



Renewable Energy Solutions

Deep Water Cooling

1. General Information

The demand for air conditioning in hotels has grown over the years but a method to provide air conditioning to hotels by taking advantage of an available cold water source (usually deep cold water from a lake or ocean) already exists.

For what can my hotel use a deep lake/ocean water cooling system for?



With deep lake/ocean water cooling system you can provide air conditioning to your hotel by taking advantage of an available cold water source from deep cold water from a lake or ocean.

How does a deep lake/ocean water cooling system work?

Deep cold water from a lake or ocean is pumped through a heat exchange which facilitates the energy transfer between the deep lake/ocean water and the internal hotel building closed loop, providing chilled water for your hotel cooling system.

How well developed is deep lake/ocean water cooling technology?

Deep lake/ocean water cooling system is a proven technology and is technically and economically feasible today.

Where can I install a deep lake/ocean water cooling system?

In hotels that have access to a large quantity of cold water.

How do I know if a deep lake/ocean water cooling system is a good choice for my hotel?

Along many ocean coastlines and lake shorelines, there is reasonable access to naturally cold water that is as cold or colder than the water used in conventional air conditioning systems. If this water can be tapped, then the significant power for operating mechanical chillers can be eliminated. The process is very similar to using chillers in conventional air conditioning systems. The only difference is that the cold temperature is not achieved by evaporation of a liquid into a gas. Rather, it is retrieved from a natural cold water source - from a deep ocean or lake.

How is the corrosion of salt water avoided in a deep lake/ocean water cooling system?

Heat exchangers are normally made of titanium to avoid the corrosion from salt water.

What are the advantages of a deep lake/ocean water cooling system?

- Up to 90% reduction in energy consumption
- CFC-free chilling technology
- Fixed pricing promotes operating cost predictability



How much would a deep lake/ocean water cooling system cost?

The economic viability of a deep lake/ocean water cooling system for your hotel is site specific. Each location has unique opportunities as well as problems. The main factors influencing the economic viability of a specific location include:

- The distance to reach the cold water from your hotel: longer pipelines are more expensive than short pipelines
- The size of your hotel air conditioning load: small systems are less economically viable
- The global use of the air conditioning system: The higher the use of air conditioning throughout the year, the higher the direct benefits
- The local cost of electricity: high electricity costs makes a deep lake/ocean water cooling system more attractive

