

The logo features the words "CLIMA" and "COOL" in a blue, serif font, separated by a stylized diamond shape containing a blue water droplet. A thin horizontal line is positioned below the text.

CLIMA  COOL®

A photograph of a data center aisle with rows of white modular chillers. The chillers have "CLIMA COOL" branding on their doors. To the right, there are large white pipes and a coiled green hose.

**JOIN THE DECARBONIZATION
MOVEMENT WITH MODULAR CHILLERS**





YOUR PRESENTER TODAY

MICHAEL MEDLOCK

National Decarbonization Strategy Leader

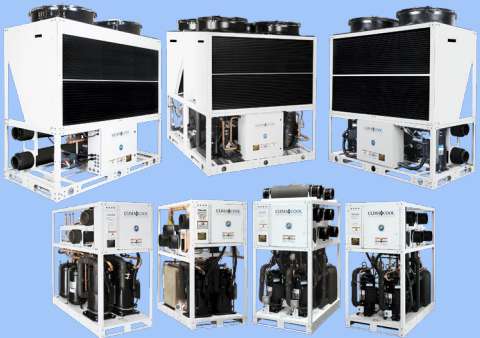
mmedlock@climacoolcorp.com



CLIMA  **COOL**®

The ClimaCool Story

Based in Oklahoma City, ClimaCool designs and manufactures modular chiller systems configurable to meet your requirements. Compact designs are easy to retrofit, and our team partners with you to engineer modern configurable solutions specific to your needs.



WE MANUFACTURE
HIGHLY CONFIGURABLE
MODULAR
CHILLER SYSTEMS

TAKEAWAYS FOR TODAY

- Background of Modular Chillers and Heat Pumps
- Benefits of Modular Chillers
- Modular Chiller Applications



CLIMA  COOL®

WHAT ARE MODULAR CHILLERS?



- Chiller modules can be banked together to operate as a single chiller with a larger capacity
- All water-source modules can fit through a standard doorway
- 20 – 85-ton modular capacities
- Typically limited to flow –
 - 6” header can support up to about 300 tons
 - 8” header can support around 500 tons
 - Banks can be operated in parallel for larger applications

