

# SMARTCOOL™

IMPROVE YOUR BUSINESS BY E<sup>3</sup>

ENERGY EFFICIENCY - ECONOMIC BENEFITS - ENVIRONMENTAL SUSTAINABILITY

Smartcool's Energy Saving Module (ESM)<sup>™</sup> 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<sup>™</sup> 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 in excess of 20%, 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

ST. MICHAEL, BARBADOS

INSTALLED 2008



"We are pleased with the level of savings achieved utilizing the ESM<sup>™</sup>. It is imperative that we maintain control of our expenditures and one way of doing so is to reduce our power usage, which enables us to continue to invest capital back into our company, helping sustain our economic growth."

- Clyde Gibson, Managing Director  
Barbados Dairy Industries (Pinehill Dairy)

### ENERGY EFFICIENCY

**166,413 KWH**  
Annual energy savings achieved  
by installing the ESM<sup>™</sup>

### ECONOMIC BENEFITS

**25 MONTH**  
Return on investment

### ENVIRONMENTAL SUSTAINABILITY

**101,817 KG**  
= **224,470 LBS**  
Annual GHG emissions reduction

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

### EQUIPMENT

**11 REFRIGERATION & 2 A/C UNITS**  
FROM VARIOUS MANUFACTURERS

[WWW.SMARTCOOL.NET](http://WWW.SMARTCOOL.NET)

[INFO@SMARTCOOL.NET](mailto: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

Pinehill Dairy is the primary processing plant for the products of Barbados Dairy Industries. Over 15,000 litres of milk are collected daily, and rely on the high quality equipment at the facility for bottling and other processes before going to market. Other products such as juice and yogurt are also processed at the plant. Smartcool installed the ESM™ to save energy on two air conditioning systems and eleven refrigeration racks in the facility.



The ESM™ units were installed in May 2008 to optimize the compressors in the refrigeration and air conditioning systems. 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 discernable impact on temperature.

#### EVALUATION PERIOD RESULTS

ESM™ OFF = 2,615 kWh  
ESM™ ON = 2,159 kWh  
Average Daily kWh Savings = 456 kWh

#### ANNUAL ESTIMATED RESULTS

Annual Energy Savings = 166,413 kWh  
Return on Investment = 25 months  
GHG Emissions Reduction = 101,817 kg  
or 224,470 lbs

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