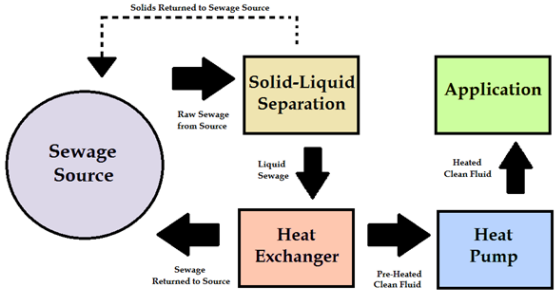
**“A study shows that if 5˚F of heat were removed from waste water flowing through the sewer pipes beneath the streets of NY over the course of 1 year, $90,000,000 worth of energy could be recovered”**

# Waste Water Energy Recovery

## What is WWER?




WWER is the process by which heat energy is transferred from or to waste water for heating or cooling applications respectively.

WWER technology works by adapting the technology that is already used by sewer systems for use in energy recovery applications.

## How does it work?

To start, the sewage is diverted from its source to a solid liquid separation unit. The sewage is then processed by the solid liquid separation unit and the solid sewage is returned to the sewage source. The liquid sewage is then pumped through a heat exchanger. Here, the heat from the liquid sewage is transferred to a clean working fluid. The heat transfer process occurs without the fluids ever coming into contact. Next, the liquid sewage is returned to the sewage source and the clean working fluid is pumped to a heat pump. Here, the temperature of the clean working fluid is elevated to the desired outlet temperature so it can be used in the heating application. This process can also be used in cooling applications by transferring heat to the liquid sewage instead.

Short blurb about DOER

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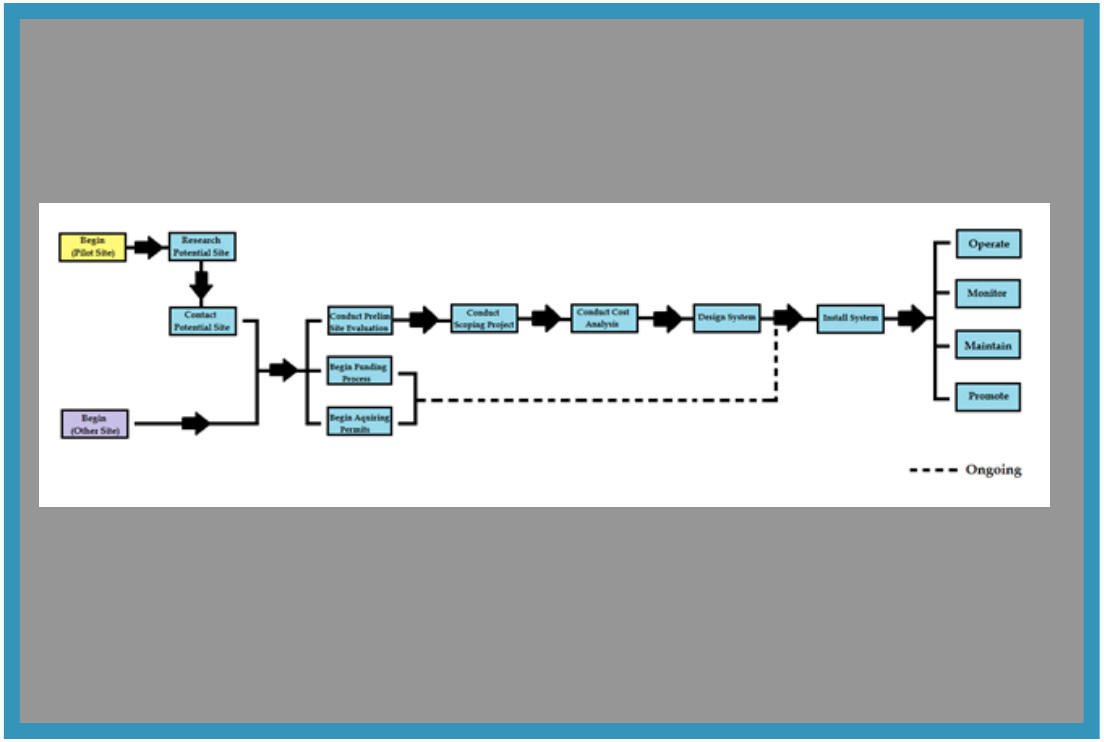
# Interested in using WWER?

## Steps to take:

Step 1: Research potential sites.
Step 2: Contact potential sites.
Step 3: Use criteria to evaluate potential sites.
Step 4: Conduct a scoping project on the selected potential site.
Step 5: Perform a cost analysis on the selected potential site.
Step 6: Design the WWER system for the site.
Step 7: Install the WWER system at the site.
Step 8: Operate, monitor, maintain, and promote the WWER system.




Step-by-step process to implement a WWER system

| Criteria | Ideal Case |
|---|---|
| Access to sewage source | Sewage source close to application and surface |
| Status of existing HVAC system | New construction or total system replacement |
| Heating and cooling load | Constant year round demand |
| Sewage flow rate | High when compared to energy need |
| Sewage access point | Wet well or lift station |
| External funding | Grants or tax rebates available |
| Energy source replaced or supplemented | High cost energy source such as electric heating |
| Electricity cost | Low cost per kWh |
| Sewage temperature | Consistently in operating range of heat exchanger |
| Monitoring System at or Near the Site | Sewage data available prior to installation |

Criteria used to implement a WWER system

## For more information:

Our paper online, DOER contacts