BENEFITS OF MODULAR CHILLERS



Retrofit

Redundancy

- Independent circuits
- Independent modules
- Fail to run



Operational flexibility

- Heating / cooling / simultaneous heating and cooling

Serviceability

- Largest circuit size of 40 tons will keep out of specialized service contracts

EQUIPMENT



CLIMA COOL®

A NIBE GROUP MEMBER



**30,50,70,85 Ton
UCW
Chiller**

**15,30,50,70,85 Ton
UCH Heat Pump**



**15,30,50,70,85 Ton
UCH
Heat Recovery**

ULTIMATE CHILLER SOLUTION- WATER SOURCE

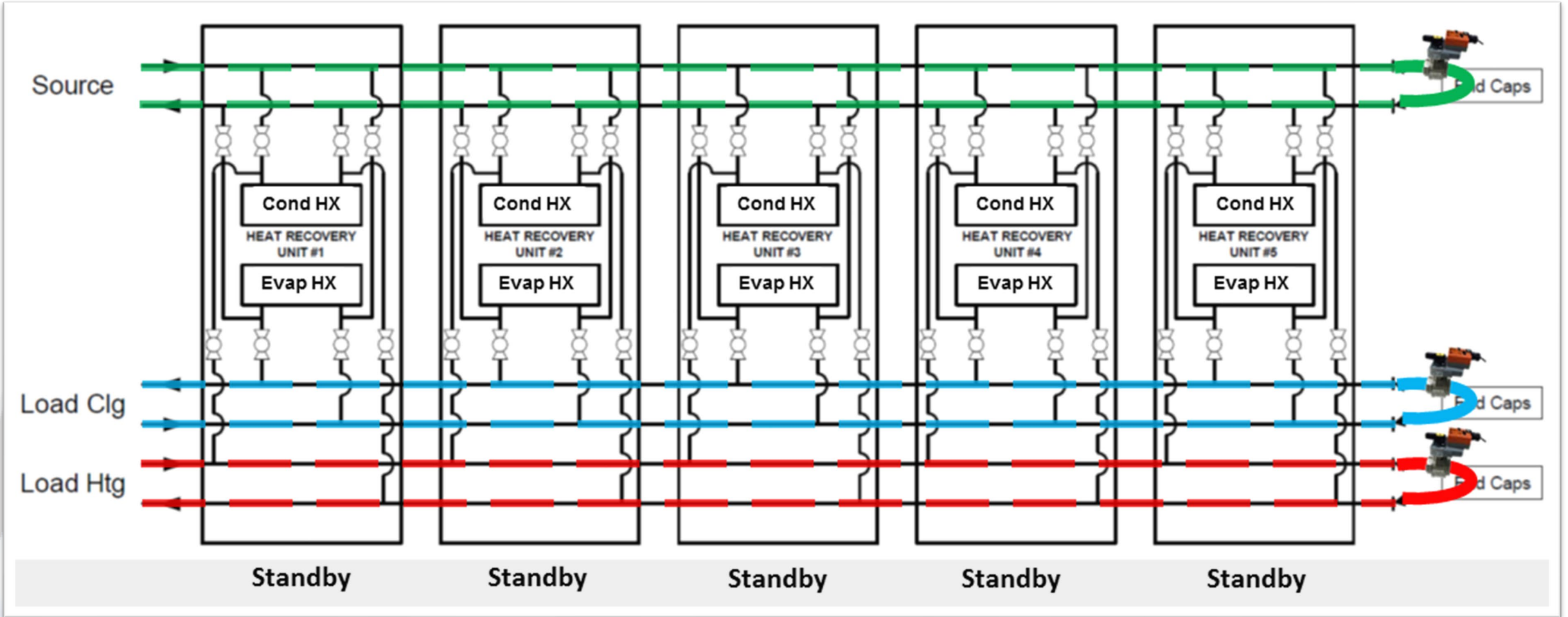
**15,30,50,70,85 Ton
UCH
Simultaneous Heat/Cool (SHC)
Heat Pump**



