



Geo Heat Pumps: Leading Energy Utility Marketing Programs

By Katherine Johnson

Fourth Edition



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Program Name: CO-Z Energy

Program Website: <http://www.dmea.com/geoex/co-zfacts.htm>

Corporate Website: <http://www.dmea.com>,

Ownership: Rural electric cooperative



Number of Customers and Service Territory: Delta-Montrose Electric Association (DMEA) serves 28,000 customers in four southwest Colorado counties.

BACKGROUND

Delta-Montrose Rural Power Lines Association was organized in August 1938. DMEA is a private, non-profit cooperative owned by its members. DMEA has a history of developing innovative energy programs that have won praise and recognition at the regional and national level.

“I think DMEA is one of the most innovative co-ops in the country,” said Peggy Plate, former Energy Services Manager for the Department of Energy’s Western Area Power Administration (WAPA).



History

Reasons for program, past/recent activities/programs and or primary drivers. DMEA developed its GeoExchange program as a way to provide service using the concept of “chauffage” or guaranteeing heating bills. Chauffage is a popular financing plan used in Europe and its intent is to lower energy costs by financing the installation of energy efficient technologies and then recouping the investment from the energy savings from these installations. DMEA took this concept into the single-family residential market a step further than the Europeans in designing its geothermal program.

DMEA’s program is called “CO-Z,” and “the intent is to remove the first cost barrier” associated with GHP installations, said Paul Bony, DMEA’s marketing and customer service manager. “DMEA took the loop lease concept to the next level through the development of the chauffage concept.”



DMEA viewed this program as a way to target both new construction and existing home (retrofit) markets. Targeting the retrofit market offered a new opportunity to increase GeoExchange installations in DMEA’s service territory, while installations in the new construction market would allow DMEA to reach new members as they moved into its territory.

According to the co-op’s research, forced-air fossil fuel systems accounted for approximately 50 percent of the total systems in its territory. This represented an attractive target market for GHPs as a strategy to convert current gas and propane members to GeoExchange systems.

One senior DMEA staff member explained that the retrofit arena made an ideal target market for GeoExchange installations “because the duct work was already in place.” GeoExchange would be positioned as a split-system — offering geothermal heating and cooling with a gas or propane back-up heating source.

The co-op also identified “basic houses” as sites for pilot GeoExchange installations. “We targeted houses that had existing gas furnaces...houses that weren’t really tight,” a DMEA staff member explained. This was done deliberately to determine if it was possible to retrofit existing homes with geothermal systems.

DMEA also wanted to increase GeoExchange installations within the new construction market so the co-op approached builders. Historically, custom builders and higher-end customers in the new construction market have been an easier market in which to promote new technologies such as GeoExchange because financing costs can be included in the mortgage. It is also often easier to install the necessary equipment as a new home is built.

The Co-Z program has been in continuous development for the past four years, because it was necessary to gather all the energy information required to properly calculate the actual operating costs of geothermal systems. But the Co-Z program is not like traditional ESCo financing programs, because DMEA does not monitor actual energy consumption. Rather, the cooperative relies on the energy model it created to guarantee the GeoExchange energy consumption.

This program also fits in with the overall corporate strategy of DMEA. “GeoExchange systems support our board of directors’ vision of providing a variety of high-quality, affordable energy services to our members,” says Dan McClendon, DMEA’s general manager.

From an economic point of view, geothermal systems represent high load factor and low peak load impacting kilowatt-hour sales to the cooperative. “We are making more money on kilowatt hour sales and we are recouping our expenses for advertising, sales and installation through an imbedded fee,” Bony explained.

Relevant Program Name & Description

Co-Z Energy

In the Co-Z program, DMEA pays for the installation of major components of a GHP (GeoExchange) system for a homeowner. The program does not include ductwork or other “inside the house” elements. The program originally relied on outdoor split GeoExchange equipment. In 2002, the co-op expanded its Co-Z offering to include more options including package systems and a loop only payment option.

Price/Cost to Customer

The Co-Z Energy Plan is a monthly service agreement between the customer and DMEA. The plan includes the following elements:

- Custom design of a geothermal system
- Installation of the outdoor portion
- Ongoing maintenance and repair
- An energy credit rate lock, adjustable in five-year intervals based on the system’s estimated energy usage

The Co-Z Energy Credit is intended to cover the majority of the system’s estimated energy operating costs averaged over 12 months. Steve Metheny, chief operating officer, explained: “The GeoExchange system is financed for 50 years on a monthly lease payment that includes equipment maintenance. The lease is about \$66 per month for my system and that includes financing the outside unit and the split system duct work.” However, the monthly cost is much lower compared to the monthly costs to heat with propane. “It costs about \$1,400 a year to heat with propane and that is without any air conditioning compared to the geothermal system that provides heating and air conditioning for about \$320 to \$420 per year,” Metheny said.

