels; reduced peak demand; environmentally friendly; and reduced operating and maintenance costs.



The systems consist of an outside, underground portion called the earth-heat exchanger, which is a set of connected buried pipes circulating water. This portion is what utilizes the earth's power and replaces conventional chillers or boilers. The inside part of the system consists of standard air handling equipment and the geothermal heat pumps.

Note that geothermal heat pump systems are not the same as geothermal energy, where deep drilling for "hot rocks" geological activity produces steam to generate electricity.

Economics

GHP systems can have a somewhat higher first cost than a conventional system, but the energy, water, maintenance, and replacement costs are significantly less, resulting in a simple payback of as little as 5 years. Federal, state and local incentives enhance the economics substantially. Building type, use patterns, heating and cooling loads and utility pricing are key factors in determining economics.



How Can GHP Systems Be Financed

System financing options are now available for private and tax exempt entities. Options for financing include:

Lease: The financing entity can own the system and lease it to the customer, the lease payment structured by the cost of the system and the term. HVAC leasing already exists and a GHP system lease can be structured in a similar basis. Some U.S. utilities offer lease programs for GHP systems they own.

“Thermal Purchase Agreement”: The financing entity will own the system for an initial term and charge a usage fee. Typically these agreements can be extended or the asset can be transferred to the customer for an agreed upon fair market value. Whichever is in the customer’s best interest.

Savings-Based Contract: Since the savings from GHP are so significant compared to conventional HVAC, GHP systems are excellent candidates for savings-based contracts. An analysis will be conducted to determine the savings between a GHP system and a corresponding conventional system for a particular customer, and the differential can be the basis for structuring the savings-based agreement.

MicroUtility: The financing entity owns the system without the intention of selling or transferring it back to the customer. It continues to sell power (BTUs) to the customer. Building owners with tenants may be interested in this option as it becomes an additional revenue source along with rent and CAM.

Loan: The financing entity structures a standard loan agreement to the customer for the cost of the GHP system, payable by the customer at a set rate and term.

Benefits to Financing Entity

The unique features and benefits of GHP provide a very predictable and stable annuity for a financing entity as follows:

Low Variability: GHP systems work the same in all areas and do not require special geological activity, the sun to shine, or the wind to blow. Therefore there will be less variability in their operation and can serve as the basis for a stable portfolio.

Dependable Asset: The outside portion of a GHP system is entirely underground, basically permanent in nature, and almost never requires maintenance. The inside portion consists of standard ductwork and heat pumps with an ASHRAE rated 26 year life span. This provides a stable asset suitable for long-term ownership or sale for the financing entity.

Low Maintenance: With very few moving parts, and no portion of the system exposed to the elements or subject to vandalism, the systems require very little maintenance.

Easily Measured and Verified: Usage can easily be measured and verified by BTU metering systems.



Guaranteed Savings: It is documented that the least efficient GHP system still has greater efficiencies than the most state of the art conventional system. Therefore, savings will always be achieved.

Federal, State and Local Incentives: GHP systems are eligible for numerous incentives and rebates, and the owning entity will benefit through its ownership of the entire system.

Benefits to End Customer

Customers in both the private and public sector can benefit by third party financing of their GHP system:

Elimination of HVAC Capital Costs: With outside financing, HVAC expenses shift from the balance sheet for equipment to an operating expense for usage. Rather than pay for costly HVAC system, a building owner can just pay for the heating and cooling it uses as it would for electricity.

Reduced Operating Costs: Customers will enjoy reduced operating expenses related to utility expenditures for heating and cooling, resulting in increased cash flow.

Ability to Recognize Instant Savings: Without having to pay up front for the systems and factor in payback periods, the customer will immediately recognize the savings provided by the GHP system.

PR and marketing benefits: Customers can market the environmentally responsible and green aspects of these systems to enhance their business reputation.

Frequently Asked Questions

What do I actually own?

The GHP system has three main components. First, the outside component is the underground earth heat exchanger. This provides the energy to heat and cool the buildings and this is what will replace conventional chillers and boilers. The inside components are the air handling equipment and the geothermal heat pumps. The entire system is eligible for tax incentives. The financing entity will at minimum own the outside portion; it can also own inside portion as well.

How would I determine if a candidate is worthwhile? How will I know what to charge?

A design-build GHP contractor or mechanical engineer with a specialization in GHP systems can provide an energy analysis and corresponding financial analysis to determine system viability.

Who would install the system?

An accredited, qualified geothermal contractor, like EnLink, would install the system.

What about long term maintenance?

An accredited installer should provide a long-term warranty.



I am interested, but don't want to get involved in overseeing the construction, etc

An accredited project management or GHP contractor with experience in this area can manage the build out to industry and agreed upon specifications and act as the owner's rep on behalf of the financing entity

How do I find out about available projects?

Partnering with design-build GHP contractors, engineers who specialize in the area or companies wishing to adopt GHP will be excellent sources of new projects.