**15,30,50,70,85 Ton
UCH
Simultaneous Heat/Cool (SHC)
Heat Recovery**

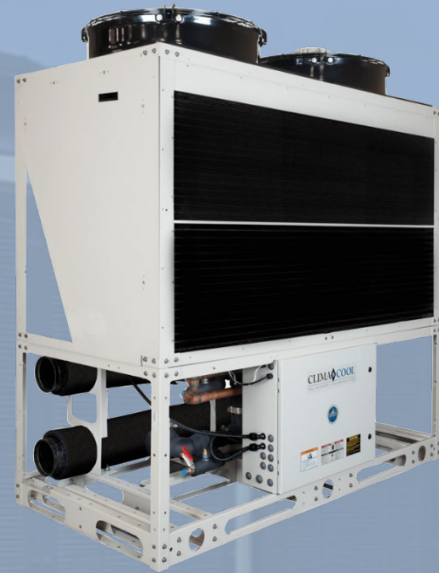


SHC DESIGN & APPLICATION HEAT RECOVERY





**20,30,50,70 Ton
UCA
Cooling Only**



**30 & 70 Ton
UCF Free
Cooling**



**20,30,
50,70 Ton
UCA
Heat Pump**

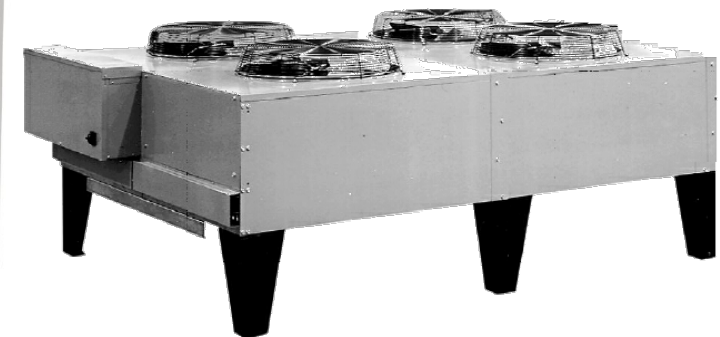
ULTIMATE CHILLER SOLUTION: AIR SOURCE



**20,30,50,70 Ton
UCA
Simultaneous Heat/Cool (SHC)
Heat Pump**



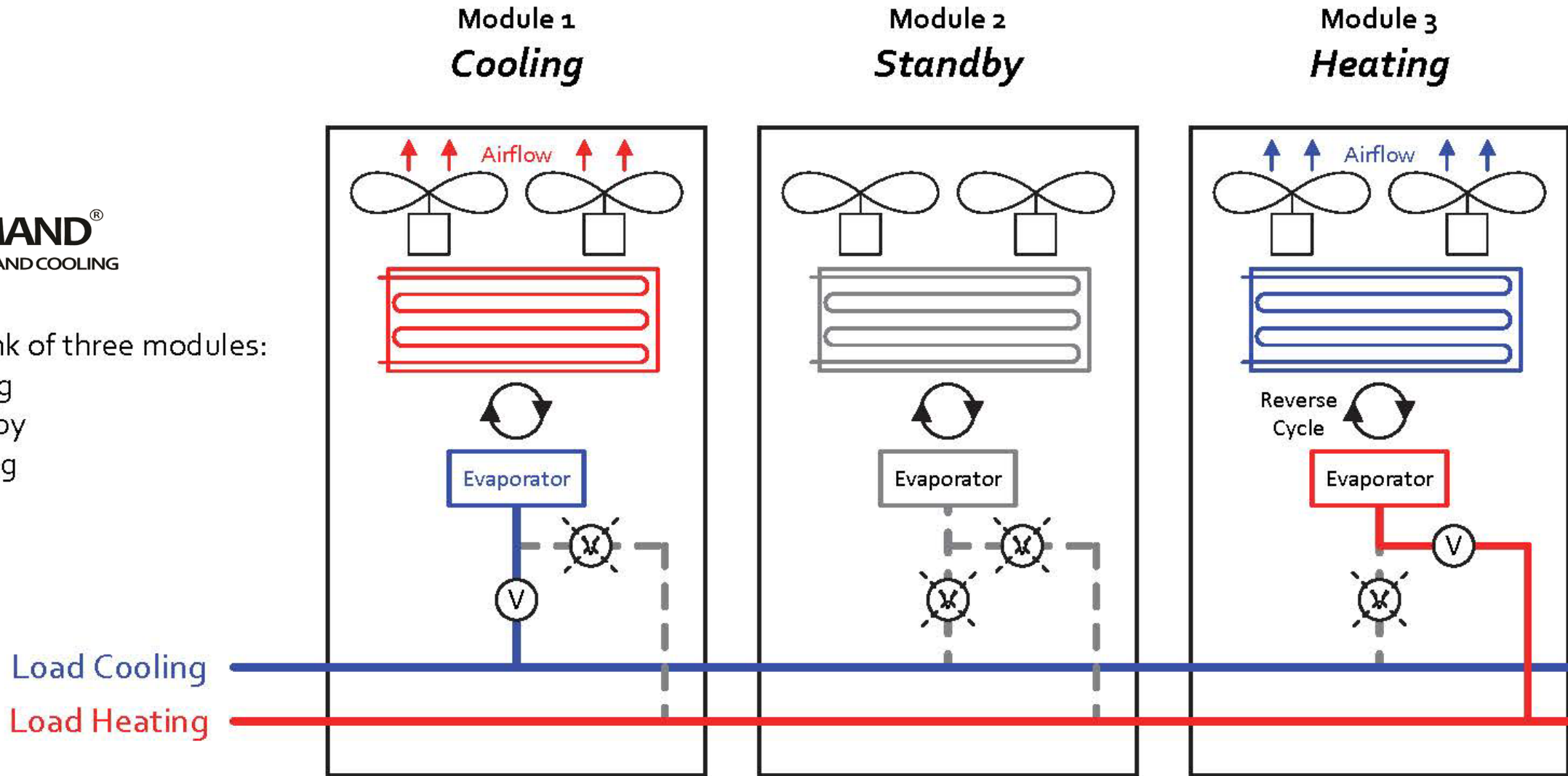
**30, 50, & 70 Ton
UCR Remote Air Cooled
Cooling Only**



AIR COOLED HEAT PUMP SHC onDEMAND®



Figure shows a bank of three modules:
Module 1 in Cooling
Module 2 in Standby
Module 3 in Heating



* Simplified single line water circuit shown; V=motorized isolation and control valve



SKIDS = FASTER INSTALL
SAVES TIME ON
FIELD ASSEMBLY



BENEFITS OF MODULAR CHILLERS



New Low GWP refrigerant

- R-454B
- Low pressures than R32 and 410A for higher delivered water temperatures