Dates Offered: Pilot efforts began in 1997 and the formal program was launched in September of 1998.

How/Where Marketed

DMEA promotes its CO-Z program by building awareness of geothermal systems and creating a culture among geothermal owners.

“People are not exposed to geothermal and they don’t understand the benefits. We educate the population about the process and the overall concept,” Bony said.

For example, DMEA has enlisted a well-known geothermal expert, Doug Rye, to talk to prospective owners about the benefits that geothermal systems offer, especially in New Jersey in conjunction with building an energy efficient home.

The Co-Z program is also promoted in articles in the cooperative’s newsletter, on displays at the annual meeting, and on the co-op Website.

DMEA is also creating a “geo culture” among system owners. “Sales is a one-on-one process, but when we hit the hundred mark with installations, then we invited all the geo customers to a dinner... We are building a culture for everyone and using it for future referrals,” Bony said. The cooperative is also “looking for better ways to streamline the (installation) process and better ways for real estate professionals to understand geothermal systems,” he added.

Number of Customer Sign-ups

According to DMEA, 500 sales have been recorded to date at year-end for geothermal systems, but that doesn’t count sales of GHPs by other installers in other markets in Colorado.

“Another market is opening up in Durango, CO, and three neighboring utilities are now asking us to work with them to promote GeoExchange in their service area doing something (in geothermal),” Bony said. This includes Xcel Energy, one of the largest investor-owned utilities in the country.

Key Vendors/Partners/Allies

DMEA took a unique approach to developing relationships with trade partners. Since there wasn’t an infrastructure in place to support a geothermal program, DMEA set out to develop it. The electric cooperative is the owner of a heating and air conditioning company called *Intermountain Energy Services One*, owns a stake in a GHP manufacturing company called Co-Energies, and has been providing research and development assistance to a drilling company called *TEI Rock Drilling*. “We started up our own HVAC company with the goal of controlling our pricing, quality and customer care. We became profitable this year,” Bony said. *Intermountain Energy Services One* installs and services the geothermal systems sold as part of the CO-Z program.

Despite all the growing pains, DMEA set into motion the elements required to grow a sustainable geothermal market. In that way, DMEA has already distinguished itself from the scores of other utility programs that have offered geothermal programs and achieved limited success.

Key Reasons For Success/Failure

Although DMEA has been successful in its geothermal program, technological barriers still exist that hamper market development. For example, DMEA reported manufacturing defects with some of the geothermal systems installed, and problems with the electronic thermostats used.

Bony said he believes manufacturers may be losing their enthusiasm for the geothermal market. “The manufacturers are cutting back and have the philosophy of not worrying about the installations. They are getting out of the residential market,” he explained.

“Technical support from the equipment manufacturers is way down compared to 10 years ago,” he added.

Contributing to the problem of diminished manufacturer support is the growing shortage of skilled geothermal technicians. “The average HVAC technician is middle aged and we are hitting the wall with technical talent,” Bony said. We cannot get enough good technicians...there is a shortage of skilled technicians available.”

Lastly, DMEA’s staff also worries about the relatively low level of awareness of geothermal technology. “We promote the program via word-of-mouth and through our campaigns, but there is still only a 50 percent awareness of geothermal.”

He summed up the reasons for geothermal’s continual failure to expand nationwide: “There is no long-term philosophy in this market, no long-term investment. Utilities might support it but the utility market is not stabilized...GeoExchange is under-funded.”

LESSONS LEARNED

DMEA illustrates several critical lessons that are important to understand for a utility that wants to develop a successful geothermal program:

- **Think outside the box.** DMEA took a sophisticated but little used European financing tool to form the basis of its geothermal “lease” program. Chauffage is not commonly used among utilities, especially rural electric cooperatives, because it requires investment and entails market risk. However, as DMEA has demonstrated, this risk can be managed through careful modeling, and it can be profitable. DMEA estimates that it will net \$700,000 in present value revenues from the first 150 geothermal installations they have so far -- a pretty handsome return on a \$200,000 investment.
- **Don’t depend on others to create the geothermal program.** DMEA had many reasons not to develop and deploy a geothermal program. The manufacturers have taken a step back from the market and so have many utilities. Moreover, there is a critical shortage of skilled technicians. Installers, and drillers charge market-busting rates. But DMEA didn’t let any of these obstacles stop them from pursuing the market. Rather, they created the market themselves. They solved the problem of the lack of skilled technicians by creating their own heating and air conditioning company to focus exclusively on the installation of geothermal systems. They are working on new drilling methods and have invested their own funds in a direct-exchange geothermal system that minimizes the hassle and cost of equipment installation, while opening the market to include small lot homes. In other words, they depended on themselves to make the program successful – with no excuses.
- **Create a “geo culture”.** DMEA also learned the importance of building on previous success. By fostering a sense of community among GHP owners, DMEA has developed a powerful internal sales force. This sense of camaraderie is especially effective within a member-owned cooperative, where community ties are strong.

