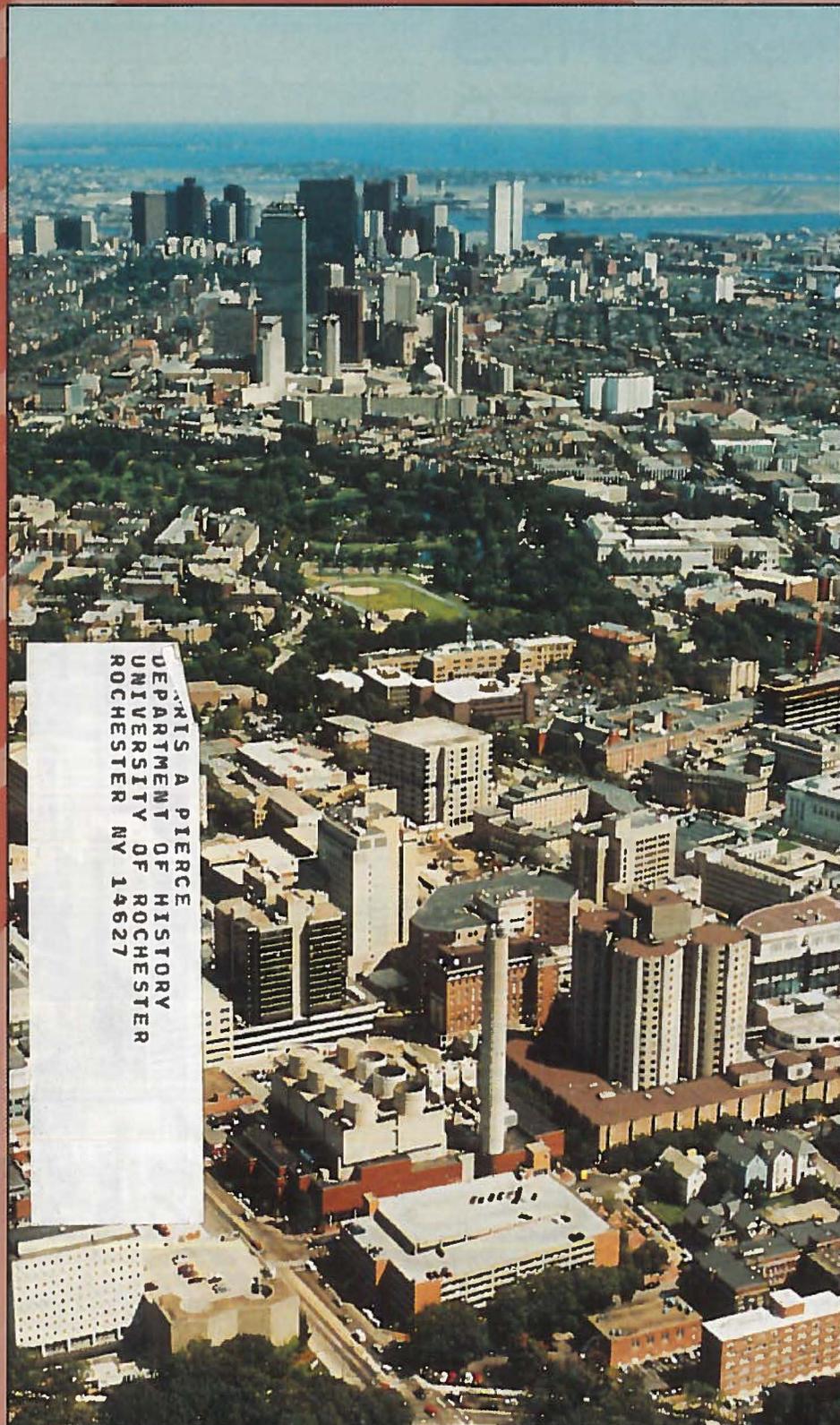


DISTRICT ENERGY

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Thermal Ventures Pursues Growth Plans in San Francisco, Pittsburgh, Youngstown

Four years after its establishment by industry veteran Carl E. Avers and partner Lewis Mahoney, Thermal Ventures Inc., based in Youngstown, Ohio, is aggressively expanding its district energy systems in three U.S. cities.

Avers, who led United Thermal Energy Corp.'s purchase and expansion of six systems before leaving as the company's chairman in 1990, has quickly picked up where he left off. Founded in 1990, Thermal Ventures now operates steam district heating systems in San Francisco, Calif., Pittsburgh, Pa., and Youngstown, Ohio, as well as a district cooling system in Pittsburgh.

Expansion plans are under way in all three cities. In Youngstown, expansion plans include a new district cooling service.