New Design

New Control Platform

- Hardware
- Software



CLIMA  **COOL**®

NEXT GENERATION **COMING SOON**

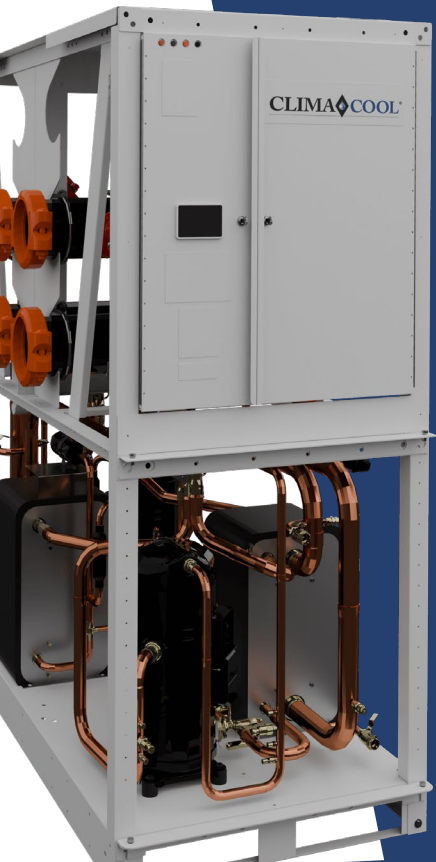
Water-source Heat Pump and SHC Heat Pump

- Low GWP, plus improved capacities, and performance with R454B Refrigerant (140 HW)
- Flow & Phase monitoring standard
- True operational redundancy with dual independent circuits
- Redesigned headers for simpler install
6" or 8" headers available

IMPROVED SERVICEABILITY:

Enhanced refrigerant circuits w/ EXVs

Easy access to reversing valves



UWT30

CLIMA  COOL[®]



NEXT GENERATION **COMING SOON** Air-source Heat Pump and SHC Heat Pump

- Low GWP, plus improved capacities, and performance with R454B Refrigerant (140 HW)
- Redesigned condenser coils
- Flow & Phase monitoring standard
- True operational redundancy with dual independent circuits & fans
- Redesigned headers for reduced footprint

IMPROVED SERVICEABILITY

- Enhanced refrigerant circuits w/ EXVs
- Swing-out control panel

CLIMA  **COOL**®

NEXT GENERATION COMING SOON CONTROLS PLATFORM



- User-friendly full bank controller designed for simple start-up and maintenance
- **COMING SOON** Home run wiring allows control of up to 12-unit banks
- **COMING SOON** Updated module control of unit mounted EXV's, flow sensors and phase loss monitors