Best Way to Learn of New Developments: From the Website, newsletter and the trade press.

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Ownership: A subsidiary of WFI Ltd., a publicly-traded company on the Toronto Stock Exchange.

Company Description

WaterFurnace International (WFI) is headquartered in Fort Wayne, IN and is one of the world's leading manufacturers of geothermal and water source heating and cooling systems. WFI Industries Ltd. has residential, commercial and global divisions. Each division sells and supports its products nationally and in Canada, the Bahamas, China, England and South Korea,

History

WaterFurnace is one of the first companies that specialized in manufacturing GHPs and in marketing total system packages for closed loops. It has been in business for 25 years has had more than 200,000 units installed, The company pioneered the use of "closed loop" geothermal systems to heat, cool and provide hot water for residential homes and commercial building.

Company Location: Fort Wayne, IN

Number of Employees: 200

Annual Revenue

The company reported its third consecutive year of double digit growth in sales and income. The company posted record sales in the third quarter of 2005, reporting a sales increase of 35 percent. The company has grown despite the overall slowing of residential housing, material cost increases and slightly lower energy costs.

**WFI Industries Ltd.
Consolidated Statement of Income
Prepared using Canadian generally accepted accounting principles
(Unaudited—Thousands of U.S.\$ except per share data)**

	<u>Three months ended Sept. 30,</u>		<u>Nine months ended Sept. 30,</u>	
	2006	2005	2006	2005
Sales	26,073	19,070	64,085	47,562
Net income	<u>3,040</u>	<u>1,644</u>	<u>5,964</u>	<u>2,814</u>

Market Position

WaterFurnace is the industry leader in residential geothermal sales and in the top five in commercial and institutional sales in the United States and Canada.

Relevant Product Name and Description

- **E Series:** Available in seven single speed sizes and four dual capacity sizes. All E Series units utilize the ozone-safe R-410A refrigerant to meet the most stringent EPA requirements. Coated air coils add durability and longer life. A microprocessor control sequences all components, and provides troubleshooting features with fault lights and on-board diagnostics. Unit configurations include horizontal, vertical top discharge and vertical bottom discharge.
- **Premier Series:** On the market for more than a decade, the Premier family units are available in 10 sizes and in vertical and horizontal configurations. Cabinets are constructed with heavy-gauge metal and coated with durable poly paint for long lasting beauty and protection. Units sized one and one-half ton and larger feature Copeland Scroll compressors. A microprocessor control sequences all components, and provides easy-to-use troubleshooting features with fault lights and on-board diagnostics. For flexibility, most sizes are available with either PSC or variable speed ECM blower motors.
- **Synergy 3:** This system offers heating, cooling and hot water for radiant floor heat. The Synergy3 is the geothermal equivalent of a boiler, furnace and air conditioner in a single unit. Units are available in three vertical sizes. Copeland Scroll compressors, coated air coils and variable speed ECM blower motors are used. A microprocessor control sequences all components, and provides troubleshooting features with fault lights and on-board diagnostics.
- **EZ Split Series:** EZ Series splits are designed for indoor installations and are connected to an indoor air handler (or fossil fuel furnace) via refrigerant lines and control wiring. EZ units utilize the ozone-safe R-410A refrigerant to meet the most stringent EPA requirements. Accessible controls and connections make this unit simple to install in a wide variety of applications.
- **ES Split Series:** ES Series splits are designed primarily for outdoor installations, and are connected to an indoor air handler (or fossil fuel furnace) via refrigerant lines and control wiring. ES units utilize the ozone-safe R-410A refrigerant to meet the most stringent EPA requirements. Accessible and connections make this unit simple to install in a wide variety of applications.
- **Premier Split Series:** WaterFurnace Premier Splits are designed for indoor installations and are connected to an indoor air handler (or fossil fuel furnace) via refrigerant lines and control wiring. Accessible controls and connections make this unit simple to install and service. They are available in five sizes. Like all Premier units, the split cabinets are fabricated with heavy gauge metal and are coated with durable polyester powder coat paint for long lasting beauty and protection. Since there is no outdoor fan as in ordinary air conditioners or heat pumps, the unit operates with very low sound levels. All units feature Copeland Scroll compressors.
- **Versatec Series:** The Versatec series delivers an unbeatable combination of comfort, efficiency and reliability at an affordable price. It provides effective and efficient operation with entering water temperatures of 30 degrees to 110 degrees in geothermal applications, or 40 degrees to 110 degrees in water-source applications. Versatec units meet or exceed ASHRAE 90.1 energy efficiency standards for commercial buildings.

