Getting More From Selling Your Energy
“An Indianapolis Experience”

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Indianapolis is well known as the world’s racing capital with the Indy 500, Brickyard 400, and Formula One events. It is also called the Cross-Roads of America, due to being centrally located in the United States. It has an estimated population of 890,000 and the Metropolitan Service Area has a total population of 1,500,000.

Most cities have secrets, but few have one that can have a major impact on it’s economic growth when it comes to energy sales. Especially during a time when energy prices are going crazy. Deregulation of the electric markets is a trying and confusing issue. This is due to the problems in California and the current natural gas prices. With the demand for natural gas going higher and higher and the cost going up and up, none of us know what the future holds for our energy costs, but the City of Indianapolis has the answer.

On November 20, 2000, Citizens Gas & Coke Utility took over the operation of the Indianapolis District Heating and Cooling Facility. Citizens Thermal Energy, a Division of Citizens Gas & Coke Utility was formed to manage the regulated steam and unregulated chilled water businesses.

The steam system’s main source of steam is from the Perry K steam plant. The secondary supply of steam is from the Indianapolis Resource Recovery Facility (IRRF) owned and operated by Ogden Martin Systems of Indianapolis. Eighty-two (82) employees operate Citizens’ system with the Mission “To Provide Safe, Reliable, Efficient and Economical Energy, as required by each Customer”. In order to provide this type of service we have to meet these five objectives:

- Provide quality customer service
- Have a variety of fuels
- Meet environmental requirements
- Manage system for today’s business world
- Marketing (expand the system).

The role of the District System is to provide economical, reliable, and efficient energy service that provides the customer with a cost-affective energy alternative, and in some cases, benefits he cannot provide due to costs. This means having a variety of fuels (giving us the ability to adjust to the ups and downs of the market), professional employees that are experts in their field (on staff engineers, environmental personnel, and operating /maintenance personnel). We have engineers, technicians, and managers that understand Power Plants, day-to-day operations and efficiency requirements. We also have our own in-house HVAC Engineer, Customer Service that has the ability to help teach the customer energy conservation and use it wisely in their building or facility, and Marketing to provide solid information to local and national Consulting Engineering Firms, Contractors, Building Managers and Governmental
Agencies. This allows us to grow the system thereby lowering the costs for everyone. Expanding the system spreads out the overhead costs of the operation over a wider base to lower the unit energy cost. The goal is to keep the cost down, the steam system has not increased its rates since 1997 and under Citizens, we have promised to keep the rates at their present level for two (2) more years.

Most central systems in Europe are the Hot Water type with only steam to select process loads. In the United States the majority of the larger District Heating Systems are steam type systems. The Indianapolis system sells steam at three different pressures 400 psig, 250 psig, and 15 psig, which allows us to meet the temperature and pressure requirements of a diverse and changing energy market. It is distributed through the 24 miles of distribution system to industrial, commercial, governmental, retail, and medical facilities within the Central Business District of Indianapolis. In terms of steam sales, in the United States, the Indianapolis system is second only to New York City. In 2000 we sold approximately 7.4 billion lbs. of steam to our customers. And 44% of this steam was produced by IRRF, Ogden Martin Systems of Indianapolis.

The Ogden Martin Waste-To-Energy Plant started construction in 1986 and went into business in 1988. It’s designed to process 2,360 tons of Municipal Solid Waste (MSW) per day. The three boilers are rated at 787 tons/day each with a steam capacity of 190,000 lbs./hr. at 510 psig, 710 degrees F each. The steam is used for in-house auxiliary equipment and production of the plant electric load. All of the other steam is sold to Citizens Thermal Energy. On an annual basis this averages approximately 330,000 lbs./hr. In 2000, Ogden Martin’s throughput was 690,000 tons of MSW and they provided 44% of our Load requirements. It’s both, Ogden Martin’s and Citizens desire to increase this steam output in the years ahead.

The Perry K steam plant was originally built in 1893 as an electrical generating station. Through the years, the plant evolved into primarily a district steam production facility, although some electric production remains. There have been numerous plant upgrades and improvements over the years to meet current operating standards, environmental rules and regulations. The facility has become one of the outstanding, year-around, load profile District Heating and Cooling operation in this country. It has eight (8) boilers for a combining capacity of 1,990,000 LB/hour, two (2) turbines, totaling 20 MW of power – one 15 MW turbine and one 5 MW. The steam distribution system consists of 24 miles of piping and 640 manholes.

