



ATMO
sphere

business case

natural refrigerants

June 16 & 17, 2016 – Chicago



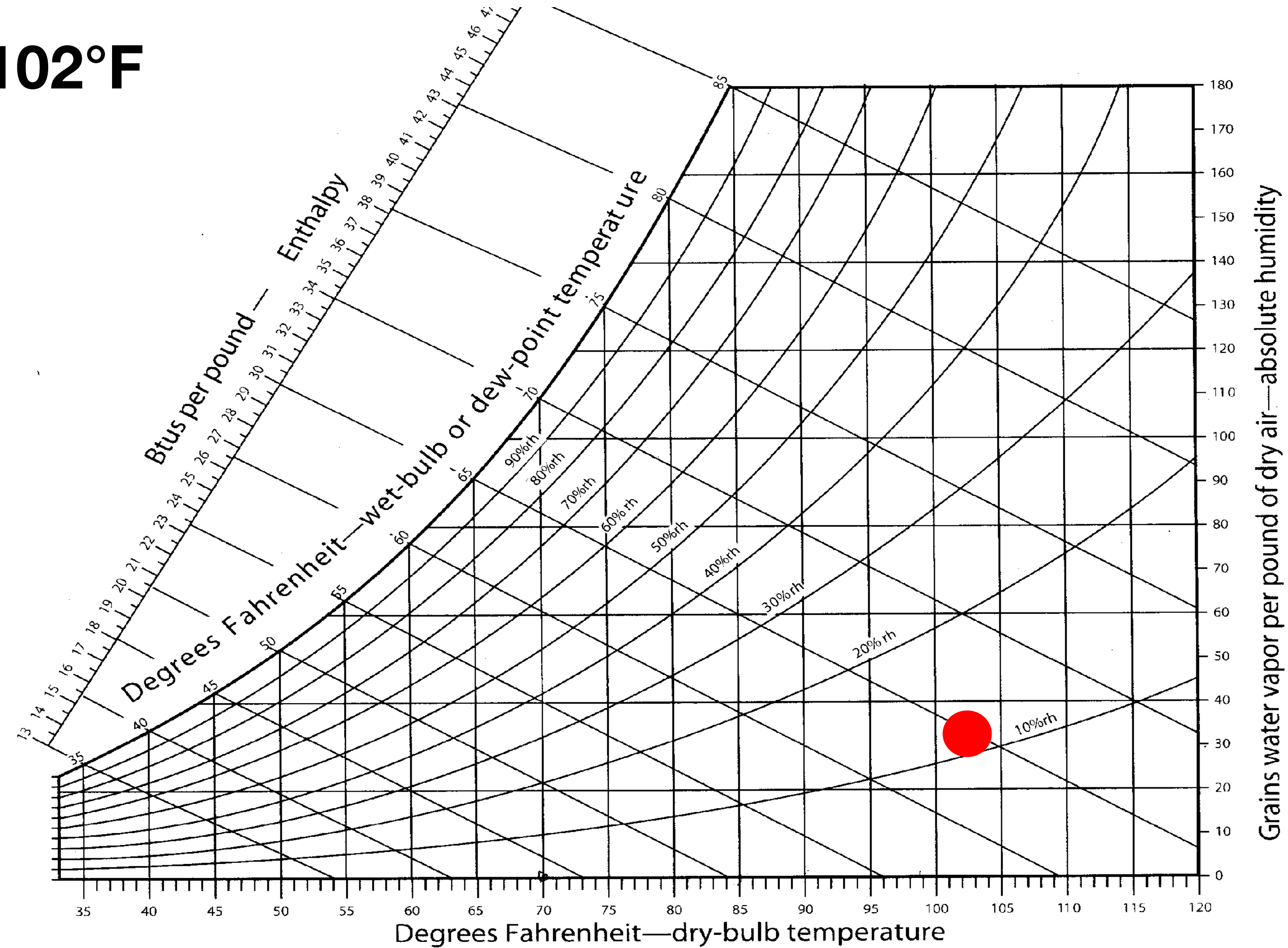
*Adiabatic Cooling:
Best Solution for Natural Refrigerants*

