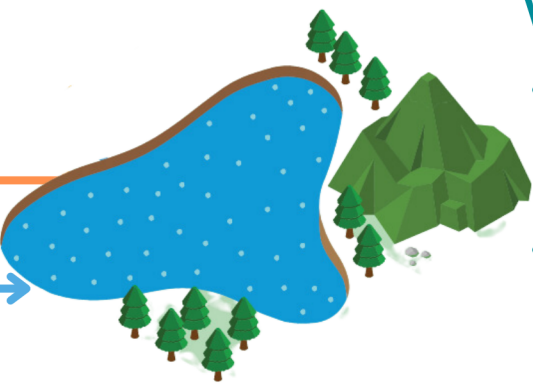


Heat Sources & Heat Sinks

In the context of heat pumps, a heat source refers to the medium or location from which the heat is extracted, while a heat sink is the medium or location into which the heat is transferred. The effectiveness of a heat pump system relies on the temperature difference between the heat source and the heat sink.

Common Heat Sources

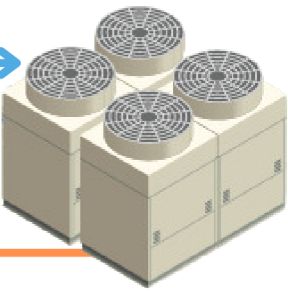
1



Water Source Heat Pumps (WSHP):

- **Groundwater:** Water source heat pumps use water from underground sources, such as wells or lakes, as a heat exchange medium.
- **Surface Water:** Heat pumps can extract heat from rivers, lakes, or other surface water bodies.

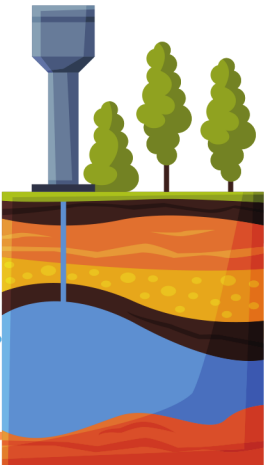
2



Air Source Heat Pumps (ASHP)

- **Outdoor Air:** Air source heat pumps extract heat from the outdoor air, even in cold climates.
- **Indoor Air:** In certain applications, heat pumps can also extract heat from indoor air.

3



Ground Source Heat Pumps (GSHP):


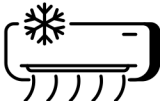


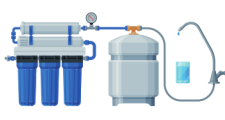


- **Ground (Ground Loop):** Ground source heat pumps, also known as geothermal heat pumps, use the relatively stable temperature of the ground below the frost line as a heat source or sink. This is achieved through a loop system buried in the ground.

4 Waste Heat

Many industrial processes generate substantial amounts of heat as a result of combustion, chemical reactions, or other energy-intensive activities. Instead of allowing this heat to dissipate into the environment unused, waste heat recovery systems aim to capture and repurpose it for practical application.



Types of Heat Sinks

	Air	Water	Steam	Heated Material
 Buildings				
 District Heating				
 Industry	