

SMARTCOOL™

IMPROVE YOUR BUSINESS BY E³

ENERGY EFFICIENCY - ECONOMIC BENEFITS - ENVIRONMENTAL SUSTAINABILITY

Smartcool's Energy Saving Module (ESM)™ is a unique retrofit technology that saves energy on the compressors in air conditioning and refrigeration systems. Working in conjunction with existing equipment and controls, the ESM™ maintains pre-set temperatures without causing over-cycling and reducing compressor run time by up to 30%.

Smartcool clients confirm electricity demand and consumption savings averaging 15%, giving them a rapid return on investment and reducing their carbon footprint. Here's just one example of the savings that can be achieved with Smartcool:



CASE STUDY: FOOD SERVICES

BELVILLE, SOUTH AFRICA

INSTALLED 2008



Vector Logistics is a well-established logistics service provider for the food and food-related industries in southern Africa. Providing everything from climate-controlled transportation to bulk warehousing in cold storage facilities, Vector Logistics requires absolute control over temperature in its facilities. Cooling represents a huge operating cost for this major food service firm.

ENERGY EFFICIENCY

221,000 KWH

Annual energy savings achieved
by installing the ESM™

ECONOMIC BENEFITS

\$8,451 USD

Annual financial savings

23 MONTH

Return on investment

ENVIRONMENTAL SUSTAINABILITY

135,213 KG

= 433,315 LBS

Annual GHG emissions reduction

236 ACRES

Trees required to sequester the
same amount of GHG emissions

27 HOMES

Could be powered for a year with
the energy saved

EQUIPMENT

**2 GRASSO RECIPROCATING AMMONIA COMPRESSORS
FOR REFRIGERATION**

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Savings achieved by the ESM™ are easily quantifiable. The unit can be switched between ON and OFF modes, allowing for a comparison of energy usage by the air conditioning or refrigeration compressors with and without the ESM™.

Smartcool can provide a standard monitoring and verification package to interested clients, which includes recording the energy usage and temperature performance of their existing equipment both with and without the ESM™ in the circuit. Smartcool will install energy data loggers to measure and record the KW, kWh and amperage used by the cooling system during a set evaluation period when the ESM™ alternated between ON and OFF. These data loggers take a measure every 8 seconds and are set to provide a date stamped printout every 6 minutes. Temperature loggers are also used to measure and record the controlled space temperature is maintained.

EVALUATION DETAILS

The ESM™ was installed in one plant room of Vector Logistics' cold storage facility. Specifically, the ESM™ was installed to optimize the reciprocating compressors in a Grasso ammonia-based multi-stage system with three stages of control per compressor. Both Smartcool and an independent third party conducted extensive monitoring and verification to determine the energy savings levels achieved by the ESM™, and results were consistent between the two processes.



The ESM™ units were installed in October 2008 to optimize the refrigeration system. Smartcool's standard monitoring and verification process was initiated to determine the performance of the unit. Data was collected as the ESM™ units alternated between OFF and ON modes. Energy savings averaging 612 kWh per day were achieved with no discernible impact on temperature.

ANNUAL ESTIMATED RESULTS

Annual Energy Savings = 221,000 kWh
Return on Investment = 23 months
GHG Emissions Reduction = 135,213 kg
or 433,315 lbs

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