Coolerado®

**NSIDC** CASE STUDY

# NSIDC
## REDUCES COOLING COSTS; STAYS TRUE TO MISSION

The National Snow and Ice Data Center in Boulder, Colorado, had a unique problem. The tools it was using to operate were actually contributing to the global warming issues it was monitoring. Coolerado helped the company dramatically reduce its energy use and stay true to its mission.

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The National Snow and Ice Data Center (NSIDC) studies "cryosphere"—areas of the planet that consist of snow and ice. Since the center began studying the cryosphere in 1976, it has witnessed a dramatic decrease in frozen surfaces, which can be directly attributed to global warming. David Gallaher, Manager of IT Services at the NSIDC says the irony of operating the data center is that the equipment it was using to study global warming was actually contributing to the problem.

Like most data centers, the NSIDC used a significant amount of energy to run and cool its IT equipment. Of its 77,000 sq foot building, the data center accounts for just 2% of that space, yet used over a half of the power. What's more, over half of the 100 kilowatts used to run the data center went to cooling. So, when the center needed to upgrade its cooling system, it looked for a more energy-efficient option.

That option involved installing eight Coolerado M50 air conditioners inside the data center. An air-handling unit positioned on the roof brings in outside air, which is then cooled by the Coolerado air conditioners. Unlike most air conditioners that only cool recycled indoor air, the Coolerado units

**CUSTOMER**
National Snow and Ice Data Center

**LOCATION**
Boulder, Colorado

**PROPERTY TYPE**
Data Center

**SQUARE FOOTAGE**
1,700

**COOLERADO SOLUTION**
8 Coolerado M50s

**RESULTS**
- 85-97% reduction in energy use
- Free cooling in shoulder season
- Drop in PUE from 2 to 1.09
- Saves $54,000 a year in cooling



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> We've reduced our energy use by as much as 97%. In terms of strict dollars and cents, that's a payout of less than two years. More importantly, this technology is allowing us to fulfill our mission. You can't put a price on that."

**David Gallaher**
Manager of IT Services

run fresh outdoor air through air filters and then a heat and mass exchanger (HMX). This process delivers cool air using one-tenth of the energy of traditional air conditioners.

"It now takes less energy to cool down the whole data center than it does to run your car's air conditioner," said Gallaher.

In months when outside air is cooler than inside air, the units are able to take advantage of "free cooling" by simply filtering the cold outside air and pumping it directly into the space. In this case, the Coolerado units' unique design provide yet another benefit. The system regulates the air and adds humidity when the data center gets too dry. The Coolerado units produce moist air as a waste product. By putting dampers on the exhaust stream, the center also gets "free" humidity. A variable speed motor helps maintain a very precise humidity using just 10% of the energy that was once used to run only its steam humidifier.

Another plus of the system is its built-in redundancy. If one unit goes down, it can be serviced without bringing the entire system down. The units' modular design also makes it easy and cost-effective to add cooling capacity.

The new cooling process also requires very little maintenance because the Coolerado technology has only two moving parts. Regular maintenance is generally limited to changing air filters.

"We've reduced our energy use by as much as 97%. In terms of strict dollars and cents, that's a payout of less than two years. More importantly, this technology is allowing us to fulfill our mission. You can't put a price on that." said Gallaher.

## **ABOUT** COOLERADO

Coolerado Corporation produces and sells the most efficient air conditioners made. Coolerado products create a healthier living environment by providing fresh, filtered, ideal-humidity air. Coolerado air conditioners are used for commercial and industrial applications throughout the world. For more information, visit www.coolerado.com.