



Case Study

The Challenge

ASIA'S LARGEST OIL & GAS COMPANY SEEKS TO LOWER ITS OWN RISING ENERGY COSTS.

Growing demand and higher prices for natural gas might seem like good news for Asia's largest oil & gas company. But for giant, Sinopec -- the world's fifth largest company -- significant gas price increases in China also impact the cost of its *own* gas processing operations. That's why engineers from the Sinopec Nanjing Engineering Company (SNEC) sought innovative technologies that could reduce energy consumption in the amine gas treating process at the state-owned company's Songnan Natural Gas Plant in northeast China.

PROJECT LOCATION

Songnan Natural Gas Plant
Jilin Province, China

CLIENT

Sinopec
(China Petroleum & Chemical Corp.)

CAPACITY

1 billion m³ of natural gas/year

ELECTRICITY SAVINGS

6 Million (Chinese RNB) or \$US 1 million,
25% of total power consumption

"The energy savings Sinopec would realize by using the Energy Recovery system is about 25% of total power consumption. In US dollars, that's around \$1 million in annual savings."

Mr. Zhou Hanlin, General Manager
Songnan Gas Plant
Northeast Oil & Gas Branch, Sinopec



IsoBoost™ System

- Maximum flexibility
- Plug + play complete solution — no need for other instrumentation or ancillary equipment
- High quality, precision manufacturing



The Innovation Solution

ISOBOOST TRANSFORMS WASTED PRESSURE INTO AN ASSET.

Amine gas treating is an energy-intensive process for removing H₂S and CO₂ from natural gas. In the process, these compounds are absorbed at a low temperature and high pressure, and then released at a high temperature and low pressure. Sinopec looked to Energy Recovery for a way to transform the plant's pressure cycles into reusable energy, while also minimizing the wasted energy associated with operating two high pressure pumps in parallel. By implementing Energy Recovery's IsoBoost System (known as the Turbo GT in this installation), which consists of a turbine and pump rolled into one, the IsoBoost solution allows Sinopec to harness energy from its high pressure flow, retain its fully redundant system, and lower its operating costs- all at once.

The Result

LOWER CAPITAL AND OPERATING COSTS. LESS MAINTENANCE.

In its first year of operation, the IsoBoost System would reduce the Sinopec plant's operating costs by \$US 1 million. These savings were achieved despite the IsoBoost operating at a lower amine flow rate during plant start-up - 1250 gallons per minute (gpm), compared to the expected 1800 gpm needed for optimal performance. Even with operating well below the design point, the innovative IsoBoost solution delivered energy recovery efficiencies in excess of 60%.

Because the IsoBoost system has no mechanical seals or motors, it requires significantly less maintenance and downtime than other oil and gas pumps, whose seals and motors pose risks of leaks and failure. The significant cost reductions and energy savings it delivers allows Sinopec to maximize productivity and profitability.