GPG FINDINGS

013

MARCH 2014

INDIRECT EVAPORATIVE COOLER

OPPORTUNITY

How much energy is used for air conditioning in the U.S.?

15%
OF ENERGY
GOES TO AIR CONDITIONING[1]

LARGEST CONTRIBUTOR
TO PEAK DEMAND, GRID FAILURES AND BLACKOUTS[2]

TECHNOLOGY

How do Indirect Evaporative Coolers save energy?

REMOVE HEAT AND MOISTURE
WITH UNIQUE AIR-PROCESSING TECHNOLOGY

57-92% MORE EFFICIENT
THAN CODE-COMPLIANT ROOF-TOP UNITS (RTU)[3]

M&V

Where did Measurement and Verification occur?

NATIONAL RENEWABLE ENERGY LABORATORY assessed the performance of 3 multistaged IEC units provided by Coolerado and deployed at the Denver Federal Center in Colorado

RESULTS

How did Indirect Evaporative Coolers perform in M&V?

80%
ENERGY SAVINGS[4]
INCREASED WATER USAGE (3 GALLONS/ TON-HR) COMPARED TO TYPICAL RTU[5]

POSITIVE
THERMAL COMFORT
AS DEFINED BY ASHRAE[6]

<15
YEARS
AVERAGE PAYBACK FOR DATACENTERS[7]

Tarket Markets Favor Dry Climate Zones (Subtype B)

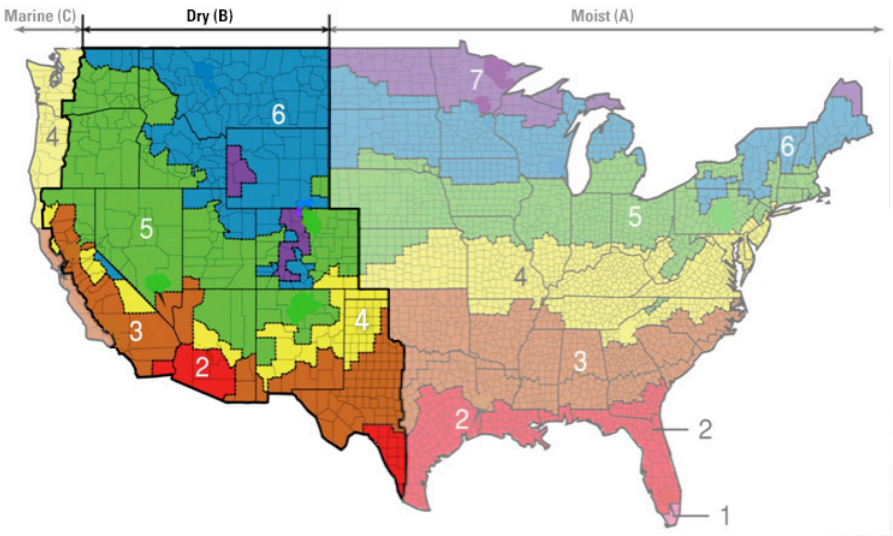
Data centers in ASHRAE climate zones 2B - 6B are top target market

TOP 3 TARGET MARKETS

Data Centers
2B – 6B
Retrofit & New Construction

Outside Air Pre-Conditioner
2B, 3B
Retrofit onto RTUs with EER ≤ 12

Zone Cooler
4B – 6B
Retrofit & New Construction



DEPLOYMENT

Where does M&V recommend deploying Indirect Evaporative Coolers?

DRY CLIMATES

Data centers : ASHRAE climate zones 2B - 6B
Outside air pre-conditioner : ASHRAE climate zones 2b, 3b
Zone cooler : ASHRAE climate zones 4b- 6B

[1]Multistaged Indirect Evaporative Cooler Evaluation. Jesse Dean, Ian Metzger (NREL), March 2014, p.7 [2]Ibid, p.7 [3]Ibid, p.3
[4]Ibid, p.5 [5]Ibid, p.27 [6]Ibid, p.25 [7]Ibid, p.30

GSA

The GPG program enables GSA to make sound investment decisions in next generation building technologies based on their real world performance. **www.gsa.gov/gpg**