Capacities 15 - 85 Ton

CLIMA  **COOL**®

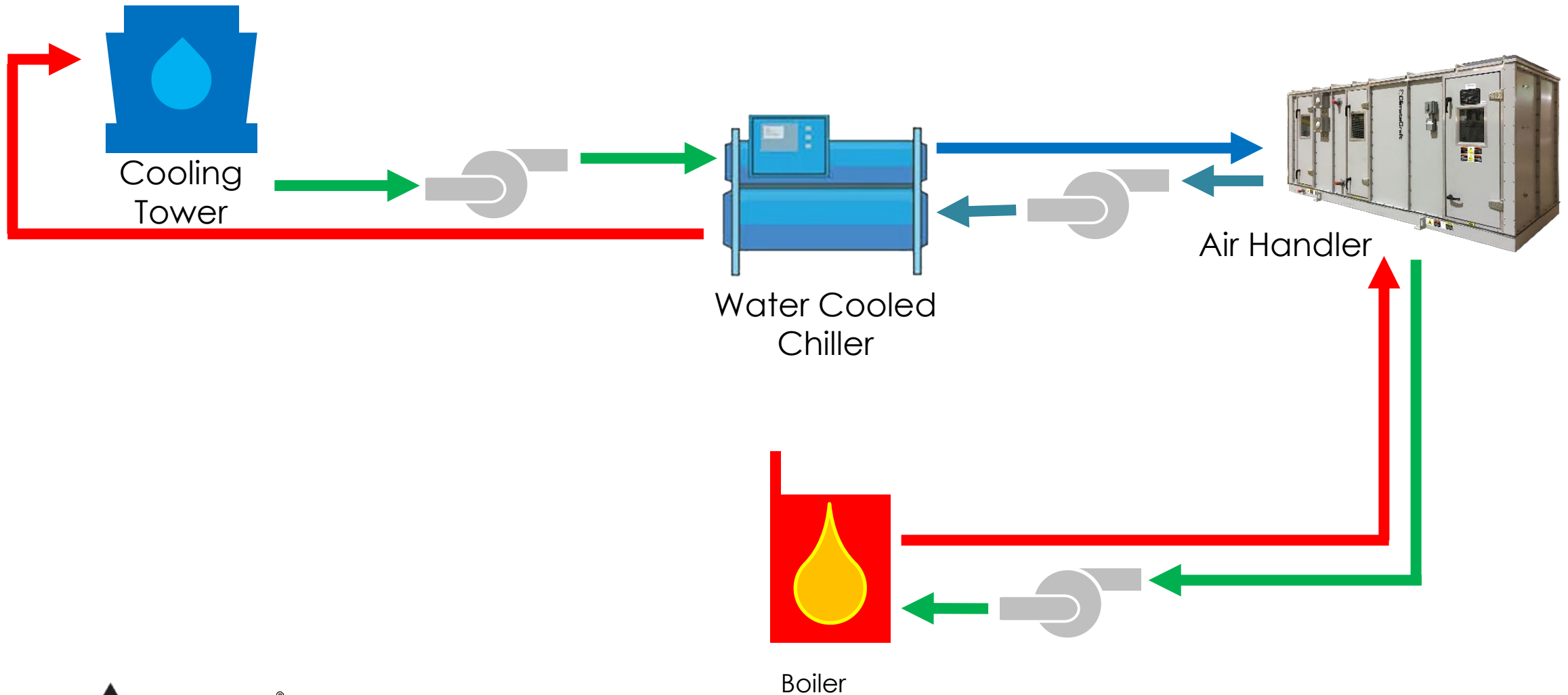


APPLICATION OF EQUIPMENT

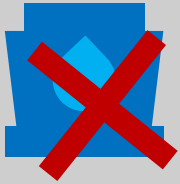


CLIMA  COOL®

SYSTEM EXAMPLE

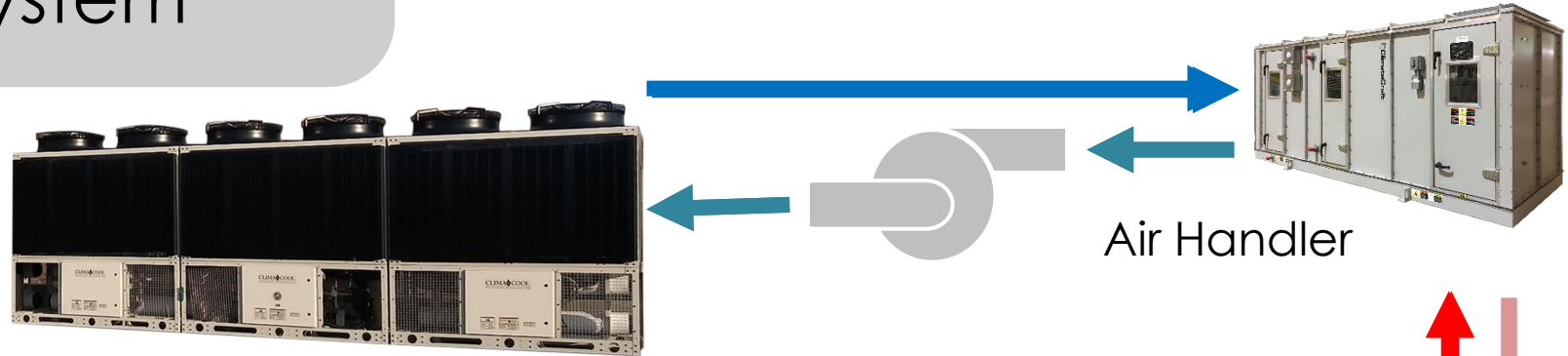


REMOVE COOLING TOWER

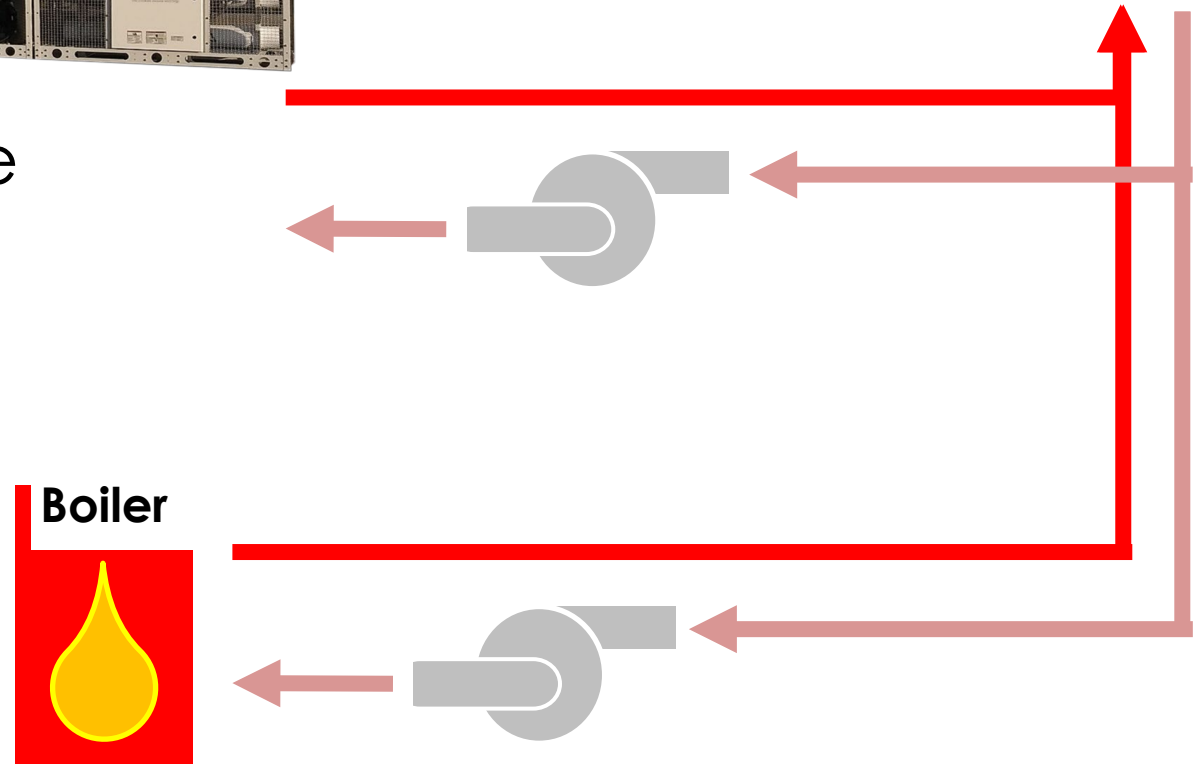


- Reduce complexity
- Closed loop system

SYSTEM EXAMPLE



- o Allow cooling system as first stage high-efficiency heating
