

# SMARTCOOL™

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

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 in excess of 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

AIEA, HI, USA

INSTALLED 2009



Pearlridge Center is Hawaii's largest shopping center, complete with a monorail to transport customers between its two branches. Pearlridge contains over 170 stores, 12 restaurants, 2 food courts, and many other service providers.

### ENERGY EFFICIENCY

**138,041 KWH**

Annual energy savings achieved  
by installing the ESM™

### ECONOMIC BENEFITS

**25 MONTH**

Return on investment

### ENVIRONMENTAL SUSTAINABILITY

**84,443 KG**

= 186,164 LBS  
Annual GHG emissions reduction

**101 ACRES**

Trees required to sequester the  
same amount of GHG emissions

**17 HOMES**

Could be powered for a year with  
the energy saved

### EQUIPMENT

13 AIR CONDITIONING UNITS (CARRIER, FHP & TRANE)

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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



Smartcool's ESM™ was installed to optimize the compressors in the 13 air conditioning units. Over a four week period in July and August 2009, the ESM™ units were switched between ON and OFF mode to gain comparative energy usage data. Power meters were also installed on two of the air conditioning units to gather representative samples of energy usage and to validate the data gathered from the ESM™ display screen. The power meters confirmed the savings displayed by the ESM™ units. Energy savings were achieved with no discernible impact on temperature in the shopping center.

#### ANNUAL ESTIMATED RESULTS

Annual Energy Savings = 138,014 kWh  
Return on Investment = 25 months  
GHG Emissions Reduction = 84,443 kg  
or 186,164 lbs

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