

# IceBear30

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## Transform commercial air conditioning load into a clean and flexible grid resource

The Ice Bear 30 is an intelligent, distributed ice battery for 3-20 ton commercial air conditioning units. During off-peak hours, it stores cooling energy by freezing water in an insulated storage tank while the conventional AC provides cooling as needed. During peak hours, ice-chilled refrigerant circulates from the Ice Bear 30 to the air conditioning system, eliminating the need for energy-intensive compressors.

**Efficient:** reduces peak cooling load by 95% and delivers 100% round-trip efficiency.

**Reliable and cost-effective:** designed to last 20 years, each unit only requires a one hour annual maintenance procedure. By eliminating stop-start operation during the hottest hours of the day, it also extends the AC compressor life.

**Versatile:** fully compatible with commercial rooftop and split systems from 3 to 20 Tons, and ductless units from 3 to 5 Tons.

**Easy to install:** integrates seamlessly with packaged or split HVAC units. Can be installed on the roof or ground by an Ice Energy certified local HVAC contractor.

**Green:** lowers CO2 emissions by up to 10,000 pounds per unit per year without generating any hazardous waste.

### Ice Bear advantage for utilities

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- Cost-effective alternative to new peaking generation
- Manages AC load and relieves congestion on peak with the award-winning CoolData® Controller
- Defers transmission and distribution investments
- Improves system efficiency & grid reliability
- Enables reliable integration of renewables
- Reduces greenhouse gas emissions
- Easy, rapid deployment at a multi-megawatt scale
- Creates local economic development opportunities

### Ice Bear advantage for businesses

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- Reduces air conditioning bills by up to 30%
- No or low cost system with rebates and utility incentives
- Extends life of HVAC system by up to 5 years
- Reduces building carbon footprint by 10% or more
- Delivers superior cooling comfort
- Stores excess solar generation
- Supports local installers
- Helps prevent blackouts by reducing stress on the grid

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## Technical Specifications

### Cooling Capability

- Maximum Cooling Load ..... 10 Tons
- Total Storage Module Capacity ..... 30 Ton-hours

### Peak Power Reduction

- On-Peak Demand Reduction ..... Up to 14kW
- On-Peak Electric Demand ..... 300 watts
- Round Trip Efficiency w/ 12 SEER HVAC 95%
- Energy Shifted to Off-Peak ..... 42 kWh

### Off-peak 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) ..... 150 feet
- Height (Ice Bear to coil above/max) ..... 35 feet
- Height (Ice Bear to coil below/max) ..... 20 feet




### Ice Storage

- Tank Capacity (tap water) ..... 480 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
- NI LabVIEW On-Board Application Lay... 
- Historian ..... 
- 1-Wire Dallas Sensor Network ..... 

### Electrical Requirements (by model #)

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



### Physical Properties

- Size ..... 100 7/16" W x 60 3/8" D x 48 1/8" H
- Weight (dry) ..... 1,400 lb. (approx.)
- Weight (filled) ..... 5,400 lb. (approx.)
- Load Distribution (filled) ..... 152 lbs. per sq.ft

### 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

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