

Contract Details

Contract Type:

Budget Neutral Upgrades; Energy Efficiency; Design/Build; Cost reduction strategies

Summary

As one of the largest chemical manufacturing sites in North America, Eastman Chemical Company were looking for ways to develop and leverage partnerships to reduce costs and implement capital projects. In Ameresco they found an energy services partner who could help them achieve their goals.



Customer Benefits

Under Ameresco' Master Agreement with Eastman Chemical Company, Eastman was able to implement energy efficiency upgrades and infrastructure upgrades that were designed to reduce energy and maintenance costs, and expand capacity for plant expansion. These not only reduced Eastman's production costs but improved productivity in key areas.

These projects eliminated the need for additional required capital expenditures, maintenance, capital deferral, and related energy penalties. Operational and maintenance savings were realized through utilizing the new automatic controls for remote monitoring and operation, thereby reducing labor costs and additional savings were associated with cost avoidance for system overhauls, modifications, reliability enhancements, and capacity gains.

Services Provided

Eastman Chemical Company has a longstanding commitment to energy management as a way to control costs and enhance productivity. In July 1999, Eastman signed a long-term Master Energy Services Agreement with Ameresco, beginning a partnership that will provide Eastman Chemical with the energy management expertise and financial resources needed to develop their energy initiatives over the coming years. The following are the four key projects implement under this master agreement.

As the first project of the larger master agreement, a compressed air system upgrade was developed for the Kingsport facility. After an initial evaluation of all compressed air systems at the site, Ameresco

determined that the compressed air system used for the production of terephthalic acid (TPA) offered the greatest potential for significant savings. The goal of the project was to eliminate the process air venting from the air supply headers and increase system capacity.

Tennessee Eastman's TPA compressed air system included five air compressors that supply air to three booster compressors. The boosters, along with two additional compressors, supply 115 psig air to the TPA distribution header. After a thorough evaluation of the system, Ameresco recommended adding one new air compressor (25,000 scfm, nominal 60 psig) and automating the operation of the process air systems.

The upgraded TPA compressed air system was commissioned and accepted by Eastman. The project increased the compressed air capacity so that future demand could be met, and reduced venting from baseline levels. In addition, the project is entirely self-funded from the energy savings.

After the successful completion of the TPA compressed air project, Eastman continued to expand its alliance with Ameresco by awarding a contract to renovate and modernize their primary river water pumping station. The goal of the project was to reduce operation and maintenance costs and restore spare pumping capacity of the B-63 pumping station. With the aim of providing the most feasible and cost-effective solution while minimizing the impact to Eastman's balance sheet, Ameresco proposed replacing aging equipment and implementing remote operation for the system.

About Eastman Chemical Co.

Eastman manufactures and markets chemicals, fibers and plastics worldwide. It provides key differentiated coatings, adhesives and specialty plastics products, is a major supplier of cellulose acetate fibers, and produces PET polymers for packaging.

Learn more at www.eastman.com

About Ameresco

Ameresco, Inc. is one of the leading global energy services providers. We deliver long-term customer value, environmental stewardship, and sustainability through energy efficiency services, alternative energy solutions, supply management, and innovative facility renewal strategies. The company has over 650 employees in regional offices throughout North America. Ameresco, Inc. has constructed billions in energy projects throughout the world.

Learn more at www.ameresco.com



Services Provided (cont.)

The B-63 pumping station serves three cooling water systems, each of which operates at a different pressure. Test data indicated that the effectiveness of the existing pumps had decreased over the years to the point that the pumps were no longer able to supply their rated capacity. Ameresco replaced the existing steam turbine-driven pumps with new electric motor-driven pumps, pump controls, and a new pump priming system. The new motor-driven pumps were sized to restore original capacity. The existing pumps on one of the cooling water systems were eliminated, and automated pressure-reducing valves were installed.

To accommodate the 24-hour per day, 7-day per week operation of the B-63 pumping station, the new pumps were installed so that adequate pumping capacity was maintained on each system. The 13.8 kV substation was installed and energized prior to pump replacement. The pump priming system was installed next, with final connections to individual pumps made during the pump replacement.

The third project to be implemented under the Master Energy Services Agreement was a plant and instrument compressed air upgrade developed for the Carolina Eastman facility. The Carolina facility has two major compressed air systems: the Plant & Instrument (P&I) air system and the Process Air (PA) system. The P&I system feeds air to the plant for use in pneumatic conveying, hand tools, air hoists and others; it also supplies the instrument air for controls and valve actuators. The objective of the plant and instrument air upgrade was to reduce operational and maintenance cost associated with the existing air system as well as reduce compressed air losses associated with continuous moisture blowdown.

After a thorough evaluation, Ameresco recommended plant and instrument air system upgrades including new high-efficiency dryers with modified piping and filters, new central dryer station above for central operating control, upgrade of compressor controls, new non-clogging air-free type condensate traps on air compressor intercooler, aftercoolers, and select drain legs.

The fourth project to be implemented under the Master Energy Services Agreement was a project to modify the cooling systems for the Acetate Yarn scrubbers at the Kingsport facility. Eastman's acetate yarn refrigeration system provides cooling to six spinning machine scrubbers. These scrubbers condense acetone vapors emitted from the acetate yarn spinning machines for collection and reuse in the acetate fiber process.

The cooling load for condensing the acetone vapor was supplied by an ammonia refrigeration system. Historical data shows that the unit cost of operation for the ammonia refrigeration system is significantly higher than that for the ethylene glycol refrigeration system. The current ethylene glycol system has an additional 2,500 tons of cooling load available, which is sufficient to support both the Acetate Tow and the AY departments.

After working closely with Eastman during the detailed engineering study phase, AY Refrigeration Project entailed the conversion the AY scrubber refrigeration source from an ammonia-based system to the existing glycol-based system. To make this conversion, supply and return glycol piping from the existing glycol system was installed as well as external scrubber heat exchangers and scrubber spray pumps at various stages on each of the six scrubbers.

The objective of this project is to reduce operational and maintenance costs associated with the existing AY scrubber system. The project will also eliminate the need for additional capital expenditures that would be required for the outdated ammonia system. Quantified annual cost savings associated with this project total comprise of operational costs, maintenance, capital deferral, and the energy penalty associated with the new glycol system.