

SHOWCASE PROJECT: EASTMAN CHEMICAL: STEAM REDUCTION IN SOLVENT PRODUCTION

SOLUTION OVERVIEW



BETTER PROJECT WINNER 2019 Eastman is a global specialty materials company with more than 50 manufacturing sites and serving customers in more than 100 countries. Eastman has established an ambitious corporate-wide goal of reducing energy intensity by 20% as part of the Better Buildings, Better Plants Challenge. Energy intensity is measured as the MMBtu of energy used per kkg (thousand kilograms) of production. As a result of this challenge, an Eastman team at the Longview, Texas, site began an evaluation of a solvent process at the facility.

The solvent production process was not considered very energy intensive. However, after performing an energy balance in the plant, Eastman's team realized that a single-unit distillation column accounted for 45% of the energy usage in the production of a solvent. The identified column used most of the steam energy to refine the entire solvent stream from an already high purity level to an ultra-high purity level. This ultra-high purity product was produced to meet the sales specifications for a single small volume customer. After reaching out to customers, it was determined that the one customer's purity level for this solvent was truly needed, but that the rest of the production could fully meet sales specifications at the high purity level. This would eliminate the energy-intensive step for the majority of the production.

SECTOR TYPE

Industrial

LOCATION

Longview, Texas

FINANCIAL OVERVIEW

\$2,500

SOLUTIONS

To save energy use in solvent production, the Eastman team decided to split production into an ultra-high purity product and a high-purity product that could meet the different customer specifications. To pilot the project, the main action item was to install a bypass line in the existing distillation column to separate both streams of the solvent. The ultra-high purity solvent would be produced with the existing process and energy consumption. The high-purity solvent could also be made through the less energy intensive route.

Extensive sampling and testing were performed to ensure consistency of both product streams which required significant staff time to monitor and test the streams. Eastman's solvent action plan resulted in a 42% reduction in energy consumption required to produce the solvent.

OTHER BENEFITS

In addition to energy savings, this project yielded reduced emissions of 11,000 short tons of CO₂ annually as well as a savings through waste reduction.

Annual Energy Use

Baseline()



Actual()



Energy Savings

42%

Annual Energy Cost

Cost Savings

