

## CASE STUDY: LUCKY LABRADOR BREWERY

### Overview

When the Lucky Labrador Brewing Company decided to incorporate alternative energy into their beer-making process, they set their sights on harnessing energy from the sun. As the most cost-effective form of renewable energy, solar hot water was an obvious choice for the Portland, Oregon brewery.

They contracted Ra Energy, a Portland-based solar hot water installer (and trade ally of Heliodyne Inc.) for consultation and installation. With support from Heliodyne's project engineers, Ra Energy was able to design and specify a system for Lucky Labrador's exact hot water needs. After the design was approved by the local city planning department, Ra Energy installed the Heliodyne commercial hot water system at the brewery. The actual installation took less than one week.



*"It's perfect for a brewery. We use a lot of water to make beer. It will definitely help with the energy costs. The move just made sense for economic, ethical, and community reasons."*

*Gary Geist, Co-Owner*



Immediately after it was installed, the owners of the brewery noticed the difference. "The first week we had 3 days of sun and we got 900 gallons of water up to 145 degrees, well on

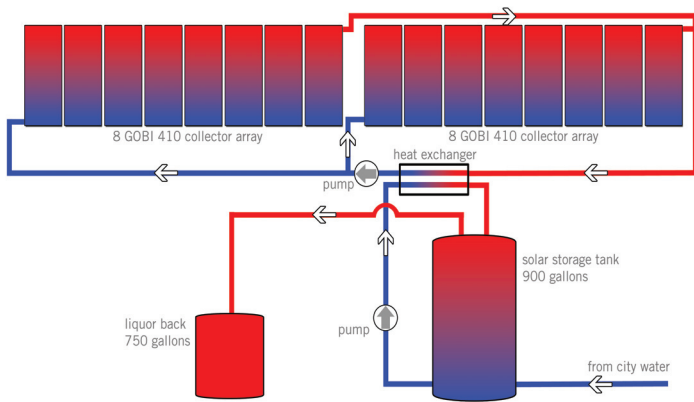
the way to the 160 to 200 degrees needed for brewing. The air temperature outside was around 40° Fahrenheit. It will be exciting to see what will happen with several days of sunshine in the spring and summer" says co-owner Gary Geist.

Since a Heliodyne system can last 25 years or more, the Lucky Labrador brewery can look forward to many years of reliable performance, saving them money and the environment at the same time.

### System Description

Sixteen Heliodyne solar collector panels line the brewery's roof, gathering the sun's energy. Inside each collector are thin metal tubes filled with a special non-toxic solar fluid. When heated, the solar fluid is circulated from the collectors through a heat exchanger, which transfers that heat to a 900 gallon solar storage tank filled with water.

Lucky Labrador uses the heated water to make beer, which must be a hot 160° Fahrenheit. It's also used to heat water at the restaurant and public restrooms.



### System Component Specifications

- 16 Gobi 410 solar collectors
- 2 Heliodyne racking kits
- 32 gallons of solar fluid
- 1 HP 164 SW CL Heat-Transfer Appliance
- 900 gallon solar storage tank

### COST FOR SOLAR HOT WATER SYSTEM

Heliodyne System Cost	\$25,805
Other Equipment Costs	\$20,841
Labor Cost (Unique installation. Costs vary.)	\$16,357
Permitting	\$900

#### System Cost BEFORE Rebates & Incentives **\$63,903**

The Federal government and most states have implemented financial incentives to promote green businesses. The brewery's solar hot water system was eligible to take advantage of several subsidies, greatly reducing the cost of their system.

Less Federal Tax Rebate (30%)	-\$19,170
Less Oregon Energy Trust Incentive	-\$8,142
Less Oregon Business Energy Tax Credit (50%)	-\$31,951

#### Total System Cost AFTER Rebates & Incentives **\$4,640**

### KEY NUMBERS AT A GLANCE

Gross Annual Energy Output	175,200,000 BTUs
Calculated Cumulative Savings (Over a 25-year period, with estimated 10% annual utility rate increase.)	\$179,450
Projected Annual CO <sub>2</sub> Reduction	20,490 lbs.



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