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Utility Case Studies

Bonneville Power Administration (BPA)

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Phone: (503) 230-4002
Program Name: Performance Tested Comfort System™
Program Web site: www.ptcsnw.com/
Corporate Web site: www.bpa.gov
Ownership: **Federal utility**

Number of Customers and Service Territory: BPA's service territory covers all of Washington, Oregon and Idaho and western Montana, as well as small contiguous portions of California, Nevada, Utah, Wyoming and eastern Montana. BPA's wholesale customers include public utilities, public utility districts, municipal districts, public cooperatives, some investor-owned utilities and a few large industries such as aluminum companies.

BACKGROUND

History

The Bonneville Power Administration, headquartered in Portland, Ore., is a federal agency under the U.S. Department of Energy. Congress and the Roosevelt Administration created BPA in 1937, just before completion of Bonneville and Grand Coulee dams in 1938 and 1941. One of BPA's early missions focused on electrifying farms and small communities with public power. These rural areas were not profitable for private utilities to serve. Today, BPA markets the power generated at 31 federal dams, one nonfederal nuclear plant at Hanford, Wash., and some nonfederal power plants, such as wind projects.

In partnership with other Northwest utilities, BPA funds the Northwest Energy Efficiency Alliance, which works to bring new energy-efficient products into the marketplace. BPA supports the ENERGY STAR® program, a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy, which helps consumers choose energy-efficient products

Relevant Program Name & Description

Performance Tested Comfort System™

BPA has approached the GHP market from a unique direction. It focuses on raising the overall standards of the contractors installing the equipment by requiring contractors to complete a certification program. Once they have completed this program, they are then eligible to participate in the rebate programs offered by BPA's local public power districts (PUDs).

The program is called Performance Tested Comfort System (PTCS) which is a branded program established by the Regional Technical Forum[7] BPA, through its Contract Rate Credits, provides funding and the infrastructure support for the utilities offering the PTCS program. The training, held at locations throughout its four-state service territory, concentrates on ways to improve the overall heat pump performance by focusing on proper insulation, duct sealing and heat pump installation.

[7] The Regional Technical Forum (RTF) was established by an act of Congress as an arm of the Northwest Power & Conservation Planning Council to develop standards to verify and evaluate conservation savings. The RTF establishes and maintains the standards for the PTCS program. For more information go to the RTF web site: http://www.nwcouncil.org/energy/rtf/Default.htm

The program centers on three areas:

1. Contractor training to the established specifications
2. Reporting the details of each heat pump installation for tracking and quality control
3. Quality assurance testing by sampling 10 percent of all completed installations.

This program's objective is to 'improve the overall quality" of the heat pump installations in BPA's service territory, according to Ottie Nabors, the PTCS project manager for BPA.

Day-to-day support of the program is provided by engineering consultants hired to provide the certification and quality assurance services, while the BPA's utility partners are involved in the actual commissioning and record-keeping process. The quality assurance is designed to provide feedback to the contractors and the utilities to improve the quality of heat pump installations.

Dates Offered: Since October 2006.

How/Where Marketed

BPA markets this program through the public utility districts. In exchange for a utility's participation in the program, BPA pays them a rebate for each heat pump installed (either air source or geothermal). The rebate amounts, which vary depending upon the PUD's location, range from $800 to $1,500.

"The rebates are based on climate zone and the savings potential to BPA," Nabors explained. However, many utilities offer additional incentives above the amounts provided directly by BPA.

How Customers Enroll/Sign-Up

Through the PUDs. Only certified contractors can install the GHPs, and in order to receive a rebate the utility must be participating in this program. Nabors estimates that so far 30 PUDs in four states are marketing this program.

Number of Installations

Information not yet available; however there have been more than 300 contractors who have become certified through this program.

Price/Cost to Customer

Initially training costs have been paid by BPA. As initial training needs are met, training costs will transition to a cost-sharing arrangement with the utilities. The contractor may also have to purchase additional equipment such as a blower door to perform the commissioning. However, the purchase is not necessary if the participating utility is the commissioning the project and has the necessary equipment.

Key Vendors/Partners/Allies

BPA's Public Utility District, the local municipal utilities that purchase power from BPA, verify the quality of installations in their service territories. Their role includes:

- Verify systems meet specifications
- Make a determination of duct location
- Maintain the necessary equipment documentation including rating, size, etc. PTCS Commissioned Heat Pump Certification
- PTCS Duct System Certification

Other energy efficiency organizations: The PTCS standard is also used by the Northwest Energy Star New Residential Construction Program. BPA worked closely to make sure that the program Energy Star standards were consistent with the Program.

The contractor community: This is the core constituency that is responsible for installing the equipment. They have to be willing to invest both their time and resources to complete this rigorous program. In addition, many of the PUD's also require that GHP contractors are also certified by the International Ground Source Heat Pump Association in order to participate.

Keys Reasons for Success/Failure

The program is contractor-oriented rather than customer oriented. BPA has set ambitious energy-savings goals, and in order to reach those objectives they have to be certain their heat pump installations are done properly. This program provides them with the skill set needed to help the utility achieve its energy savings.