About Thermal Ventures

Thermal Ventures was formed in 1990 to do what Avers and Mahoney had done best at United Thermal — acquire, operate and improve district energy systems.

"By 1988, United Thermal had essentially gotten out of the business of acquiring district heating and cooling systems," Avers recalls.

"We thought there was still a lot more to be done in that area so we formed a new company that had the technical, financial and management capability to acquire and grow systems."

Thermal Ventures is the general partner of all three of the operating utilities it owns and operates.

Under a standard business plan that is applied to all of the systems, the company focuses on modernization and expansion.

"... we're keeping busy with our expansion programs simply by extending service to existing markets. After acquiring three systems in as many years, our near-term focus is expansion of these existing systems."

"In each of our markets, our expansions are driven largely by the opportunities that already exist," observes Avers. "Some building operators are more aware than others about the bans on the R-11 and R-12 refrigerants, but we believe awareness is growing. And owners of new buildings or ones that have old chillers or boilers are receptive to the lower-cost alternative district energy provides.

"So we're keeping busy with our expansion programs simply by extending service to existing markets. After acquiring three systems in as many years, our near-term focus is expansion of these existing systems."

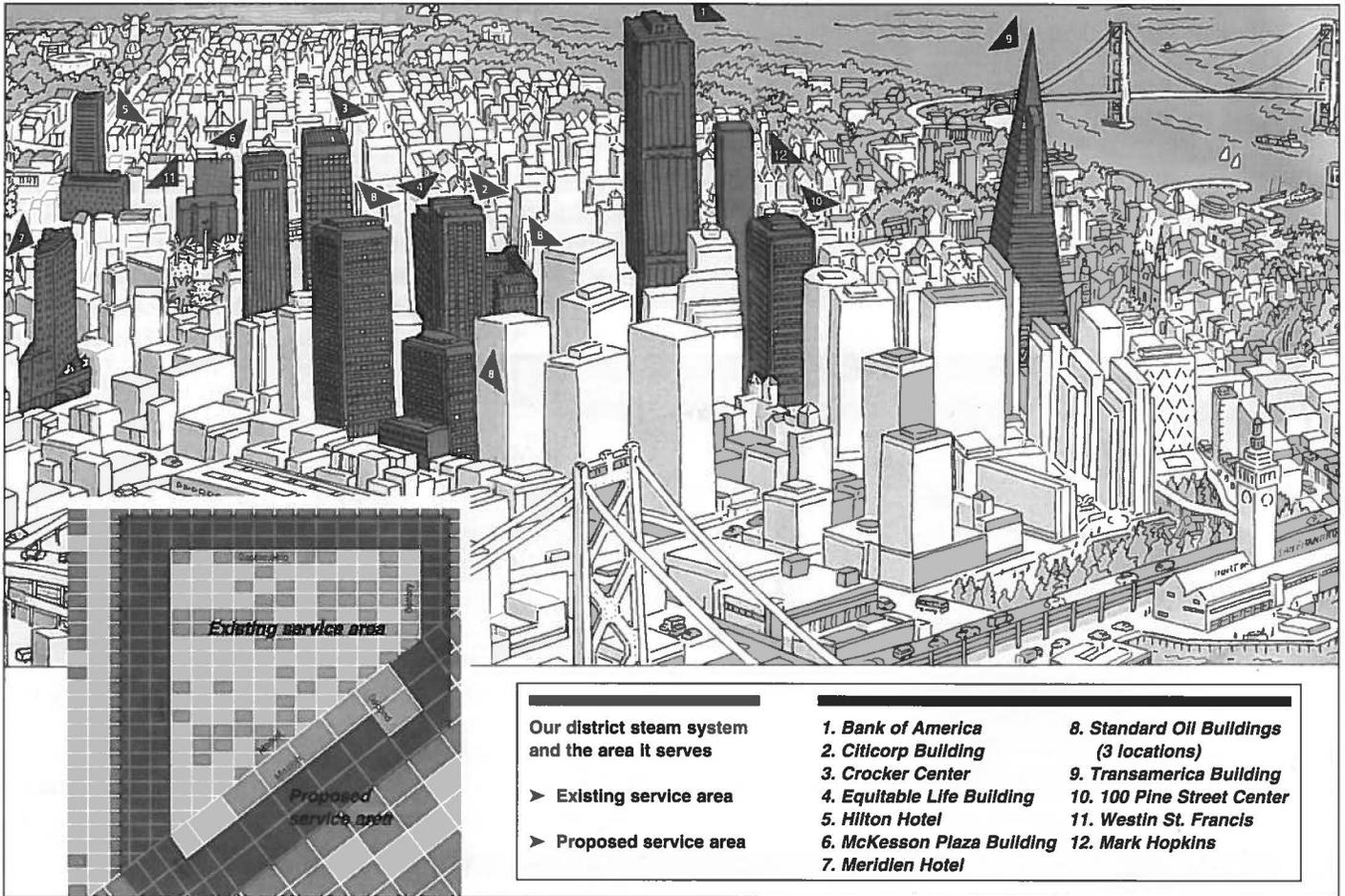
Thermal Ventures' other priorities include:

- Improving thermal efficiencies. In all three systems acquired to date, costs were reduced by improving operational procedures.