Jerry Lozano
Sales/Application Engineer
Guntner US



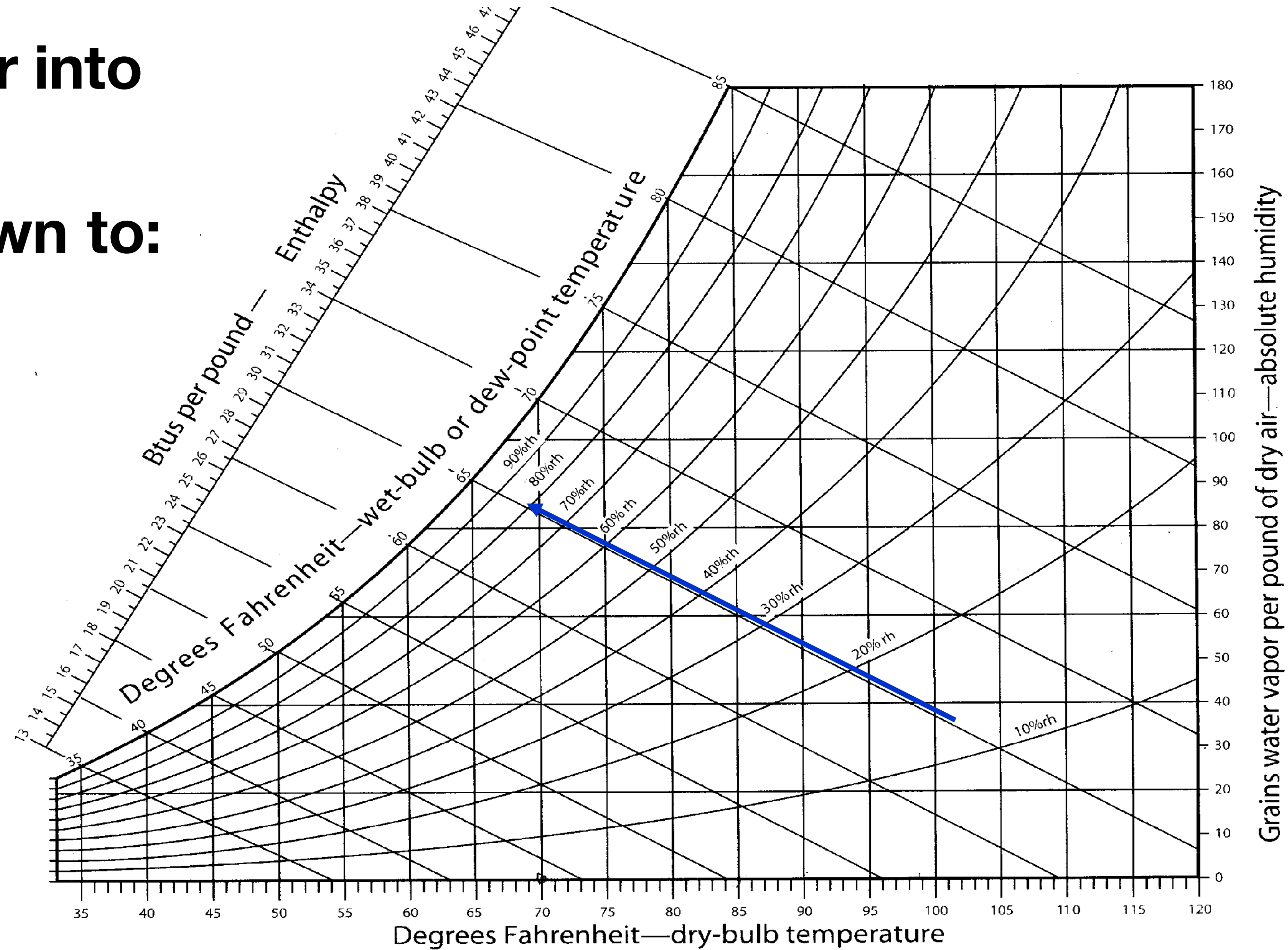


Ambient DB Temp.: 102°F



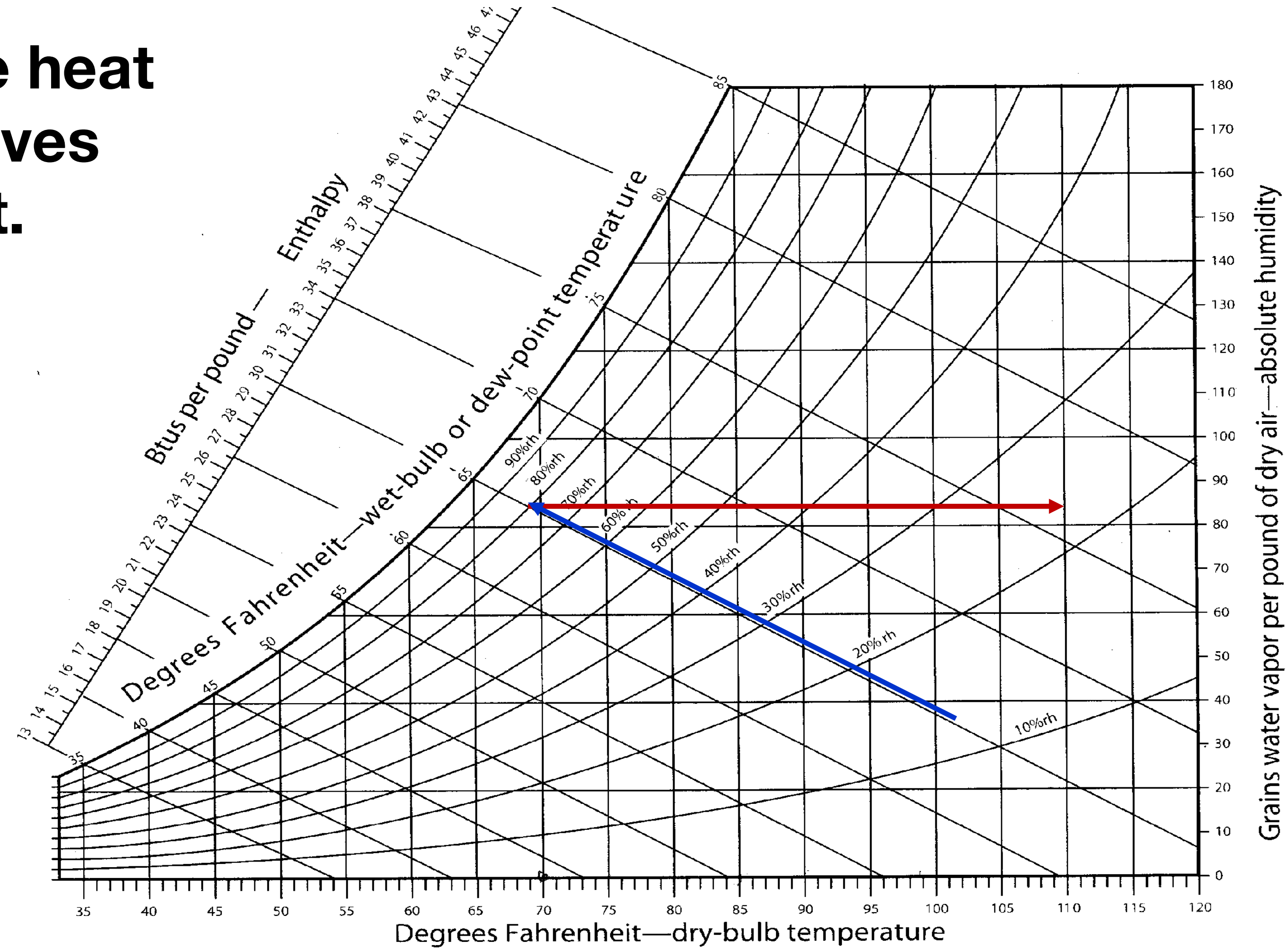


**By evaporating water into
the airflow...
Temp. is brought down to:
70°F**

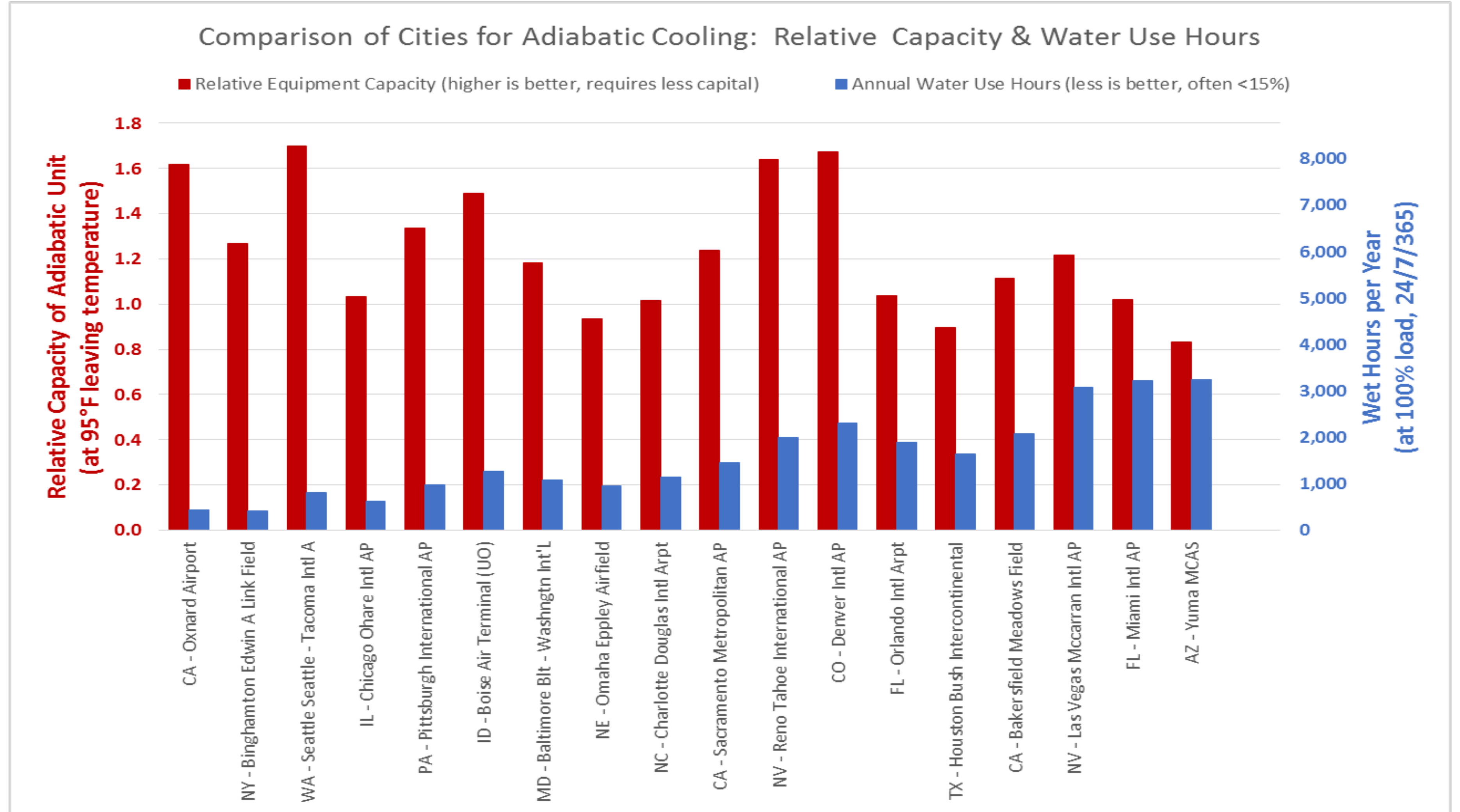




Cooled air enters the heat exchanger and removes heat from refrigerant.



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Case Scenario: Typical Super Market In Chicago

