



ICE ENERGY CASE STUDY

MUNICIPAL BUILDING, FIREHOUSE

ORGANIZATION

City of Anaheim

INSTALLATION DATE

September 9, 2004

LOCATION

Anaheim, CA
Climate Zone 8

APPLICATION

5 Ton (7 kW)
Displacement Between
11:00 am and 7:00 pm
1 Ice Bear 50™ module
Capacity Mode
24-hour cooling

FINANCING

American Public Power
Association's DEED
(Demonstration of
Energy-Efficient
Developments)
program grant

RESULTS

Eliminated 95% of
on-peak air-conditioner
demand (7 kW to
300 watts);
4% reduction in total
energy consumed.

BACKGROUND

On a typical 90 degree day, the Anaheim Public Utility sees a peak demand of approximately 525 MW. Demand decreases to 260MW during off-peak hours. Anaheim's municipal electric utility seeks to reduce on-peak demand and selected the city's Fire Station Number 8 for testing and benchmarking of the Ice Bear 50™ Distributed Energy Storage System.

Prior to the installation of Ice Energy's energy storage system the existing rooftop unit's condenser generated a maximum on-peak compressor demand of 7,000 watts. Following installation of the Ice Bear 50™ module, test results demonstrated that the unit slashed on-peak demand to a mere 300 watts—roughly a 95% decrease of on-peak demand.



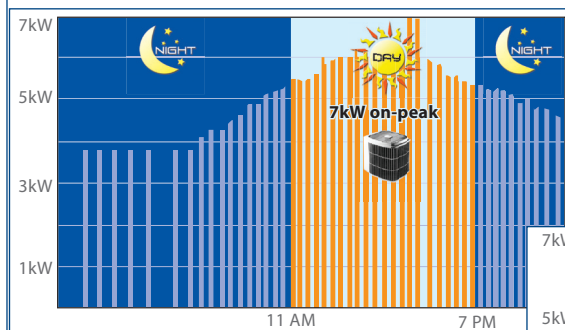
Ice Bear 50™ Distributed Energy Storage System Installation at Anaheim Firehouse No. 8

TESTIMONIAL

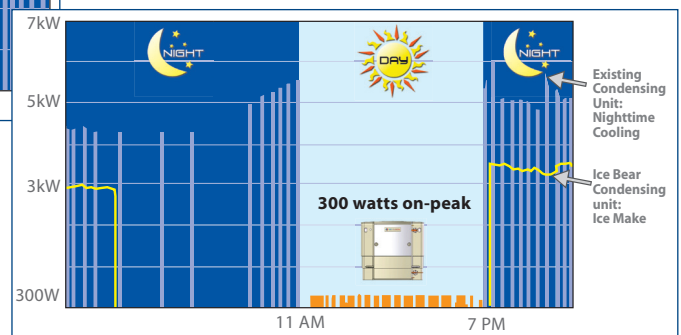
"During peak hours, the daytime demand for electricity to provide cooling for commercial and residential air conditioning is at the highest, and this is the most expensive energy to procure for our customers. Excess generation and transmission capacity exists at night, and the Ice Bear allows us to take advantage of those lower off-peak energy prices by shifting energy usage to the nighttime periods."

– Ken Noller, Interim General Manager for Anaheim Public Utilities

BEFORE ICE ENERGY



AFTER ICE ENERGY



ICE ENERGY™
DISTRIBUTED ENERGY STORAGE

1.877.5.ICEBEAR
www.ice-energy.com

ICE ENERGY CASE STUDY

MUNICIPAL BUILDING,
FIREHOUSE



OPERATING ENVIRONMENT

DISPLACED
COOLING LOAD
5 Tons

COOLED SPACE
1400 sq/ft in a single
story fire station with
24-hour cooling
demand

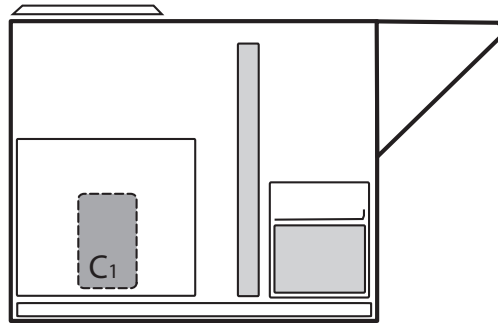
COOLING SEASON
March through
November; peak is in
September

ICE BEAR
COOLING HOURS
11:00 AM - 7:00 PM
8 hours

AVERAGE PEAK
PERIOD
TEMPERATURE
Ambient: 86° F
Rooftop: 110° F

UTILITY
Anaheim Public Utilities

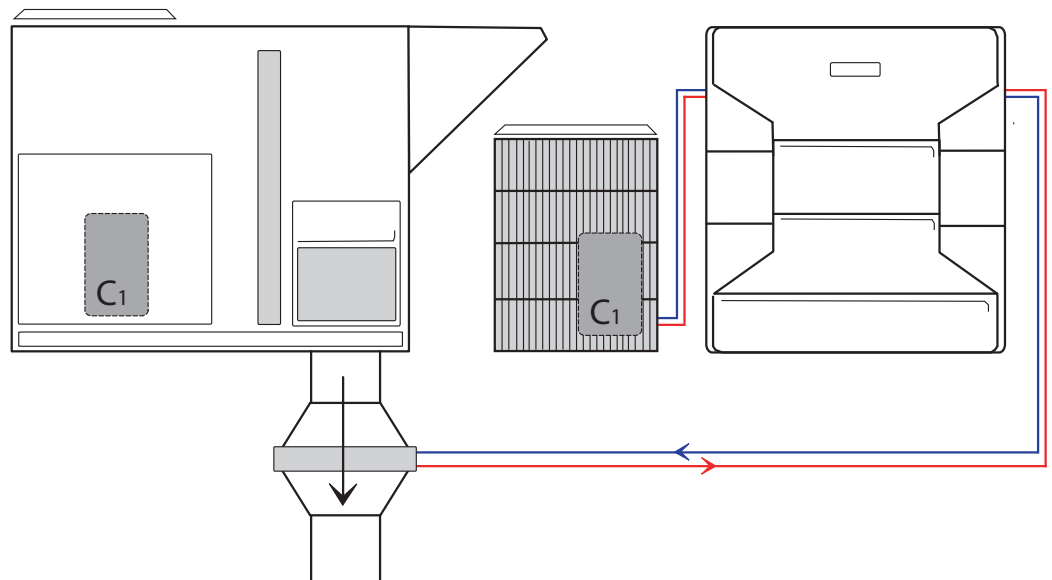
ORIGINAL CONFIGURATION



EQUIPMENT LIST:

- Trane 5 ton rooftop (packaged)
 - Model YCD060C3LOBF
 - No TXV
- Constant volume system (no zoning)

ICE BEAR 50™ SYSTEM CONFIGURATION



EQUIPMENT LIST:

- Original Trane 5-ton rooftop (packaged)
- Data monitoring
- Parallel system including:
 - Ice Bear 50™ Energy Storage Module
 - Carrier 38BRG060 5-ton condenser
 - Modified DX 5-ton evaporative coil
 - Constant volume system (no zoning)