Thermal Ventures At a Glance

Annual Revenue	\$21 Million
Assets	\$24 Million
Locations	San Francisco, Pittsburgh, Youngstown
Regulation	State public utility commissions
Customers	268
Employees	60
Cooling Capacity	11,000 tons
Heating Capacity	1,050 Mlbs per hour
Ownership	Privately held company

San Francisco Thermal's customers include some of San Francisco's most recognizable buildings.



Courtesy of San Francisco Thermal

- Adding district cooling service where it does not exist. While capital costs for new systems are high, a customer base that is accustomed to the benefits of district heating generally appreciates the benefits of district cooling. So marketing costs, generally, are relatively low.
- Operating with entrepreneurial style. Local system managers — and plant employees — are encouraged to act like owners. This gets all employees involved in carrying out the business plan.
- Strong customer communication programs. Customers are frequently asked to communicate their candid positive and negative feelings about the systems that provide energy to them. This helps target capital improvement dollars in the way that maximizes benefits for customers. It also identifies weaknesses and opportunities for new business. Customers also are kept informed

about the projects that are under way to improve the reliability of their energy-delivery systems.

The [San Francisco] system is in the process of adding nine buildings owned by the City and County of San Francisco and three individual hotels through new pipeline extensions.

San Francisco

Among Thermal Ventures' three locations, San Francisco offers the most growth potential. The 11-mile piping network that now serves the city has penetrated only approximately 25 percent of the market for district heating, Avers estimates.

Steam system sales have grown at an average annual rate of approximately 6 percent per year since 1983. Thermal Ventures acquired the system in 1993 from Pacific Gas & Electric Co., but had provided marketing and engineering services for a year and a half before the acquisition.

"We see our growth rate accelerating as we get the message out about the economics of district heating," explains Rich Mayer, president of San Francisco Thermal, which serves 27 million square feet of building space.

Among the buildings served by San Francisco Thermal are several major hotels that use steam for heating, domestic hot

water and absorption air-conditioning.

The system is in the process of adding nine buildings owned by the City and County of San Francisco and three individual hotels through new pipeline extensions.

Pittsburgh

Located on the north side of downtown, Pittsburgh Thermal's 11,000-ton cooling system and companion steam district heating system serve approximately 80 percent of the buildings located along their

three-mile pipeline route. That covers approximately 4,272,400 square feet of building space.

Expansion in Pittsburgh has occurred primarily through the extension of service to new areas. Since taking over management of the Pittsburgh system from Equitable Gas Energy Co. in 1990, Thermal Ventures has expanded to two new areas. One is served with a satellite plant, and the other is served through a \$2 million pipe extension from the main plant.

"Our section of Pittsburgh has enjoyed substantial building activity in recent years, so many of our customers have grown with us," says Jim Cummings, president of Pittsburgh Thermal.

The Carnegie Institute, for example, opened the Carnegie Science Center in 1991 and the Andy Warhol Museum in 1993. Both new buildings are Pittsburgh Thermal customers. Similarly, Allegheny Community College is adding the district heating and cooling services to a new building under construction and to two old buildings where boilers and room air conditioners are being phased out.

San Francisco Thermal — Major New Customers

Added prior to:

1986	Transamerica Pyramid Bank of America World Headquarters Building Crocker Center Hilton Hotel Equitable Life Building McKesson Plaza Building Standard Oil Buildings (3 locations) Citicorp Building Meridien Hotel Pacific I Building Central Tower Building Mandarin Hotel
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Added during:

1986	Warfield Building *
1987	Pacific Telephone * Clift Hotel * Emporium - Capwell * Milton Meyer & Co. Trinity Properties *
1988	Service Employees * University Club * Central YMCA *
1989	Milton Meyer & Co. * Pacific Hospitality *
1990	Arcon, Inc. Ritz-Carlton Hotel Moscone Convention Center
1991	The Mark Hopkins Hotel *
1992	The Metropolitan Club * The Westin St. Francis Hotel *
1993	Center for the Arts Sir Francis Drake Hotel *
1994	New City Library Bedford Hotel * Bellevue Hotel * Grand Hyatt Hotel *

* Buildings that have converted from natural gas boilers to San Francisco Thermal's Steam System.

