

Hood River Aquatic Center, Hood River, Oregon

Heating Systems and Controls



Estimated Annual Utility Cost Savings:

\$30,141

Total Utility Incentive Rebate:

\$26,712

Energy Savings:

65,729 kWh

22,491 therms

Project Implementation Costs:

\$230,020

Project Simple Payback:

6.75 years

\$17,000 in energy costs per year.

Pool deck air temperature is just as important as the water temperature, so the aquatic center also tackled its air heating system. Contractors insulated the single-wall ductwork from the HVAC system. By replacing the damper actuators and installing variable-frequency drives on the supply and return fans, the center gained better control over air coming in and going out of the building. Previously, the fans were either fully on or completely off. Now, the system conserves energy by regulating air turnover to meet the specific needs of the building at different times of day or seasons of the year.

“It is especially important for publicly supported institutions such as ours to take a lead role in energy conservation,” said Scott Baker, assistant director, Hood River Valley Parks and Recreation. “It requires leaders to take a long view. These projects demonstrate that solar heating and energy-efficiency upgrades pay for themselves over time, and conserve our natural resources immediately.”

SUMMARY

Project Benefits

- Reduced energy costs
- Increased comfort for guests
- More control over air and water temperatures

Equipment Installed

- Drain-back solar water heating system with 48 roof-top collectors
- High-efficiency condensing hot water boiler
- Hot water pumps, piping, plate and frame heat exchangers
- Direct digital control system
- Variable-frequency drives on supply and return fans
- Damper actuators

Financial Analysis

Solar Water/Condensing Boiler Heating Systems and Controls

- \$194,000 project cost
- \$15,821 cash incentive from Energy Trust
- \$64,500 Business Energy Tax Credit passthrough from Oregon Department of Energy
- \$17,000 estimated annual energy cost savings
- 13,814 estimated annual therm savings

Air Heating Upgrades

- \$36,020 project cost
- \$10,893 cash incentive from Energy Trust
- Applied for Business Energy Tax Credit from Oregon Department of Energy
- \$13,141 estimated annual energy cost savings
- 65,729 estimated annual kilowatt-hour savings
- 8,650 estimated annual therm savings

POWERED BY THE SUN

Hood River Soaks Up Solar Savings

Beneath what looks like a large white tent is the Hood River Aquatic Center, welcoming about 43,000 people a year to swim laps, take classes, compete and have fun. Like any pool, water and air temperatures are critical, so heating equipment must be up to the task. When it was time to upgrade the pool's aging heating system, the Hood River Valley Parks and Recreation District hired the consulting engineers at Willdan to conduct an energy audit of the entire facility.

Willdan recommended installing a solar water heating system along with a new condensing boiler. The solar system includes 2,300 square feet of solar collectors installed on a portion of the facility roof; another part of the roof can be removed during warmer summer months. When the system was installed in 2006, it was one of the largest solar water-heating arrays in the Northwest.

From March through October, solar is the primary (and often the only) heating source for the 281,000-gallon recreation pool. After September, the solar system is turned off and drained, and the new high-efficiency condensing boiler takes over. These improvements save about