Design DB: 91°F

Design WB: 73°F

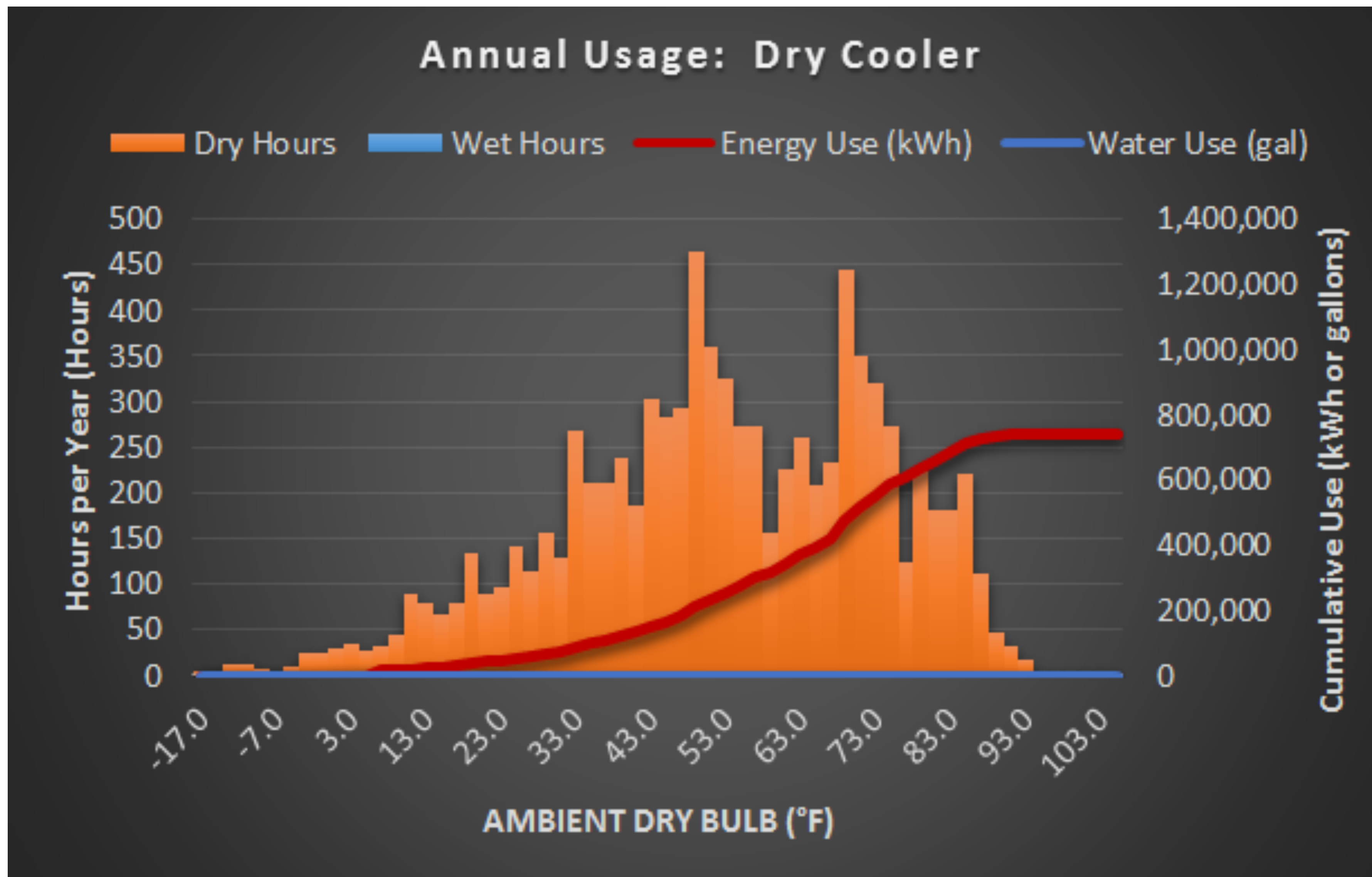
Design SCT: 13°F TD

Medium Temp Loop:
750kBTU @ +18°F

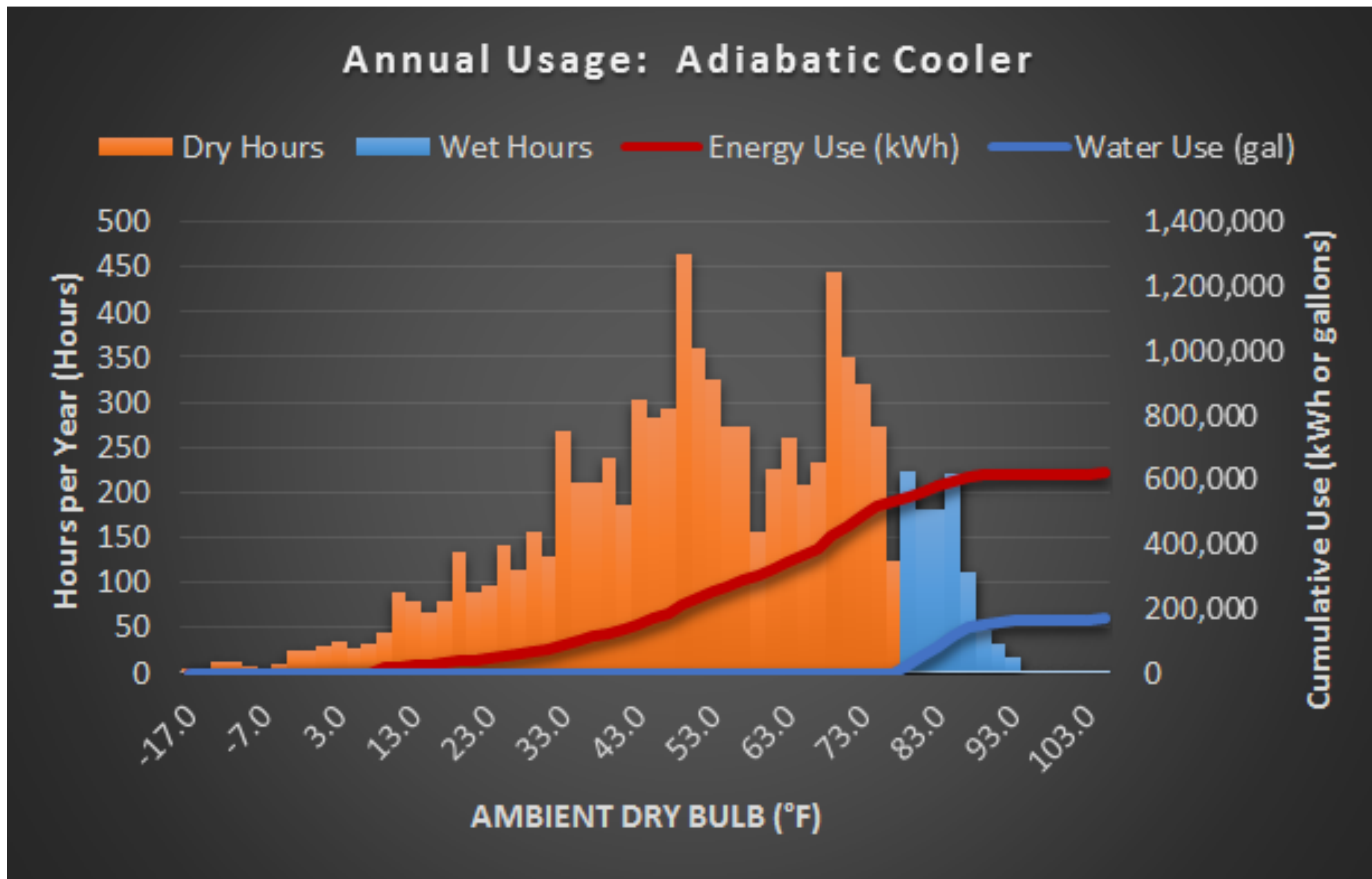
