IceEnergy

IceBear20

Monitor and control residential cooling load with a smart ice battery

The Ice Bear 20 combines Ice Energy's proven thermal energy storage and smart-grid technology with integrated cooling in a ready-to-install unit. During off-peak hours, it stores cooling energy by freezing water in an insulated tank while providing cooling to the home. During peak hours, the stored ice delivers up to 4 hours of cooling, using only 5% of the power that is usually required.

Efficient: reduces typical peak cooling load by 95% without compromising the homeowner's comfort.

Flexible: can be dispatched in real time to decrease or increase load as needed while providing 24/7 cooling.

Versatile: integrates seamlessly with ductwork or duct-less mini split systems inside new or existing homes.

Scalable: can be deployed in smart-grid enabled, megawatt-scale fleets, with installation as easy as standard AC systems.

Green: fully recyclable unit that lowers CO2 emissions without generating hazardous waste.

Ice Bear advantage for utilities

- Transforms residential AC load into a flexible and responsive grid resource
- Cost-effective alternative to new peaking generation
- Defers transmission and distribution investments
- Improves system efficiency & grid reliability
- Firms and shifts behind-the-meter solar
- Reduces greenhouse gas emissions
- Easy, rapid deployment at a multi-megawatt scale
- Creates local economic development opportunities

Ice Bear advantage for homeowners

- Reduces cooling bills by up to 30%
- No or low cost system with rebates and utility incentives
- Reduces home carbon footprint by 10% or more
- Delivers superior cooling comfort even when outside temperatures are extremely high
- Stores excess solar generation for later use
- Generates business opportunities for local contractors
- 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 ..... 20 Ton-hours

Daytime Peak Power Reduction

- On-Peak Power Reduction ..... up to 14 kW
- On-Peak Electric Demand ..... up to 300 Watts
- Round Trip Efficiency: >95% using Ice Cooling, 100% DX
- Energy Shifted Off-peak ..... 28 kWh

Nighttime Ice Make

- Copeland Scroll Compressor ..... 4.3 T
- Ice Make Time (full make) @ 55F ..... 6 hours
- Ice Make Time (full make) @ 75F ..... 7.5 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 ..... 265 gallons
- Thermal Capacity (latent) ..... 240'000 BTU

Refrigerant Management System (RMS) & Compressor

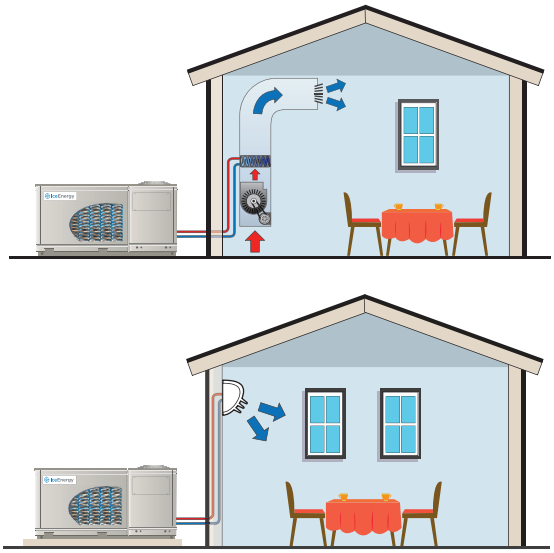
- Refrigerant R-410A

CoolData® SmartGrid Controller

- Built-In Web Server & Data Logging
- NI LabVIEW On-Board Application Layer
- 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 ..... 44" W x 75"D x 40 H
- Weight (dry) ..... 1,200 lb. (approx.)
- Weight (filled) ..... 3,900 lb. (approx.)

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