



A Yokogawa Company

CASE STUDY



Driving Energy Excellence at Two U.S. Fertilizer Sites

How KBC's Strategic Energy Review Unlocked Over \$9 Million in Annual Energy Savings

Benefits

- Site 1: Energy savings of 18% of total site energy use, valued at \$7.5 million/year.
- Site 2: Energy savings of 6% of total site energy use, valued at \$2 million/year.

Background

- Two fertilizer plants located in the USA.
- Improve energy efficiency and profitability while reducing emissions.

KBC Solution

- SER for each site using advanced methodologies.
- Evaluation included all major energy users.
- Feasible energy-saving opportunities prioritized in an Investment Roadmap for each site.

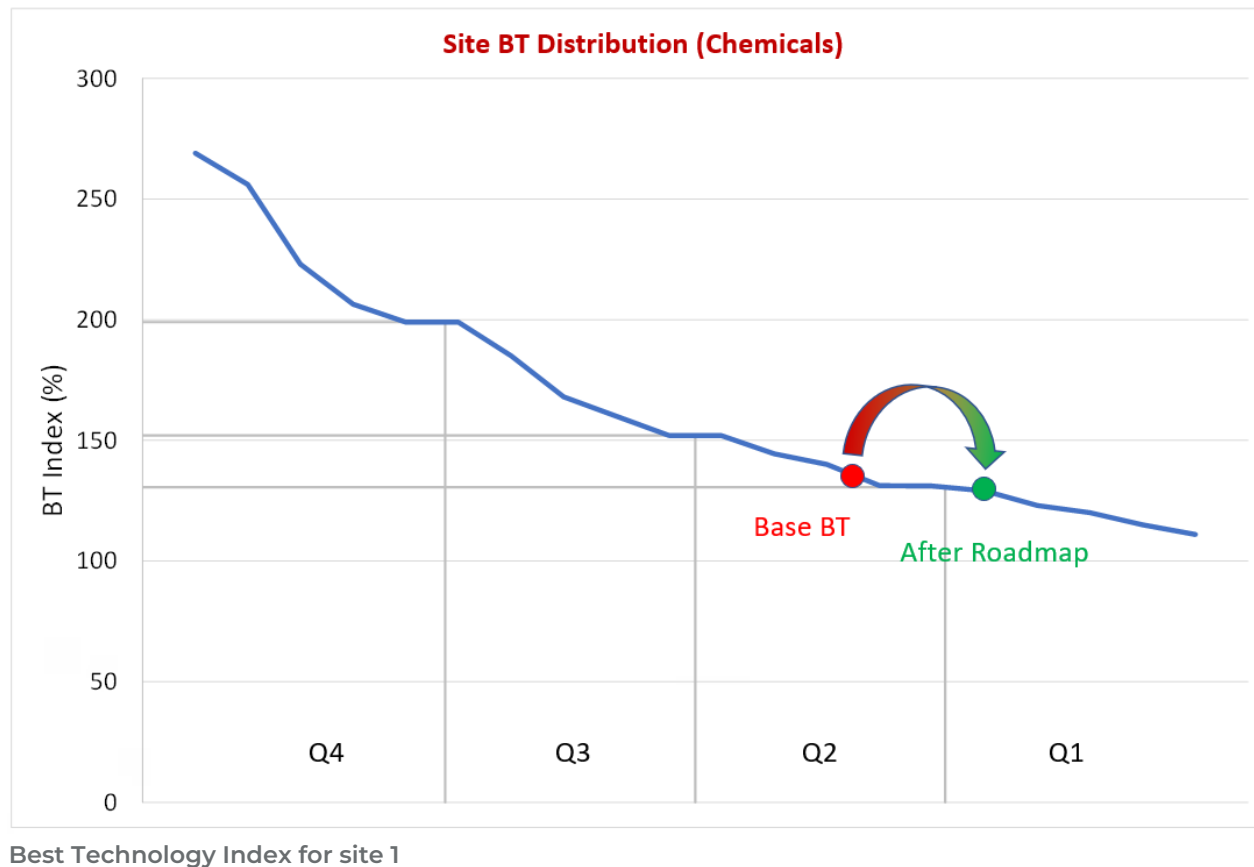
Challenge

A multinational fertilizer manufacturer set ambitious energy-saving targets for two of its production sites in the USA. The aim was for each site to achieve a 1% reduction in energy consumption in the first calendar year and a long-term target of 20%. Achieving these goals required a comprehensive understanding of each site's energy performance, identification of hidden inefficiencies, and prioritization of cost-effective measures that could deliver tangible savings.

Solution

KBC applied its Strategic Energy Review (SER) methodology to both sites, systematically evaluating all major energy systems and identifying opportunities

to improve efficiency. Techniques included Process Flow Diagram (PFD) reviews, benchmarking and gap analysis, Pinch Analysis, and detailed steam system modeling. Each identified opportunity was assessed for technical and economic feasibility and incorporated into site-specific Investment Roadmap, outlining the total scope for energy savings and providing a clear path for implementation.



Results

For the first site, KBC identified immediate energy-saving opportunities of 2.2% in the first year, exceeding the initial target. The full Investment Roadmap indicated potential savings of up to 17.8%, elevating the site's energy performance from second to first quartile compared with peer facilities benchmarked by KBC.

The second site posed more challenges because it was a new facility and also had limitations within the steam system. No/low-cost measures achieved 1.2% energy savings, while the Investment Roadmap revealed maximum potential savings of 6%. Additional energy-saving projects were identified but were uneconomic under prevailing energy prices. Notable examples of implemented and planned projects included furnace efficiency improvements, compressor operation optimization, and steam system enhancements.

