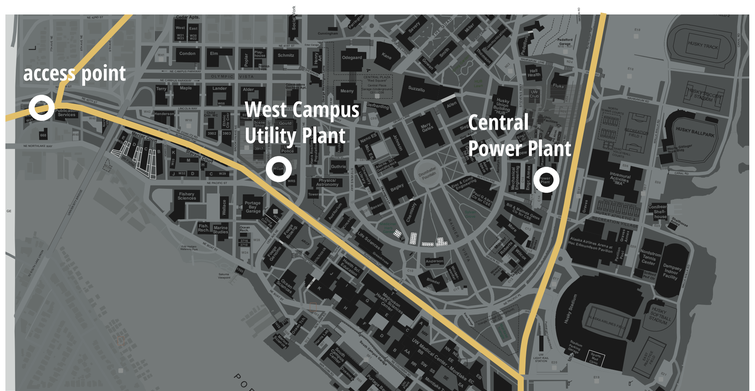
# RECYCLING SEWER ENERGY TO HEAT CAMPUS

Sewage (water from showers, sinks, toilets etc.) contains energy in the form of heat. The average temperature of the sewage flowing through pipes in King county ranges from 54° F in the coldest part of winter to 67° F in the warmest part of summer. Heat pump technology makes it possible to recover that energy and use it to heat buildings and water.

## Sewer lines have substantial heat

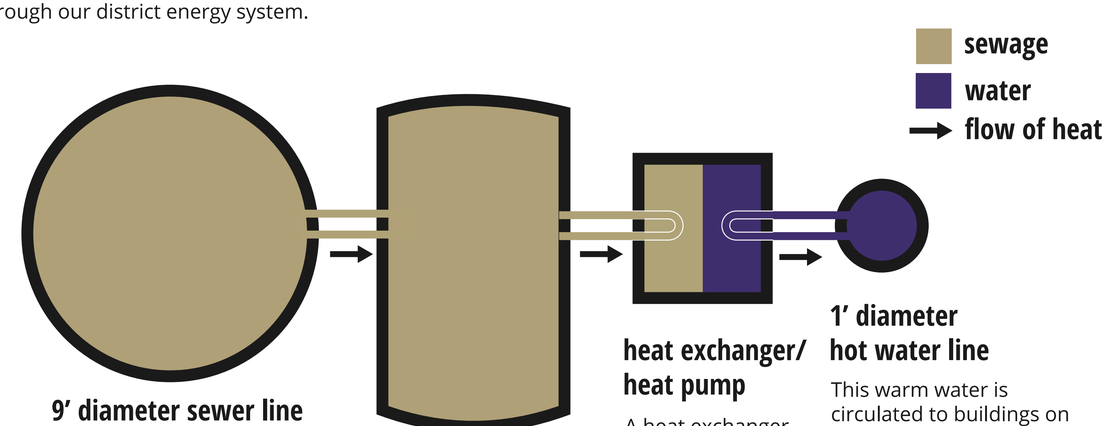
Every day over 7 million gallons of sewage flows within 50 feet of the Central Power Plant, almost 10 million gallons flows within 100 feet of the West Campus Utility plan and over 18 million gallons flows at the confluence of lines at the west edge of campus. The available energy in this sewage is enough to supply 38% of the heat we need to keep our buildings warm and keep hot water flowing from our faucets and shower heads.




Source: Sewer line heat: https://kingcounty.maps.arcgis.com/apps/View/index.html?appid=52b9d57419714eaea16a4b9d8d7f7c12

## How heat is extracted from sewage

Sewage is extracted from the sewer main into a holding tank. Liquid from the sewage goes through a heat exchanger where heat is transferred via a refrigerant into clean water that is then circulated to buildings on campus through our district energy system.




**9’ diameter sewer line**

Sewage is extracted from the sewer main into a holding tank.

**holding tank**

**heat exchanger/ heat pump**

A heat exchanger pulls heat from the sewage and warms water.

**1’ diameter hot water line**

This warm water is circulated to buildings on campus through our district energy system.