The program requires good data tracking and recording. This is an essential program element that is often overlooked in contractor-oriented utility programs. But good record keeping is essential in order for local utilities to manage the process and provide service to their customers, and also for BPA to accurately estimate potential savings.

Quality control means that there will be follow-up inspections of the work installed, which will in turn reinforce the contractor skill sets and "raise the bar" in the quality of heat pump installations in the Pacific Northwest.

LESSONS LEARNED

BPA didn't reinvent the wheel. Rather than coming up with a new standard for contractor training, BPA leveraged an existing training standard into its new program.

BPA didn't operate in a vacuum. It recognized that these contractors operate in different states and therefore worked with the State of Oregon to make certain the requirement for customers in Oregon to receive tax credits were the same as the program standards. This reduced another potential barrier to contractor recruitment by standardizing the program across four states. It also matched the program standards to those used by other energy efficiency programs such as Northwest ENERGY STAR®.

BPA remains flexible to contractor concerns. Now that the PTCS program has been launched, they are looking at ways to "train the trainer." BPA will start recruiting experienced HVAC contractors as trainers as a way to extend their reach further into this community. It is also looking for ways to partner with local community colleges that offer courses in HVAC.

Future Plans

BPA plans to look for ways to work with local community colleges to provide training. They also want to continue to provide their utility partners with the resources needed for them to monitor and verify local installations.

Best Way to Learn of New Developments: program Web site

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Ownership: LSB is a publicly held Corporation

Company Description

ClimateMaster manufacturers a full line of heating, cooling and refrigeration equipment. It also has a full product line targeting residential, commercial and institutional GHP markets.

History

ClimateMaster is a subsidiary of LSB Industries, a diversified manufacturing and chemicals company based in Oklahoma City, Okla. ClimateMaster manufactures a full line of geothermal energy products, including water source heat pumps, residential and commercial units, software and all supporting materials. It also has a full line of energy efficient refrigeration and air heating and cooling systems. Other LSB business units in the climate control market include ClimateControl, ClimaCool and International Environmental Corp.

Company Location: Oklahoma City, Okla.

Number of Employees: 350

Annual Revenue

LSB Industries reported sales of $290 billion from its diverse operations. ClimateMaster generated sales of approximately $75 million in 2000, of which about 48 percent of $35 million were from GHPs.

Markets Served (applications and geographies)

ClimateMaster is trying to build a national market presence. The company also has an established dealer and distributor network for residential, commercial and industrial customers. ClimateMaster also has one dealer relationship with the one of the original founders of WaterFurnace to represent its Canadian market.

Product Line

ClimateMaster makes a full-range of GHPs for residential, commercial and industrial applications.

Residential Products

Genesis Packaged Systems: Designed for both horizontal and vertical residential applications, this unit features an optional hot water function and has either high efficiency rotary or scroll compressors.

Genesis Split: Offers a product to meet residential retrofit needs. This unit can be combined with the a fossil-fuel furnace. It also offers hot water as an option.

Water-to-Water: Designed to be used in residential applications with hydronic or in-floor radiant heating. It offers multiple control options for temperature control.

Paradigm: Designed to offer lower installation costs. The Paradigm replaces the current outdoor unit, so it can be connected directly to existing interior equipment and avoid additional installation and remodeling expenses.
Tranquility 27: Offers heating, central air conditioning and domestic hot water. The split system approach allows the installation of geothermal technology in homes with an existing gas/propane/oil furnace. The "add-on" installation reduces installation cost, the company says. The unit can be mated with a gas, propane, oil or electric furnace.

Ultra Classic: For residential closed loop applications that offer dual compressors. It also has an optional hot water assist feature.

Genesis Packaged: Both residential and horizontal applications. It also features high efficiency rotary or Scroll compressors.

Commercial Products

Genesis GC Series: Designed to be compatible with older water source heat pumps. Has a drop-in replacement for existing systems in boiler-tower applications and is available in both vertical and horizontal configurations.
Genesis Large Water-to-Water Series: This unit has duel Scroll compressors and is designed for multiple applications including radiant floor heating and hot and cold water to air handling.

Genesis Large H&V Series Units: These units are available in both vertical and horizontal configurations, and are designed to meet the requirements of large commercial buildings.
The Tranquility 27 (TT) Series: Uses EarthPure™ HFC-410A refrigerant along with the Copeland UltraTech two-stage compressor and General Electric ECM variable speed motor. The Tranquility 27™ (TT) Series is eligible for additional LEED™ (Leadership in Energy and Environmental Design) points because of the "green" technology design.

Primary Competitors

WaterFurnace and Trane

Competitive Strengths: ClimateMaster is the largest *global* provider of ground and water source heat pumps. It also has the beginnings of a national dealer network and an experienced senior management team. It has one of the broadest product lines for both residential and commercial/industrial applications.

Competitive Weaknesses: ClimateMaster remains second in its US market position. It is constrained by the concentration of dealers and distributors largely in the Southeast and parts of the Northeast. If it could develop a wider network of dealers in "hot" geothermal markets like California and other emerging Western states, ClimateMaster may be able to challenge WaterFurnace's dominance in this market.

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