Most district systems have a peak due to winter sales and after four to five months the load goes down to almost nothing the rest of the year. This makes it hard on everyone from a financial and operational standpoint, as well as waste-to-energy plants tied to those systems. Indianapolis recognized that this would be the case if a major change did not occur.

In 1986 a 20-year contract was signed with IRRF to purchase all of the steam available from the waste to energy plant and in 1988 an addendum was made in order to sell more steam in the summer. A separate rate schedule was set up to sell the steam from IRRF for the use of chilled water. This addendum provided the main means of the economic advantage required to start a chilled water business in the central Indianapolis Business District. Today, the West Street Chilled Water facility adjacent to the steam operating plant has 32,250 tons of capacity with 12
miles of piping and 143 manholes. Six (6) of the chillers are rated at 5,000 tons each, they are steam driven. We have one electric chiller rated at 2,250 tons. Growth in the chilled water business is out growing all other forms of comfort energy sales. This is mostly due to computers. As an example, a building designed to house 500 people, needs to handle a heat load for a 1000 people. The standard desktop computer puts off approximately the same heat as a person. Building owners and managers are trying to keep their clients comfortable, without investing in capital for upgrades. At the same time, environmental laws mandate different types of Freon, which requires capital dollars. Due to this growth the West Street plant is the fourth largest steam customer and continues to grow.

The majority of our customers are large sophisticated clients, well versed, in the energy field, with engineers on staff. These customers include Lilly, IUPUI, RCA Dome, Convention Center, State Office Building, hospitals and a number of large hotels.

Everyone is concerned with the cost of energy from the homeowner to the Manufacturers that uses energy in making products. We are also concerned; our fuel cost is approximately 50% of our total operating cost. Having the ability to have more than one type of fuel provides security, not only to Citizens Thermal, but also to our customers who have put their faith and trust in us to provide the lowest cost energy available.

As shown by the load duration curve, we have the ability to provide steam from IRRF, coal, coke oven gas, natural gas, and oil. This allows us the ability to provide the right low cost fuel,
without the impact from national fuel shortages or other market forces, to our customers at any
given time.

In the year 2000, the fuel breakdown was 44% steam from municipal waste, Ogden Martin
Systems, 30% from coke oven gas, 21% from coal. The remaining 5% were natural gas and oil,
which were only used in peak or unusual situations.

This curve also provides us with other useful benefits such as peak vs. capacity. You will
note that with IRRF we can almost double our output without expanding the boiler capacity at
Perry K. At the same time, we use this information to see when and how many hours we can
perform maintenance during low usage.

As mentioned before, this curve is not your typical District Heating curve. Most plants
produce a very one-sided curve, sort of the opposite of the ice cream business. Indianapolis has
spent a large amount of time and energy in marketing, attracting and keeping large Commercial
and Industrial customers that have a year round steam demand. This, with the growth of the
chilled water business during the summer, balances out the load as shown on this curve. This not
only provides a sound business with more than one or two customers, but a positive market for
the energy from the Ogden Martin Waste to Energy plant and our plant.

Citizens Thermal and our customers are thankful the Indianapolis Resource Recovery
Facility is providing steam to our District Steam system. There is approximately 5,800 District
Energy systems in the United States. This number represents systems that serve three or more
customers. Out of that number, approximately one hundred-seventy (170) are downtown
systems that supply more than ten (10) customers, and two-hundred (200) serve hospitals and
university campuses.

District systems provide the best of all worlds in this complex, competitive energy market.
They provide diversity to meet the high standards set by customers, knowledge and
professionalism, a low cost, efficient twenty-four hour service and the ability to keep a secret.

And, Indianapolis has its own well-kept secret. During this most recent time of extreme cold
weather, high fuel prices and rolling blackouts, the customers in Indianapolis on the District
Steam Heating System did not see or feel any impact like their competitors did. Their energy
rates did not go up and for the next two years we have promised not to increase the rates. That's
because Citizens Thermal Energy, who with its dedicated employees, and the great working
relationships with Ogden Martin Systems, Coke Manufacturing Division of Citizens Gas, and the
City of Indianapolis have formed a team that has and will continue to provide safe, reliable,
efficient and economical energy as required by each customer.