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BUSINESS CASE STUDY

Multifilm Packaging

PROJECT SUMMARY

Multifilm Packaging Corp. is a medium-sized manufacturer of flexible packaging films used for the confectionary, snack, dry goods and coffee markets. Owned by a large Austrian packaging conglomerate since its foundation in 1982, Multifilm was purchased in a management buyout in 2008, giving the company the opportunity to aggressively invest in much-needed equipment upgrades.

In addition to acquiring the conglomerate's two film extruders, its down stream converting equipment and its 82,000-square-foot production and office building in Elgin, Ill., Multifilm inherited a 300-ton chiller that was in need of significant upgrading, along with a heating, ventilating and air conditioning (HVAC) system that needed to be replaced.

Over the course of a two-year period, and with the help of ComEd's ***Smart Ideas for Your Business***® team, Multifilm developed a unique solution – a geothermal process cooling and HVAC system that cools its production equipment and provides cooling for the people who work there, based strictly on groundwater.

Environmental responsibility is important to Multifilm Packaging Corp. In the end, Multifilm found a CFC-free solution that significantly reduced the company's energy consumption and carbon footprint.

PROJECT SNAPSHOT

Customer	Multifilm Packaging Corp., Elgin, IL
Building Type	82,000 square foot office building and processing plant
Measures implemented	Geothermal process cooling and HVAC system
Total project cost	$1.45 million
Incentives paid	$100,338.35
Estimated annual electric savings	1.43 million kWh
Estimated payback period	Six years

PROJECT DESCRIPTION

In providing its customers with specialized films, Multifilm's processing equipment generates a lot of heat. As a result, the equipment requires a relatively large amount of cooling capacity to support its extruders and printing presses. Multifilm, like many manufacturing companies, uses chillers to cool the equipment.

When Multifilm's 300-ton chiller was in need of replacement, the logical step was to find a newer, more efficient chiller that consumed roughly half the energy of its predecessor. But the company wanted to go one step beyond.

To improve the building energy efficiency, Multifilm searched for an innovative approach that would make a substantial impact on its energy consumption and carbon footprint. It concluded that geothermal was the best choice to replace its inefficient cooling system.

"At first, we were just replacing the chiller to cool our equipment," said David Rohrschneider, Multifilm's COO. "But the more we thought about it, the more it made sense to cool and heat our plant as well."

To do this, Multifilm would use groundwater from an underground aquifer, which is always at a constant temperature of 53° Fahrenheit, to cool the plant in the summer and cool the machinery year round. In the winter, heat generated by the machinery warms the plant; the water is pumped back into the ground but completely untouched.

THE PROCESS

The first physical step came in May 2009 with the drilling of an exploration well to look for water. With its close proximity to the Great Lakes, Multifilm drilled a 365-foot test well and hit the aquifer at about 280 feet below ground level. Tests confirmed that Multifilm had a flow of about 400 gallons per minute, more than enough to proceed with the system. More wells were drilled over the next few months. In the end, the company ended up with three production wells to supply water and four rejection wells to pump it back into the ground. The wells were located on the opposite ends of Multifilm's property to create a balanced loop.

Over the next four months, heat exchangers, pump motors, filters, valves and air handlers were connected by thousands of feet of copper piping throughout the plant.

The loops were completed in April 2010, and then extensively tested to assure that the water flow and temperatures were adequate for each process. One by one, the machines were disconnected from the old chiller and connected to the geothermal system, starting with the film-extrusion equipment and ending with the printing presses in mid-June 2010.

PROJECT BENEFITS

After only nine months of operation, Multifilm's geothermal system has achieved favorable results. Extensive measurements by ComEd and Multifilm staff indicate that the new system has reduced total energy consumption by 31 percent, saving the company an estimated 1.43 million kWh per year. At current electric rates, this equals an estimated cost savings of $143,340 annually. In addition, Multifilm CEO Olle Mannertorp expects maintenance costs will be significantly lower on the new system since pumps, valves and heat exchangers are not only newer, but can more easily be replaced in a geothermal loop.

> ComEd's *Smart Ideas*® program provided us with guidance on some of the equipment we installed and in some of the decisions we made.
>
> Olle Mannertorp, CEO, Multifilm Packaging Corp.

Although Multifilm estimates that the cost of installing the system was twice the cost of replacing the previous chiller, close to 25 percent of that cost will be returned to Multifilm through approximately $100,000 in incentives provided by ComEd's *Smart Ideas* program and another $140,000 in grants from the U.S. Department of Energy. By reducing both energy costs and maintenance costs, Multifilm estimates that the system's payback period will be less than six years.

"ComEd's *Smart Ideas* program provided us with guidance on some of the equipment we installed and in some of the decisions we made," Mannertorp said. "By offering incentives for a number of measures we enacted, *Smart Ideas* helped reduce costs, which helped with the overall decision to take on this project."

Looking back, Rohrschneider and Mannertorp believe they made the right decision, and not just from a sustainability standpoint. "Of course, we have drastically reduced our carbon footprint and cleaned up our process significantly," Mannertorp said. "But that's not the whole story – this makes sense environmentally and economically. We have lowered our costs, which makes us more competitive and increases profitability, which encourages investments, which safeguard the future of our company, our employees and their families. In retrospect, I can't see how we could have afforded to not install this system."

Mannertorp encourages other manufacturers to learn from Multifilm's efforts to reduce its carbon footprint. "Green initiatives like our geothermal system help protect both our industry and the U.S. economy," Mannertorp said. "In the long run, everybody benefits."

ABOUT COMED'S *SMART IDEAS*® PROGRAM

ComEd's *Smart Ideas for Your Business*® program can provide your business with information on incentives, tools and tips to help your organization become more energy efficient. The *Smart Ideas* team can also provide your facility's staff the opportunity to work hand-in-hand with energy engineers to increase their knowledge of the efficient and effective operation of your building's systems.

For more information, visit ComEd.com/BizIncentives or call the *Smart Ideas* hotline at 888-806-2273.

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