Low Temp Loop:
200kBTU @ -25°F



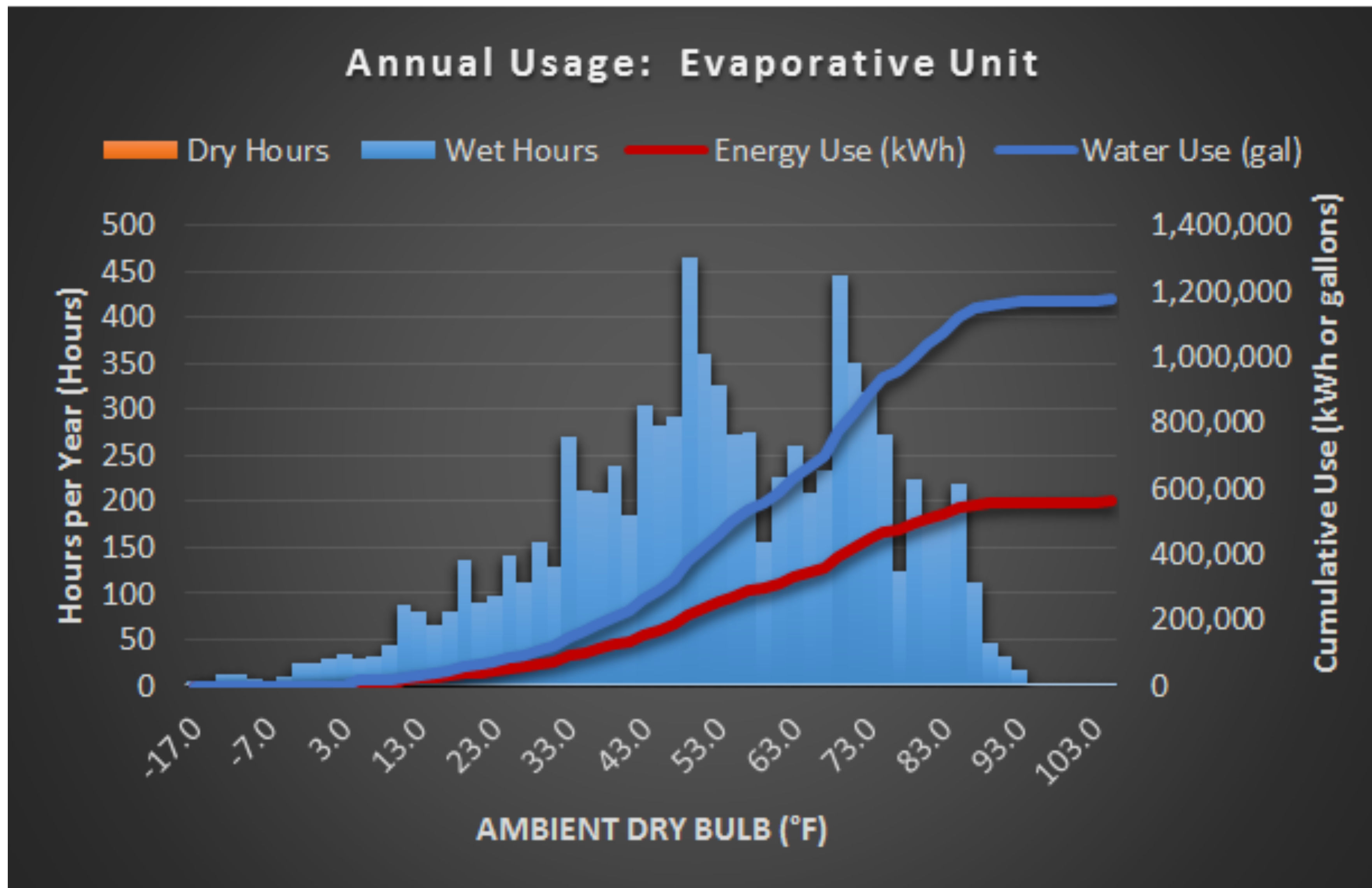
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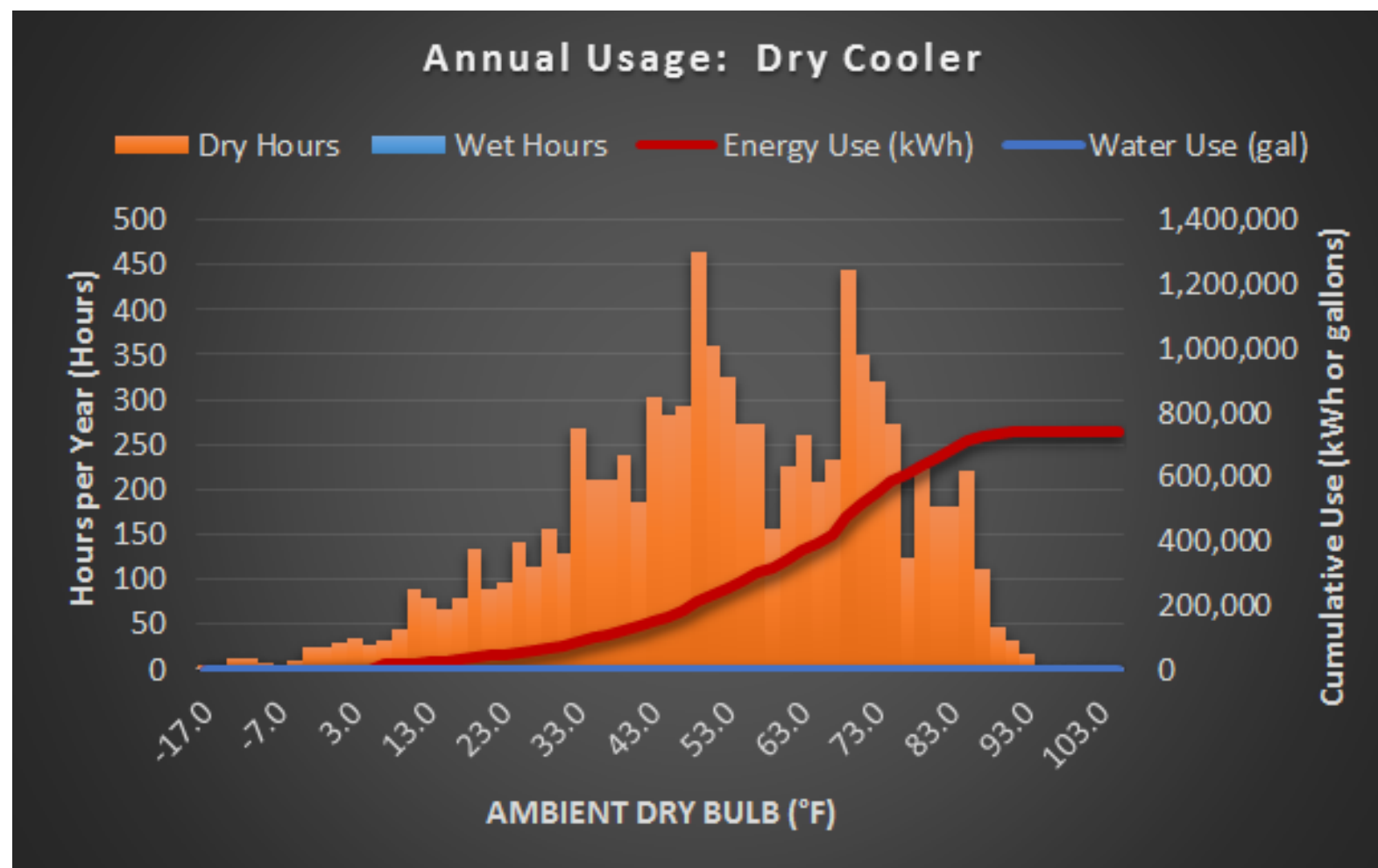


