

Ice Bear

USE ENERGY AT NIGHT TO PRODUCE COOLING DURING THE DAY



Ice Energy's Ice Bear is the world's first distributed energy storage solution for low-rise commercial buildings. The Ice Bear provides a unique, environmentally friendly alternative to conventional air conditioning systems.

Recommended Installations

Large & Small Commercial
Retail
Small Office Buildings
Institutional Buildings

Warranty

Ice Energy products are warranted to be free from defects in workmanship and materials under normal use and service per the terms below. See full warranty for details.

Tank & Ice Heat Exchanger

5 years

Compressor

5 years

Condensing Unit Heat Exchanger

5 years

Other Components

1 year

HOW IT WORKS

Ice Energy's Ice Bear distributed energy storage system enables a powerful change in how—and, more importantly, when—energy is consumed for air conditioning, without sacrificing consumer comfort.

Using thermally efficient, off-peak power to produce and store energy for use by air conditioners the next day, the Ice Bear uses a fraction of the peak energy required by conventional systems. It requires no modification to existing ductwork or structure, and integrates seamlessly with most standard rooftop and split-system air conditioners.

The Ice Bear unit creates and stores cooling energy at night by freezing water in an insulated storage tank. It cools during the day by circulating chilled refrigerant from that tank to the conventional air conditioning system, eliminating the need to run the energy-intensive compressor during peak daytime hours. During off-peak hours, the conventional HVAC system operates as usual. Together, this unique hybrid system surpasses the overall efficiency and performance of conventional equipment alone.

MAJOR BENEFITS

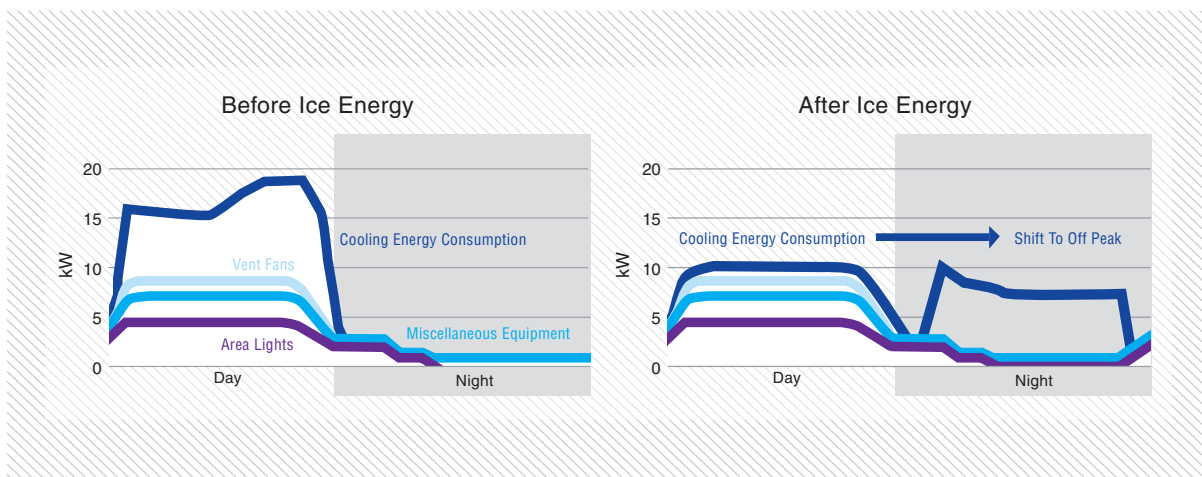
- Uses only 300 watts (rather than an air conditioner's 7,000 watts)
- Eliminates up to 95% of on-peak electricity demand for air conditioning
- Helps reduce the need for new peak power plant
- Assists in LEED certification

MAJOR BENEFITS (Continued)

- Complements solar photovoltaic (PV) renewable energy systems by removing the largest day time electrical load and providing cooling during peak heat of the day when solar PV output lags
- Rooftop and ground installations available

DATA ANALYSIS

Building Load Profiles



TECHNICAL SPECIFICATIONS

Cooling Capability

Maximum Cooling Load 5 Tons
 Total Storage Module Capacity 30 Ton-hours

Daytime Peak Power Reduction

On-Peak Demand Reduction Up to 7kW
 On-Peak Electric Demand 300 watts
 On-Peak Energy Efficiency 200 EER
 (60,000 BTU/300 Watts)
 Energy Shifted to Off-Peak 35 kWh

Nighttime Ice Make

Copeland Scroll Compressor 4.3 Ton
 Ice Make Time (full make)@55° F 10 hours
 Ice Make Time (full make)@75° F 11.5 hours

Line Set Restrictions

Length (Ice Bear to airside coil) 50 feet
 Height (Ice Bear to coil above/max) 35 feet
 Height (Ice Bear to coil below/max) 20 feet

Ice Storage Section

Tank Capacity (tap water) 475 gallons
 Thermal Storage Capacity (latent) 360,000 BTU

Refrigerant Management System (RMS) & Compressor

Refrigerant R-410A

CoolData® SmartGrid Controller

Built-In Web Server & Data Logging
 National Instruments NI LabVIEW On-Board Application Layer
 OSIsoft Historian
 Maxim 1-Wire Dallas Sensor Network

Physical Properties

Size 101" W x 60"D x 48" H
 Weight (dry) 1,500 lb. (approx.)
 Weight (filled) 5,500 lb. (approx.)
 Load Distribution (filled) 155 lbs. per ft²

Electrical Requirements (by model #)

#IB30A-521 208/230 VAC, 1, 50A min. service
 #IB30A-523 208/230 VAC, 3, 30A min. service
 #IB30A-543 460 VAC, 3, 20A min. service