- o Boiler handles low ambient to peak heating



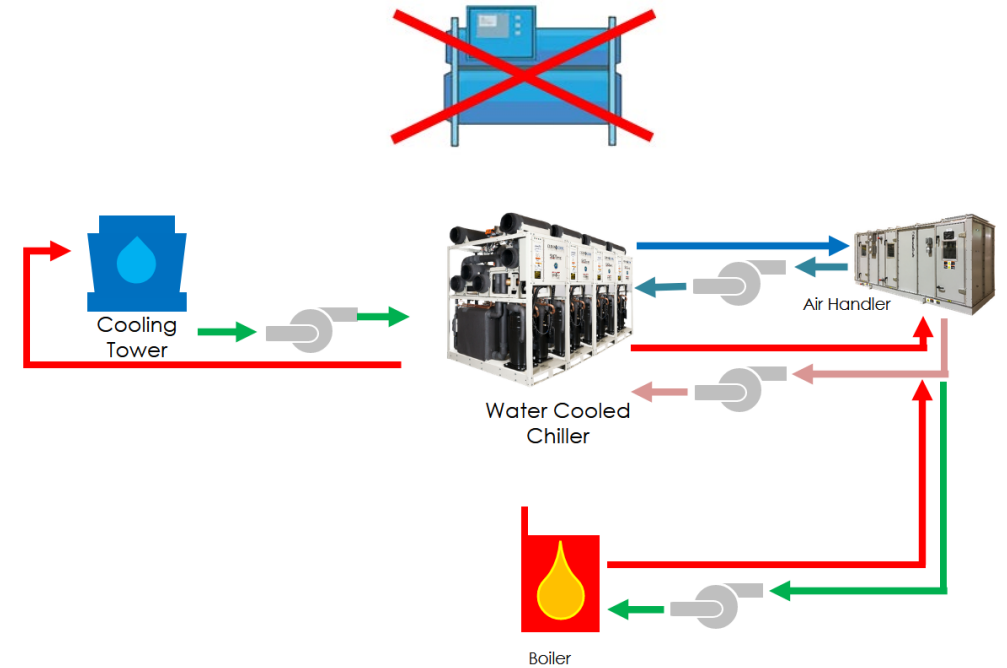
APPLIED SOLUTION

Decarbonization Example

COOLING SOLUTION: centrifugal chiller on a cooling tower

HEATING SOLUTION: is a boiler operating at 160 deg

- Replaced chiller with 3 x 080 modular 6 pipe system
 - Recover heat before rejecting to tower
 - Hot water can get by with 140 in the cooling seasons
 - Switch to boiler system at 160 in winter