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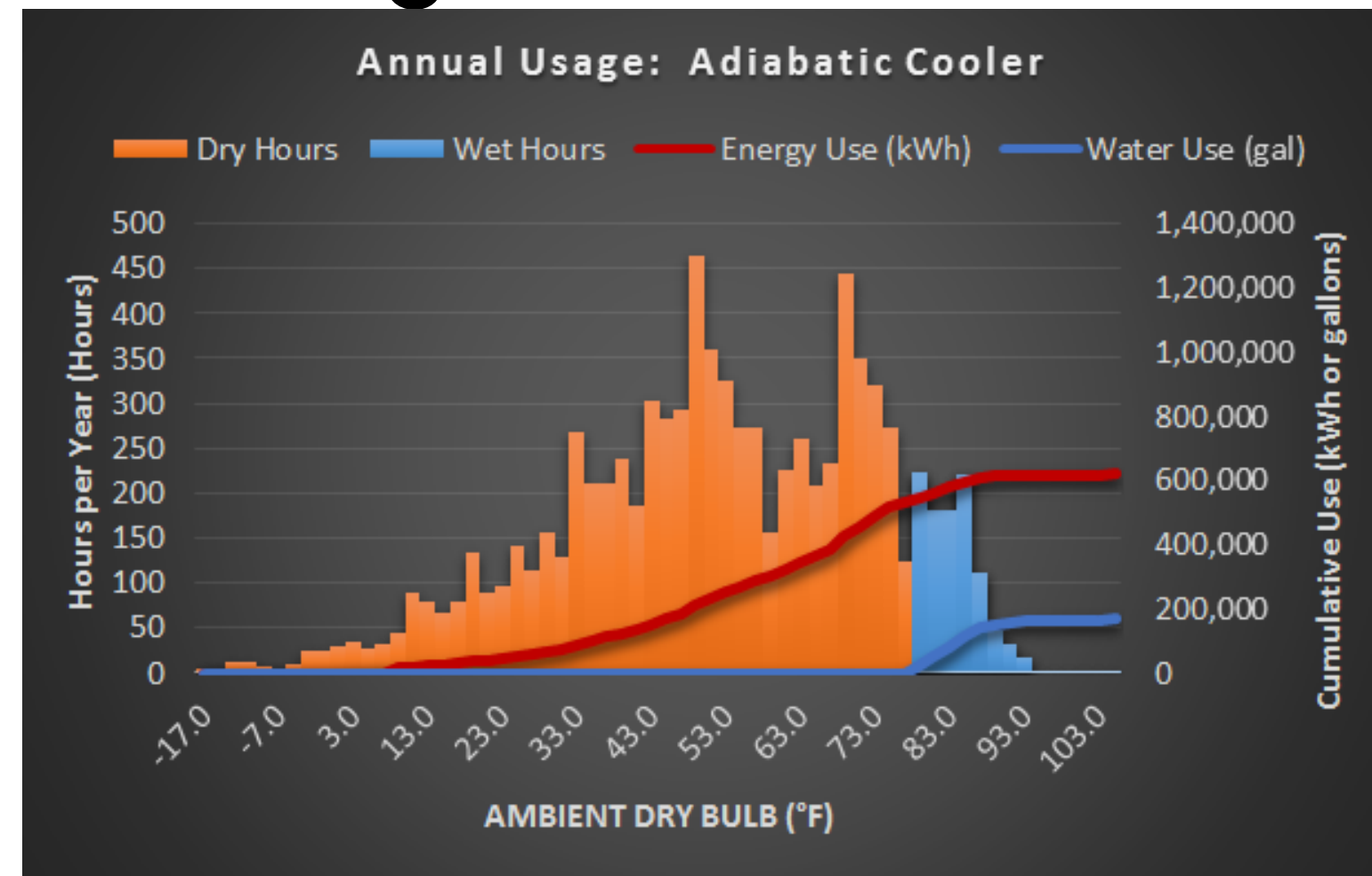
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Dry



