

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: COMMERCIAL REAL ESTATE
BANGALORE, INDIA INSTALLED 2008

GE Healthcare



GE Healthcare's South Asia operations are managed from their facility in Bangalore, India. Providing imaging and information technologies, diagnostics, monitoring systems, and pharmaceutical manufacturing technologies, GE Healthcare is a major subsidiary of the General Electric Company, employing over 46,000 people worldwide.

ENERGY EFFICIENCY

78,000 KWH
Annual energy savings achieved
by installing the ESM™

ECONOMIC BENEFITS

< 24 MONTH
Return on investment

**ENVIRONMENTAL
SUSTAINABILITY**

47,722 KG
= 152,935 LBS
Annual GHG emissions reduction

83 ACRES
Trees required to sequester the
same amount of GHG emissions
10 HOMES
Could be powered for a year with
the energy saved

EQUIPMENT
2 DUNHAM BUSH SCREW COMPRESSORS FOR A/C

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INFO@SMARTCOOL.NET



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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

In 2008, Smartcool launched a new module for the ESM™, which provides more precise control for chiller applications. The Intelligent Interface Module (IIM) allows the ESM™ to modify chiller capacity control using either remote set point control, temperature reset, dual set point control or pulse width modulation. The IIM interfaces directly with the chiller management system, which ensures that the integrity of the chiller safety and management system complies with manufacturers' warranties and is usually more cost effective than hard wiring to the chiller control circuits. With this advanced module, the ESM™ achieved excellent savings on GE Healthcare's chiller.

The IIM



ESM™ with IIM



The ESM™ was installed in June 2008 to optimize the two Dunham Bush screw compressors in an air conditioning chiller, in one of GE Healthcare's facilities. 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. The energy savings shown below were achieved with no discernible impact on temperature.

EVALUATION PERIOD RESULTS

ESM™ OFF = 3,600 kWh
ESM™ ON = 3,300 kWh
Average Daily kWh Savings = 300 kWh

ANNUAL ESTIMATED RESULTS

Annual Energy Savings = 78,000 kWh
Return on Investment = 22 months
GHG Emissions Reduction = 47,722 kg
or 152,935 lbs

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