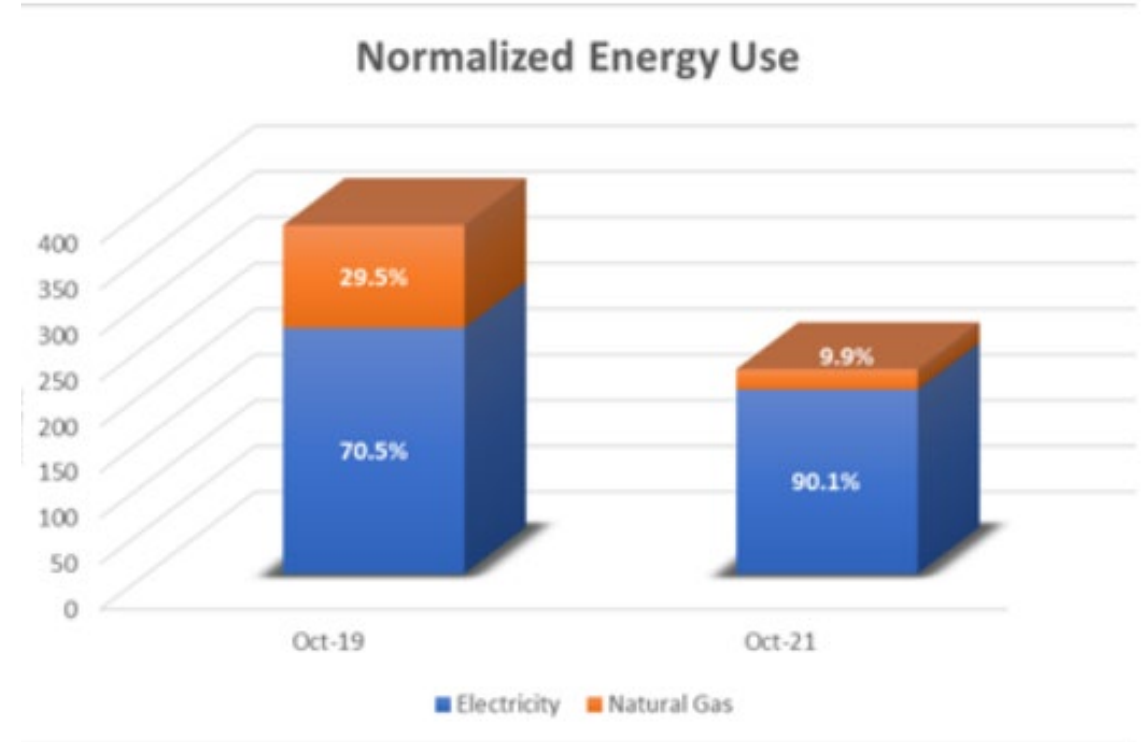


APPLIED SOLUTION

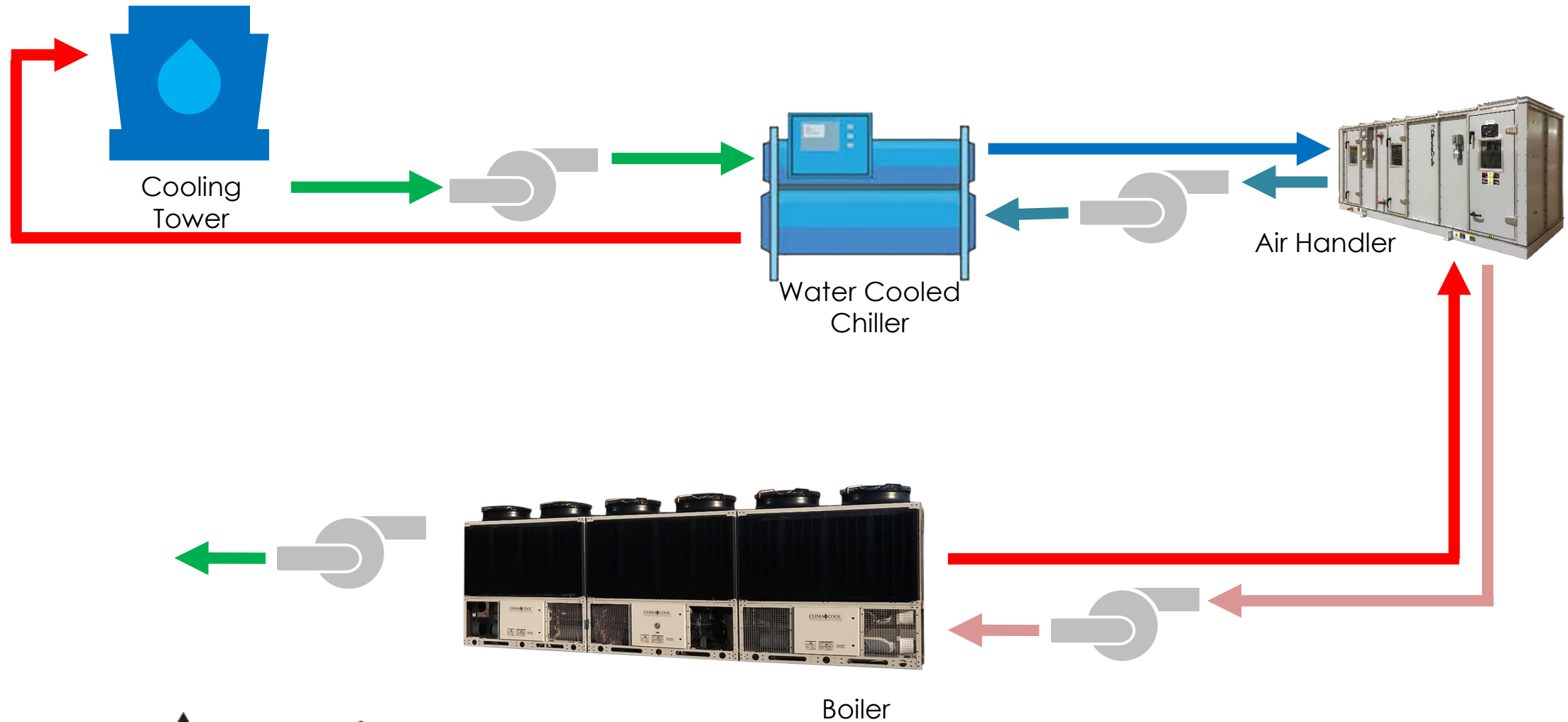
Decarbonization Example

- ➔ **Average energy use decreased** by 23% over the first six months of new system
- ➔ Total **energy use was reduced** by 55% in November