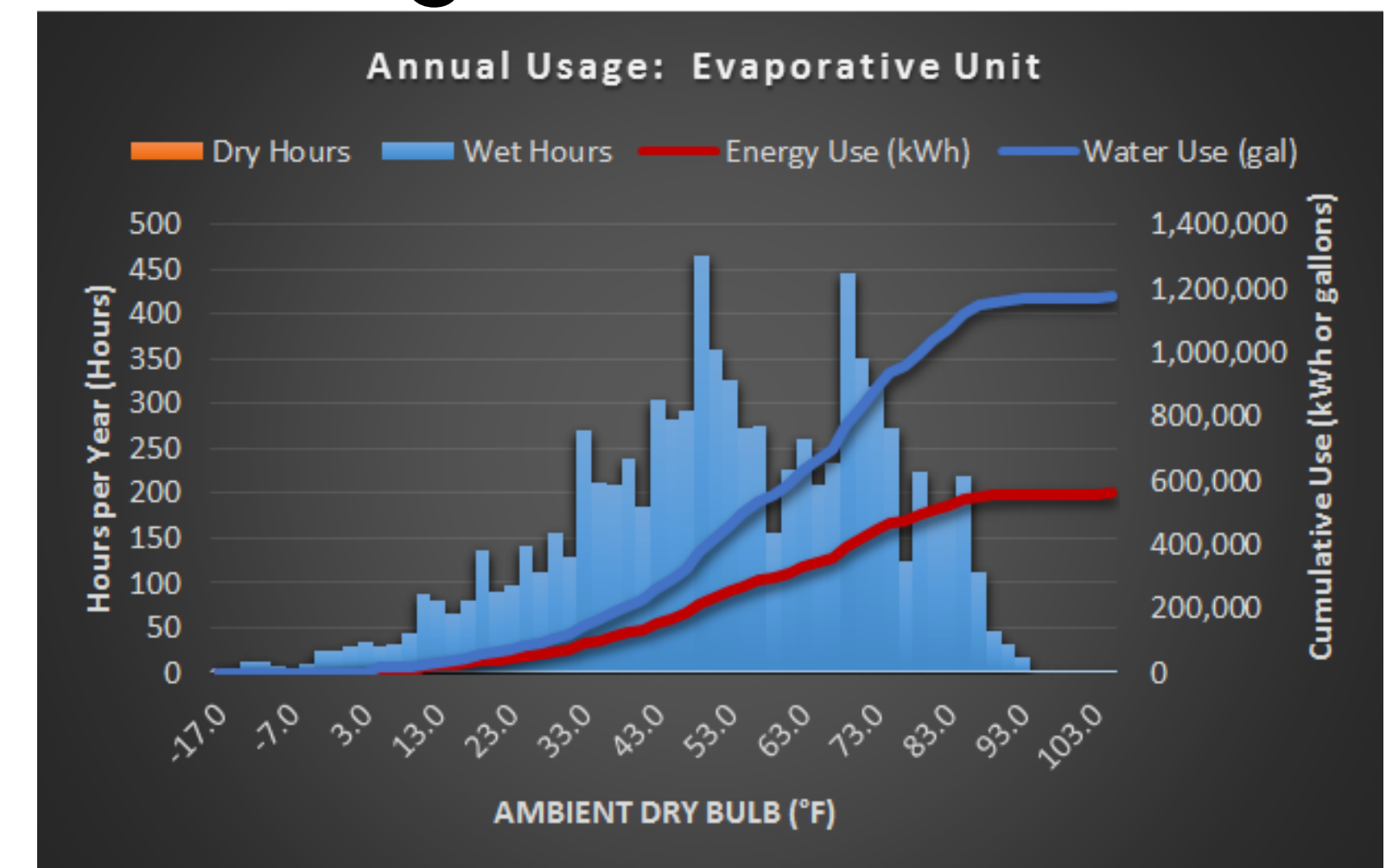
Energy Use: 740,626 kWh/yr
 Water Use: 0 kgal/yr