Association Memberships

- International Ground Source Heat Pump Association
- Geothermal Heat Pump Consortium
- Air-Conditioning & Refrigeration Institute
- American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
- Association of Energy Engineers

Competitive Strengths: WaterFurnace has the benefit of being the first to market a GHP, and it essentially helped create this market. It continues to broaden and expand its successful line of GHPs. WaterFurnace remains committed to moving the geothermal market forward.

WaterFurnace's sister company is LoopMaster, headquartered in Indianapolis, Ind. This is one of the largest geothermal looping contractors in North America. Originally, the company specialized in residential applications but now has concentrated on the commercial and institutional markets.

WaterFurnace also has both a broad and deep product line and offers competitively priced products. The company is also developing a strong dealer network.

Competitive Weaknesses: WaterFurnace's commitment to promoting GHPs waivers depending upon its financial position. Occasionally some dealers and installers have complained that its products have not been consistently high-quality.

WaterFurnace also does not offer financing programs to assist customers with financing, which continues to be a barrier to geothermal installations. This is further exacerbated by the reduction in funds and rebates available from many utilities.

Tony Cooper, vice president of sales and marketing, noted that several utilities have also pulled back their commitment and support for GHPs because they have not been able to capitalize on the market opportunity. "Many utilities no longer have the marketing staff to promote geothermal programs. They no longer have residential marketing departments," he said.

However, some dealers and utilities have complained that this reduced commitment makes it even harder to develop a sustainable geothermal market.

Market Position

WaterFurnace is the industry leader in residential geothermal sales and in the top five in commercial and institutional sales in the United States and Canada. Its rivals consistently view WaterFurnace as the leading GHP manufacturer in North America. It is estimated to control about one-third of the total GHP market, and the same percentage within the residential market.

Markets Served (applications and geographies)

WaterFurnace relies on a network of independent dealers and distributors in the United States, Canada, Europe, Asia and Australia. In the United States, WaterFurnace focuses on the dealer direct and distributor market to serve its residential customer base with dealers that have developed contacts with builders and homeowners.

The firm employs a unique marketing strategy -- participating in hundreds of small home and garden shows around the country. This has been an effective way to reach potential customers looking to build or remodel their homes. The company also participates in the national home and garden shows including National Association of Home Builders show, a biannual event targeting the construction trades. Although this company takes a national approach in its marketing, its strongest area of market penetration remains in midwestern states such as Indiana and Michigan.

Product Line

WaterFurnace manufactures a complete line for residential applications including geothermal and water source heat pumps. Its residential GHPs are sized between three quarters and six tons.

Primary Competitors

ClimateMaster, FHP and Trane.

Key Customer Accounts

WaterFurnace works closely with a variety of utilities around the country including:

- Large municipal utilities such as TVA,
- Investor-owned utilities such as First Energy
- Rural electric cooperatives such as Delta-Montrose Electric Association

Price Structure to Utility and Customer

Varies depends upon installed tonnage and if rebates/incentives are available to defray installation costs.

Total Number Deployed

WaterFurnace has been involved in some of the largest and most successful installations in the United States in thousands of commercial, residential and institutional customers' applications.

How/Where Product Sold: (direct sales, reps., etc.)

WaterFurnace products are sold and serviced through a network of independent dealers, commercial representatives and independent distributors throughout the United States, Canada, Europe, Asia and Australia.

WaterFurnace focuses the dealer direct market and the distributor market. "We focus on those direct dealers who market to builders and homeowner -- those who are leaders in distributor marketing," Cooper explained.

How/Where Marketed

WaterFurnace relies heavily on face-to-face selling to promote its products to commercial and industrial customers. WaterFurnace also participates in home and garden shows around the country to demonstrate its systems to residential customers. These activities seem to be paying off.

"We are seeing a tremendous awareness of geothermal compared to two years ago," Cooper said. The company also attends all of the national shows, such as Greenprints, Energy 2002 and NAHB.

Best Way to Learn of New Developments: website, news releases and trade shows.

Key Individual and Primary Staff Contact

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