

October Newsletter

Swimming Pool Energy Efficiency



Looking for a way to lower your pool's operating costs? One way might be to review the recommendations of the U. S. Department of Energy, which has extensively studied various energy conservation methods for heating swimming pools and the resulting costs savings. Their findings hit the bottom line - it is possible to reduce energy costs by as

much as 50 - 70%! The Department of Energy has found that water evaporation is overwhelming the single largest source of energy over consumption, accounting for 70% of total energy lost in both outdoor and indoor pools. With evaporating water goes much of a swimming pool's heat. For every gallon of water that evaporates it takes with it over 8,500 BTUs, and a typical pool loses 1 to 1 1/2 inches of water a week. For a 1,000 square foot pool, an inch equals 625 gallons or over 50 therms of natural gas. A therm is equal to 100,000 BTUs. Because of all the energy required to evaporate a gallon of water, evaporation turns out to be 70% of heat loss from a pool.

Swimming Pool Covers

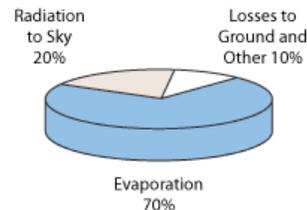
You can significantly reduce swimming pool heating costs by using a pool cover.

How They Work

Swimming pools lose energy in a variety of ways, but evaporation is by far the largest source of energy loss. Evaporating water requires tremendous amounts of energy. It only takes 1 Btu (British thermal unit) to raise 1 pound of water 1 degree, but each pound of 80°F water that evaporates takes a whopping 1,048 Btu of heat out of the pool.

The evaporation rate from an outdoor pool varies depending on the pool's temperature, air temperature and humidity, and the wind speed at the pool surface. The higher the pool temperature and wind speed and the lower the humidity, the greater the evaporation rate. In windy areas, you can add a windbreak—trees, shrubs, or a fence—to reduce evaporation. The windbreak needs to be high enough and close enough to the pool that it doesn't create turbulence over the pool, which will increase evaporation. You also don't want the windbreak to shade the pool from the sun, which helps heat it.

Outdoor Pool Energy Loss Characteristics



Crystal Clear Pools Selecting an Electric Pool Heater

www.crystal-clear-pool.net
 320 Hwy 27 - Clermont
 158 W Hwy 50 - Clermont

Phone: 352 241 4443
 Fax: 352 241 0747
 Email:

Crystal Clear Pools.....

The difference is clear.

Heat pump pool heaters cost more than gas pool heaters, but they typically have much lower annual operating costs because of their higher efficiencies. With proper maintenance, heat pump pool heaters typically last longer than gas pool heaters. Therefore, you'll save more money in the long run.



With proper installation and maintenance, heat pump pool heaters can last 10 or more years.

pool temperature of 80°F. COPs usually range from 3.0 to 7.0, which converts to an efficiency of 300%–700%. This means that for every unit of electricity it takes to run the compressor, you get 3–7 units of heat out of the heat pump.

Typically, manufacturers measure the COP by testing a heat pump pool heater with an outdoor temperature of 80°F and

Liquid Pool Cover

Heatsavr™ is a mixture of carefully chosen ingredients which are lighter than water so that they automatically float to the surface. They are attracted to each other so that they try always to form a perfect very thin layer over the whole pool surface.

Heatsavr™ slows evaporation substantially. Evaporation is one of the main forms of heat loss from swimming pools and spas. Slowing it can yield large cost savings.

Heatsavr™ will lower humidity as well as evaporation. It takes money to buy heat, and heat to evaporate water, so slowing evaporation will lower humidity as well as heating costs.

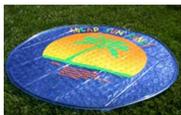
Cost Comparison:

Pool Blankets are between:

\$72.99 for 12x24ft to \$115.99 for 15x30ft



Solar Sun Rings are \$30 each, an average pool will use between 8-12 rings.



EcoSaver/Pills/Fish are \$9.99 and will last for 30 days—By far the most cost effective



Please take a look at our new website!

Visit us on the web:
www.crystal-clear-pools.net

Operating a Swimming Pool Pump for Energy Efficiency

You can save energy and maintain a comfortable swimming pool temperature by using a smaller, higher efficiency pump and by operating it less.

In a study of 120 pools by the Center for Energy Conservation at Florida Atlantic University, some pool owners saved as much as 75% of their original pumping bill when they used these energy conservation measures (see table below).

Savings from Pump Conservation Measures

| Condition | Energy Use (kWh/year) | Cost of Energy (\$/year) | Energy Savings |
|-------------------------------|-----------------------|--------------------------|----------------|
| Original | 3000 | 240 | ---- |
| Pump replacement (downsizing) | 1800 | 140 | 40% |
| Reduced time (60%) | 1200 | 100 | 60% |
| Combination of above | 720 | 60 | 75% |

Table courtesy of Home Energy magazine. These savings represent a typical pool in Florida. The average pool pump energy bill is probably higher in Florida than in many other areas of the country because of the long swimming season. While the absolute savings here will be greater there than elsewhere, the percentage savings should apply nationwide. Note that the savings for the combination of measures are not simply the sum of savings for the individual measures. When both are implemented, the energy use is 60% of 40% of the original use-percent savings.

- Reduce your filtration time to 6 hours per day. If the water doesn't appear clean, increase the time in half-hour increments until it does. In the Florida study, most people who reduced pumping to less than 3 hours per day were still happy with the water's quality. On average, this saved them 60% of their electricity bill for pumping.
- You can install a timer to control the pump's cycling. If debris is a problem, use a timer that can activate the pump for many short periods each day. Running the pump continuously for, say, 3 hours leaves the other 21 hours a day for the pool to collect debris. Several short cycles keep the pool cleaner all day.
- Keep the intake grates clear of debris. Clogged drains require the pump to work harder, which uses more energy. Backwash your filter appropriately. Backwashing too frequently wastes water, while not backwashing wastes energy by requiring the pump to work harder.

Energy Efficient Pool Pumps

Swimming pool pumps can use more energy and cost more to run than all of your home appliances combined. Installing an energy efficient Two-Speed or Variable-Speed pool pump can save up to 70% on your energy costs while keeping your pool water cleaner, clearer, and healthier.

Selecting an Gas Pool Heater

They're most efficient when heating pools for short periods of time, and they're ideal for quickly heating pools. Therefore, gas pool heaters can be a good choice for pools that aren't used on a regular basis. Unlike heat pump and solar pool heaters, gas pool heaters can maintain any desired temperature regardless of the weather or climate.



Today, you'll find some gas pool heaters with 89%–95% efficiency. The following table shows how much you can save for every \$1,000 in annual pool heating costs by installing a gas pool heater that's 95% efficient.

Annual Savings by Gas Pool Heater Efficiency*

| Current Htr Eff | Cost w/ 95% | Annual Savings |
|-----------------|-------------|----------------|
| 55% | \$580 | \$420 |
| 60% | \$630 | \$370 |
| 65% | \$685 | \$315 |
| 70% | \$735 | \$265 |
| 75% | \$790 | \$210 |
| 80% | \$840 | \$160 |

*For every \$1,000 in annual pool heating costs

With proper installation and maintenance, gas pool heaters typically last five or more years.