Adiabatic



Energy Use: 617,369 kWh/yr
 Water Use: 164 kgal/yr

Evaporative

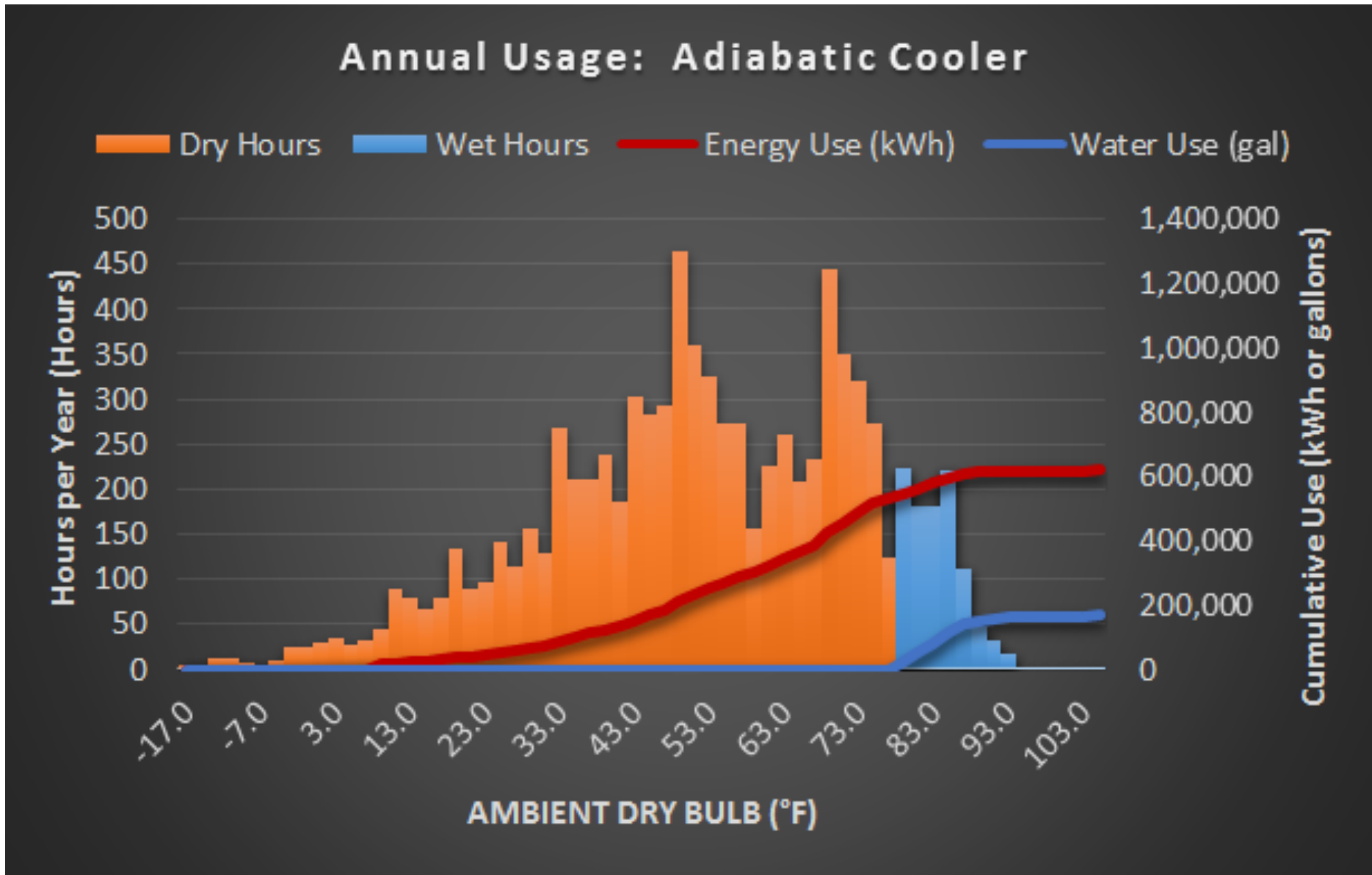


Energy Use: 559,511 kWh/yr
 Water Use: 1,169 kgal/yr



Water Savings vs Evaporative:

1,005,000 Gal/Yr
90% Reduction!
~\$10,000 savings per year



Electricity rate: \$0.08/kWh
Demand charge: \$10.0/kW mo.
Water & Sewage: \$ 6.0/kgal
Water treatment: \$4.0/kgal

Energy Savings vs Dry:

123,257 kWh/Yr
~\$15,000 savings per year

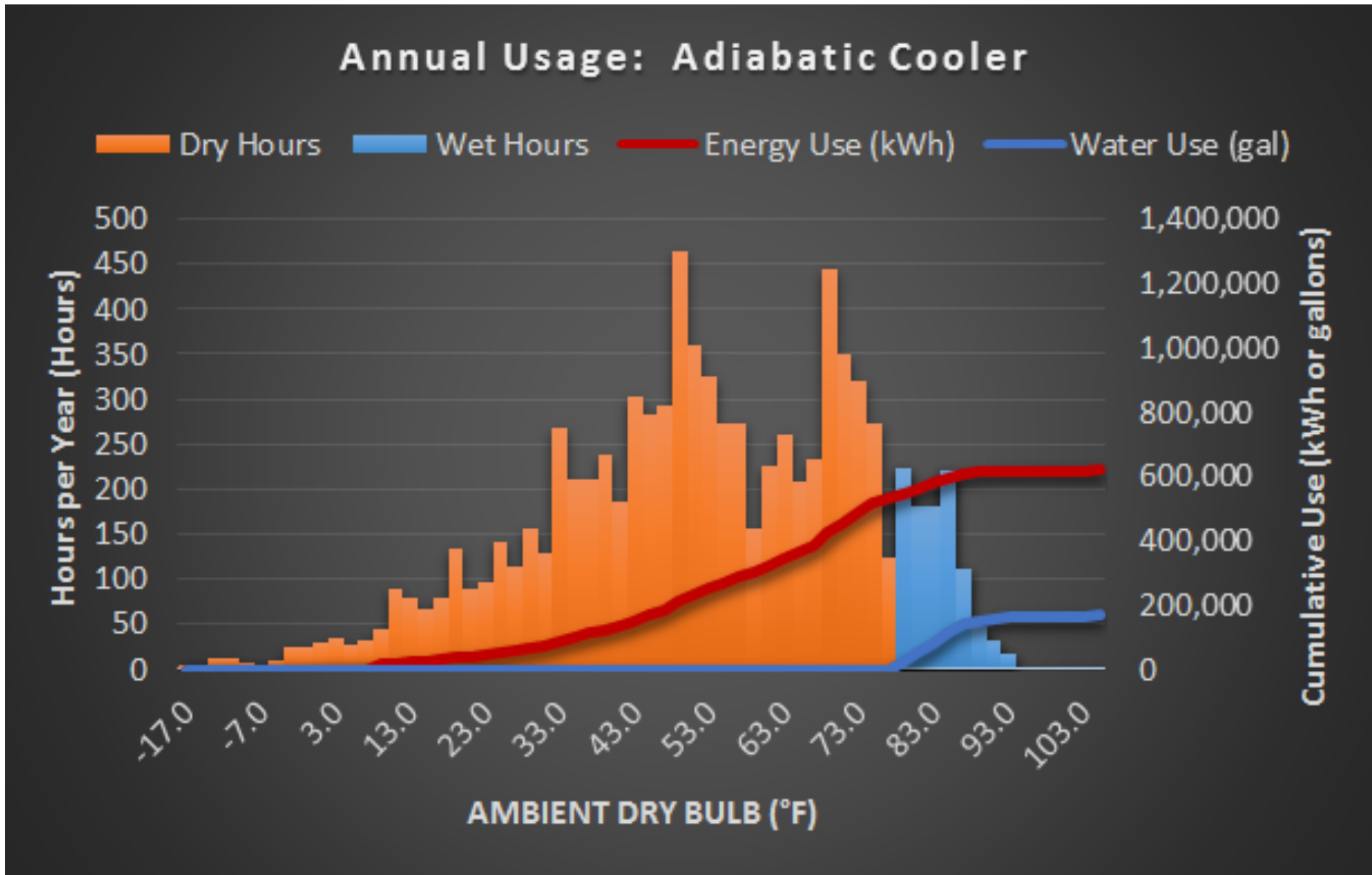


Water Savings vs Evaporative:

