

# CASE STUDY: Energy Efficiency Is Good For Business

Solvay Combined Heat and Power

*Win-Win = Reliability & Energy Savings*

**W**hen it comes to industrial efficiency success, Solvay Specialty Polymers USA is proving the adage that “necessity is the mother of invention.”

In 2010, Solvay learned that its local steam supplier would be shutting down—in only six months. After scrambling to install temporary boilers for a short-term utility solution, the Marietta, OH-based manufacturer launched an urgent hunt for a permanent solution. “As with any business, we were also interested in efficiency and cost savings,” said Alan Wanosky, Operations manager. “But the real driver was a critical need for a permanent steam and electricity supply, to sustain our plant long term.”

Solvay’s polymers are used in a variety of applications, including plumbing, medical, water filtration, electronics and aerospace components. In addition to their very temporary boiler system, Solvay was also saddled with their main electrical supply substation sitting unprotected in the 60-year flood plain. To continue supplying its customers, Solvay also needed a more reliable electricity source. “Our plant lies right along the Ohio River, so having our only electrical supply in the 60-year flood plain was something we wanted to remedy,” Wanosky said.

In 2004, for example, the Solvay plant was offline for several days because its main electrical supply substation was under water during major flooding on the Ohio River. “Some of our products are essentially ‘sold out’ at all times, so it is a big hit to the business, and for our customers, to be down for days,” Wanosky explained. “Even very short power or steam outages can cause major problems. Winter is the biggest concern, because if the plant is subjected to freezing temperatures with no available outside heating, we could be down for months. Reliable utilities are absolutely critical.”

Solvay transformed a crisis into a huge opportunity when it partnered with DTE Energy Services (DTEES) to install a combined heat and power (CHP) system—a super-efficient approach to electricity and steam generation—at the Solvay plant. Solvay now has a reliable power and steam source, and at a very competitive cost.

DTEES is a third-party developer of energy-related projects such as the Solvay CHP system. The Solvay/DTEES arrangement represents an innovative approach to onsite power generation: DTEES designed, built, owns and operates this CHP facility (through DTE-Marietta, or DTEM)—which allows Solvay to focus on its core business, while DTE keeps both the steam and power flowing to the plant. Solvay provides the fuel by purchasing natural gas and is responsible for the cost of the fuel, which has resulted in huge savings, as natural gas prices have dropped dramatically in recent years.

## Solvay Quick Facts

Type of Project:	Combined Heat and Power (CHP)
Investment:	\$37 million (by DTEES)
Utility Incentives:	About \$1.5 million in rebates over 5 years
Savings:	Estimated \$10-15 million in reduced energy costs over 20 years

MARIETTA, OHIO



*The Solvay plant is powered through CHP, which provides more reliable energy and big savings.*

**“Our steam supply is more reliable than ever and now we only rely on the electrical grid for a back-up. With Combined Heat and Power, we are able to capitalize on historically low natural gas prices, reducing our cost of production.”**

**- Wally Kandel**

*Senior Vice President & Site Manager,  
Solvay Specialty Polymers USA*



Energy savings continued on back ▶

## Let the Energy Savings Continue:

“Solvay, as a global manufacturer, looks to pool our demand for better utility pricing when it can,” said Wally Kandel, senior vice president & Marietta site manager. “So here in Marietta, it made sense for Solvay to be the supplier of natural gas.” With previous utility providers, if there was a utility outage, “we had very little recourse—we had very little leverage with the utility agreements that we had in place to ensure quick resolution of the issues,” Kandel said. The current agreement with DTEM motivates both partners to maximize efficiency. Solvay is responsible for providing the necessary natural gas to operate the CHP facility, and in return, DTEM guarantees levels of power and steam per unit of natural gas consumed (as well as CHP uptime by minimizing scheduled and unscheduled outages)—so that we all “keep that sense of urgency,” Kandel said.

DTEES will recoup its investment over time through revenue from both steam and electricity production, and Solvay gets the energy savings. Solvay estimates it will save \$10-15 million in energy costs over the next 20 years, with the CHP facility providing 100 percent of its steam supply and about 97 percent of its electricity needs. Starting in 2016, Solvay is reaping more than \$280,000 annually in energy efficiency rebates from AEP Ohio. Over the next 5 years, it will have received nearly \$1.5 million in total rebates.

As a further synergy, Solvay Group has announced that, globally, it seeks to reduce its carbon intensity (defined as kg CO<sub>2</sub>/earnings) 40 percent by 2025. This CHP project is an excellent example of what can be done to reduce emissions: the current CHP facility has cut carbon emissions nearly 35 percent, compared to previous utility providers.

“Our steam supply is more reliable than ever,” Kandel said, “and now we only rely on the electric grid for a back-up.” The CHP plant not only helped to preserve more than 350 existing jobs in the area, but also provided new jobs to replace those from the shuttered steam/power plant to staff the new CHP facility. Although Solvay had limited real estate for the CHP plant, it was able to utilize land adjacent to its employee park because the facility is so quiet, it does not disturb others using the area. And because the CHP plant was also designed to be expandable, Solvay is looking to grow its own manufacturing facility and possibly use this new CHP facility to produce other resources like compressed air and chilled water, which will lead to even greater efficiency and savings.

#### About Solvay

*An international chemical and advanced materials company, Solvay assists its customers in innovating, developing and delivering high-value, sustainable products and solutions which consume less energy and reduce CO<sub>2</sub> emissions, optimize the use of resources, and improve the quality of life. Solvay serves diversified global end markets, including automotive and aerospace, consumer goods and healthcare, energy and environment, electricity and electronics, building and construction, as well as industrial applications.*



*The CHP power plant at Solvay provides 100 percent of steam supply and 97 percent of electricity to drive manufacturing at the Ohio facility.*



*The Solvay welder pictured here represents one of the more than 350 existing jobs in the area that the CHP plant helped to preserve.*

**GET STARTED  
SAVING  
TODAY:**

**Combined Heat and Power and Waste Heat to Power  
could supply 20 percent of U.S electric capacity by 2030**

The Alliance for Industrial Efficiency is a growing coalition of business, labor, and non-profit organizations that advocate for policies that increase U.S. manufacturing competitiveness through industrial energy efficiency, especially the use of Combined Heat and Power (CHP) and Waste Heat to Power (WHP). To date, the Alliance has focused on improving financing for CHP and WHP, increasing demand for CHP and WHP, and incorporating CHP and WHP in the Environmental Protection Agency's Clean Air Act rules.

For more information go to [alliance4industrialefficiency.org](http://alliance4industrialefficiency.org) or call 202.816.9302

  
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