# Power-Pipe™ Fact Sheet & Case Study

**Founded in 2000, RenewABILITY Energy Inc. (REI) is an energy innovator bringing effective, safe, reliable and proven energy-saving solutions to institutional, commercial, industrial, and residential customers around the world.**

RenewABILITY Energy Inc. (REI) designs, manufactures and sells the patent pending Power-Pipe™ Drain-water Heat Recovery System. We are the recognized leader in DWHR and have Power-Pipes™ installed in many commercial, industrial, multi unit apartment and residential applications across Canada, the US and Europe.

The Power-Pipe™ is an instantaneous and passive water heater that RECYCLES THERMAL ENERGY that would otherwise be lost down the drain. The Power-Pipe™ is a ULC approved heat exchanger for potable water that is excellent for recovering heat from warm to hot drain-water because it doesn't plug-up. Because it has no moving parts it will typically last for 50 or more years. A standard water heating system can be downsized by about 40% with the Power-Pipe™ because of the additional water heating capacity that the Power-Pipe™ provides.

The Power-Pipe™ works so well because the drain-water clings to the inside pipe wall and falls quickly creating a thin "falling-film" which very readily imparts its heat to the pipe wall. Since copper is used for both the inner pipe and outer tube, the contact between the two has an impressive heat transfer rate that is 4-6x greater than other classes of heat exchange on a surface area basis.

## Top 10 Benefits of the Power-Pipe™ for Industrial and Commercial Applications

1. Since industrial and commercial systems run for a large portion of the day, the energy savings can be substantial.
2. Because the Power-Pipe™ system is modular, industrial and commercial systems have no limit on the size or application.
3. The Power-Pipe™ has multiple design features which ensures no chance of cross-contamination and thus safe for potable water application.
4. The simple yet effective Power-Pipe™ design ensures no maintenance after installation and no clogging even with thick, dirty, chunky, fibrous and more difficult fluids passing through the system.
5. Systems have no moving parts and are designed with easily accessible clean-outs should owners want to occasionally inspect the system.
6. For industrial and commercial applications, RenewABILITY Energy, Inc. offers manifolded units to split large flows across multiple Power-Pipe™ units, ensuring low pressure drop and high heat transfer.
7. Power-Pipe™ units can be coated for hostile application environments.
8. The payback on industrial systems typically range from 4 to 16 months.
9. The Power-Pipe™ is manufactured with high quality type "L" copper and there are no internal welds. Should a hole in either side occur a leak would appear because it is a "vented" heat exchanger. The freshwater side is pressurized and the drain-water side is not.
10. RenewABILITY Energy Inc. can provide the units only or a full turnkey package which can include design, performance guarantee, installation, as-built drawings, operation manual, and system commissioning.

Effective, safe, affordable, efficient, proven turnkey technology that just makes sense!

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# Power-Pipe™

## The Unilever Peterborough Power-Pipe™ Drain-water Heat Recovery System Case Study

### Safe, Very Cost-Effective, Reliable, Maintenance Free, Long Life

### Background.

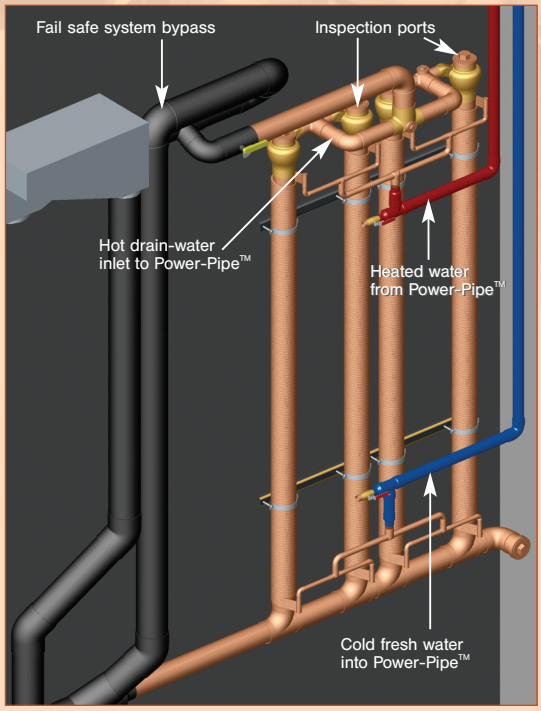
An innovative Drain-water Heat Recovery (DWHR) system is in use at the Unilever Ragu facility in Peterborough Ontario, Canada. The system consists of a unique heat exchanger called the Power-Pipe™, which is specially designed to heat fresh potable water with outgoing warm to hot drain-water.

At this facility, the valuable energy left over in the hot water which is used for cleaning product containers used to be wasted. Now the Power-Pipe™ system recovers a portion of the energy and uses it to preheat steam feed-water which is used in the cooking process.

This energy could not be recovered by traditional heat exchangers because of concerns relating to cross-contamination, clogging and fouling.

### Benefits of Drain-water Heat Recovery

The Drain-water Heat Recovery system is very safe, cost-effective, reliable, and maintenance-free in many industrial applications. A key advantage of the heat exchanger is that it is absolutely safe (and approved) for heating potable water; at the Ragu facility the heated fresh water is used in the food product.




### Cost-Effective and Energy Efficient

The turnkey engineered heat recovery system was supplied by RenewABILITY Energy Inc. at a cost of about $27,528. The system included a heat meter to accurately quantify energy savings and operational performance. The system saved $26,136 in the first year of operation resulting in a payback of under 1.1 years. The system also reduces Greenhouse Gas Emissions by over 130 tonnes/year. The Power-Pipe™ system used in this application requires little or no maintenance, which keeps operating costs to a minimum, and provides a service life in excess of 30 years. If necessary, inspection and cleaning can be performed while the units are in operation.

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