1,005,000 Gal/Yr
90% Reduction!
~\$10,000 savings per year



~130,000 x



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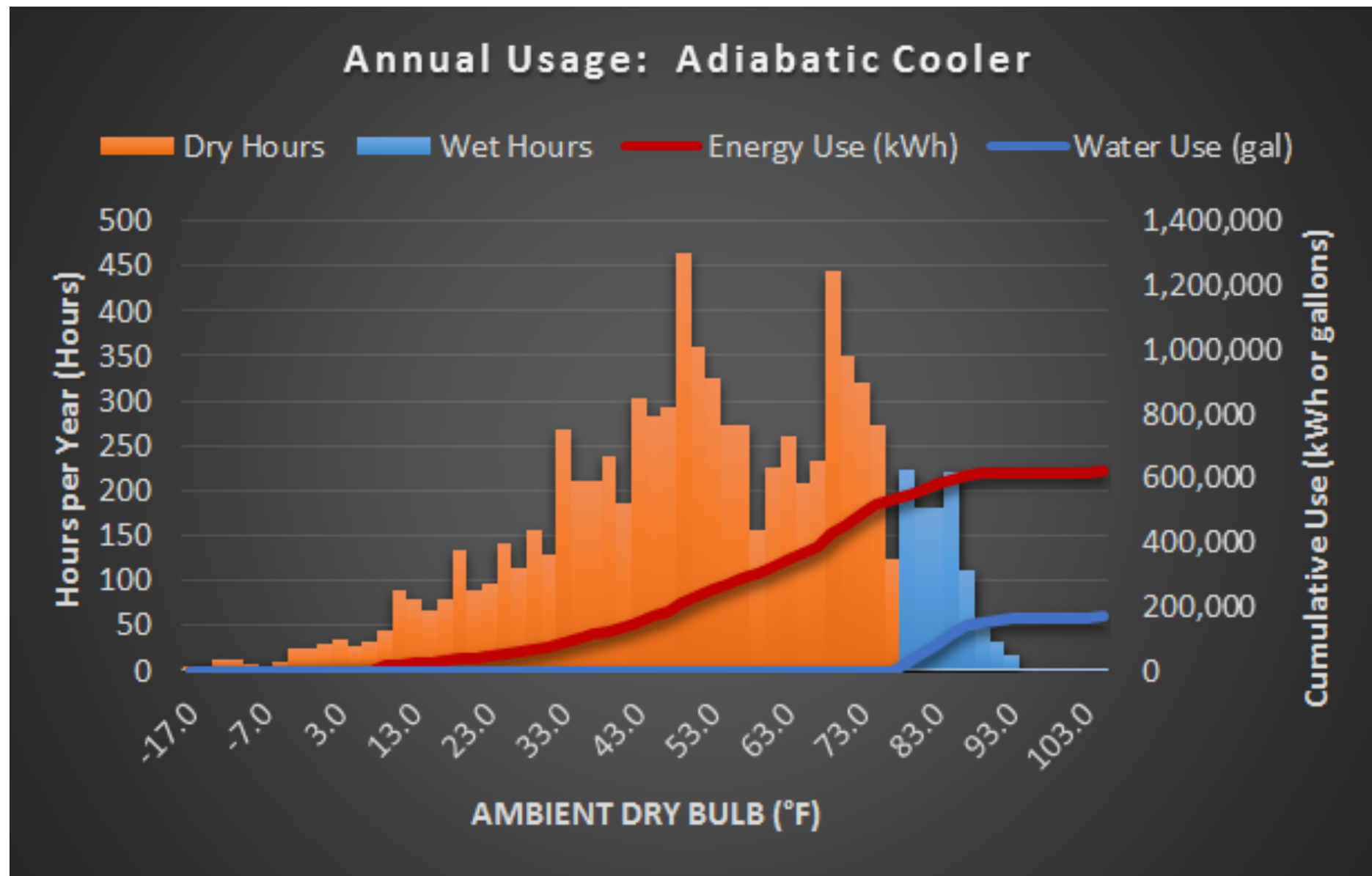


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Energy Savings vs Dry:

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~90 x

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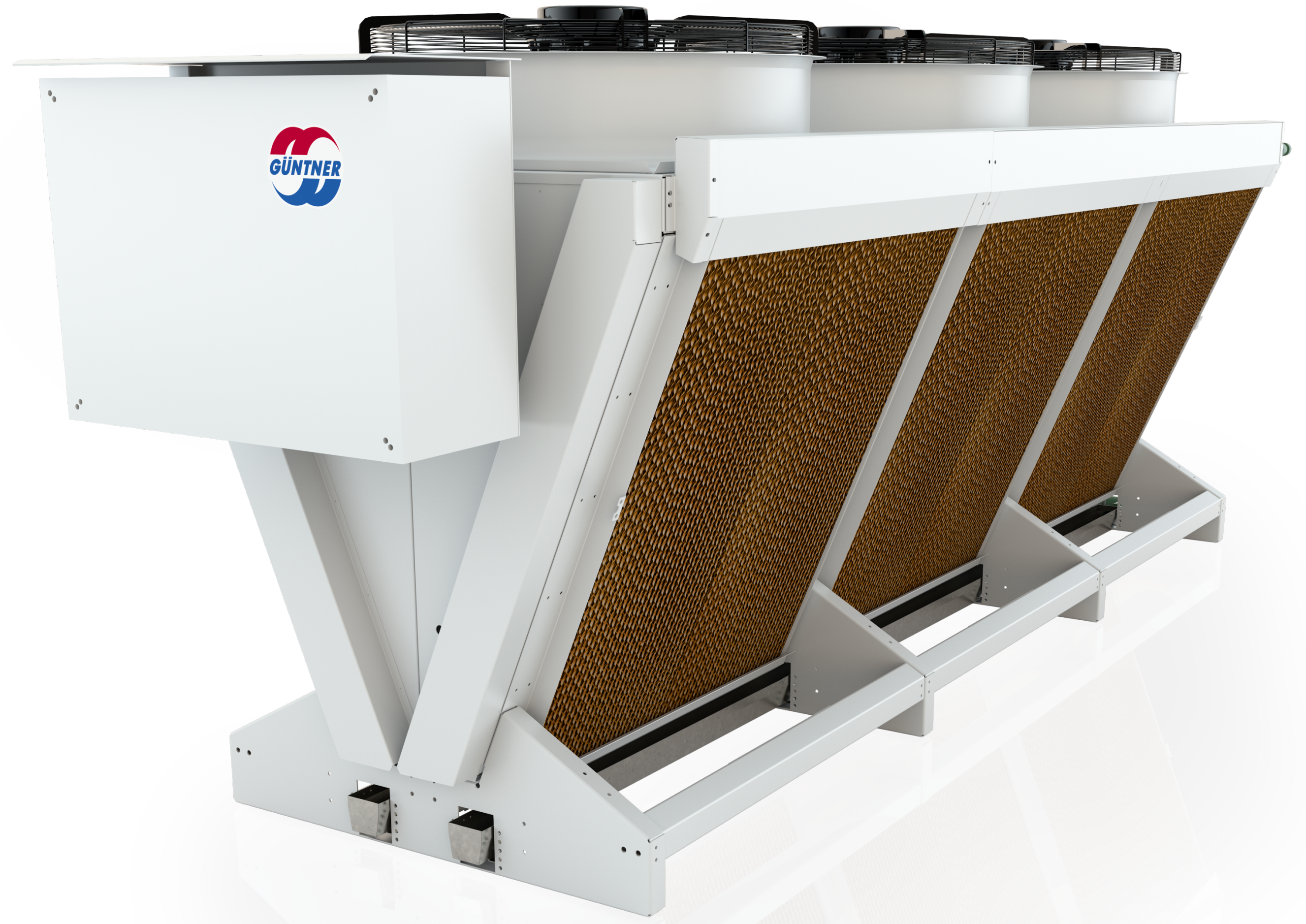
Demand charge: \$10.0/kW mo.

Water & Sewage: \$ 6.0/kgal

Water treatment: \$4.0/kgal

hydro **BLU**

- **Intelligent controls for water and fans**
- **Low maintenance**
- **Small footprint**
- **Low refrigerant charge**
- **Metered water usage**
- **NO pump**
- **NO sump**
- **NO aerosols**
- **NO stagnant water**
- **NO water treatment**





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Thank you very much!