"The customer support for our cooling service has been strong. Many of them need to replace their chillers over the next few years, so there's an interest in jointly solving the problem with district cooling instead of investing in new chillers."

Pittsburgh Thermal's plant was built in the early 1960s, and had not been expanded since 1974. A satellite plant was installed in 1991, and the pipeline extension was completed in 1994.

With the approval of new tariffs by the Pennsylvania Public Utilities Commission and with full customer support, Pittsburgh Thermal is now initiating major efficiency improvements. These include installation of boiler economizers, a free cooling cycle, in-plant cogeneration and a system water well.

Youngstown

The Youngstown steam system serves 55 buildings in the city's central business district, as well as nearby Youngstown State University and Southside Medical Center. All together, the system serves about 5,859,000 square feet of building space.

Since Youngstown Thermal has implemented much of Thermal Ventures' business plan in the past, the company is now concentrating on the development of a district cooling system.

Its first cooling customer, a two-story building being renovated to house a business incubator, will be served beginning in April 1995. Several other customers will join the system in early 1995.

"The customer support for our cooling service has been strong," reports Jim Mullen, Youngstown Thermal president. "Many of them need to replace their chillers over the next few years, so there's an interest in jointly solving the problem with district cooling instead of investing in new chillers.

"Although the steam business here is mature, we pick up a building here and a building there, and we've been able to increase our scope beyond downtown."

Major new steam customers include a new jail erected on the fringe of downtown and a homeless shelter just outside downtown.

Youngstown Thermal system is primarily a coal-fired system. The plant can also burn oil and natural gas, and has experimented with using wood waste as a low-cost fuel. This makes the Youngstown plant different from those in San Francisco and Pittsburgh, which primarily use natural gas but can run on oil.

"The key is that community leaders are realizing what district energy can do for their central business districts. The cost and convenience advantages we bring to the table result in more downtown activity and more jobs."

The Future of District Energy

Looking back, Avers considers the 1980s to have been a renaissance for the district energy industry. It was then that

Avers, while with United Thermal's predecessor, began buying and operating steam systems. Many other companies did so, too, during the 1980s.

"Before that, the electric utilities, who had been the primary operators of district heating and cooling systems, were putting them out of business or just letting them go without investing in them," Avers recalls. "The industry was floundering and, as a result, so was the industry's association.

"But once it became evident that these systems could be made to work — profitably — commercial steam district heating started to grow again and district cooling did as well. Even the utilities themselves began treating these systems as ongoing businesses."

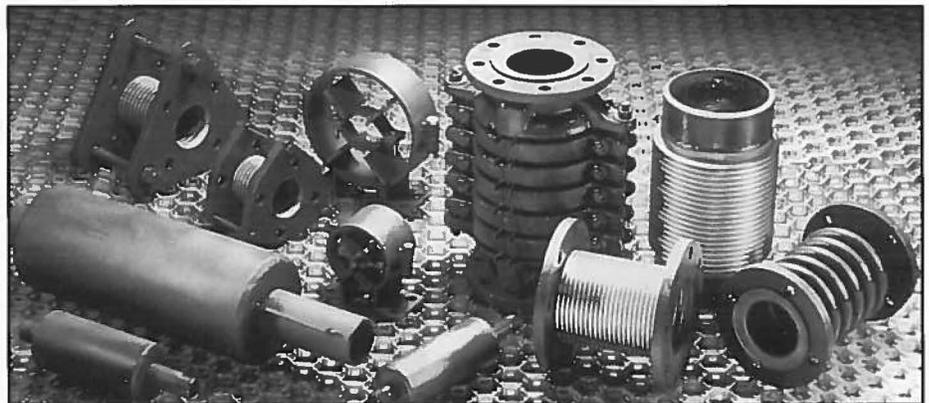
Now, Avers says, the industry's future rests in large part on how well it capitalizes on its own successes.

He cites St. Paul, Minn., and Jamestown, N.Y., as communities that have excelled in using district energy as economic development tools. "As an industry, we need to highlight their stories."

The growing interest in district energy in Thermal Ventures' communities indicates that the message is getting across. In addition to energy efficiency, increased emphasis on environmental protection has given building owners and government officials another reason to explore district heating and cooling.

"The key is that community leaders are realizing what district energy can do for their central business districts," maintains Avers. "The cost and convenience advantages we bring to the table result in more downtown activity and more jobs.

"When you add to all that the fact that we can now help building managers get rid of their CFC problems, you can see why district energy providers have a golden opportunity right now to grow." 



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