- ➔ In October and November, the building used **59% less natural gas**

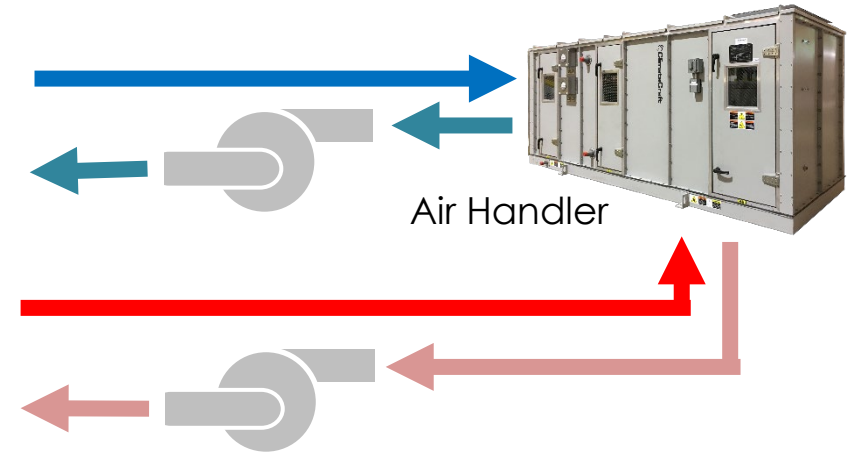
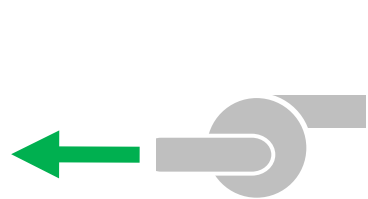
**DECARBONIZATION DOES NOT
EQUAL ZERO CARBONIZATION**



CHILLER-HEAT PUMP SYSTEM



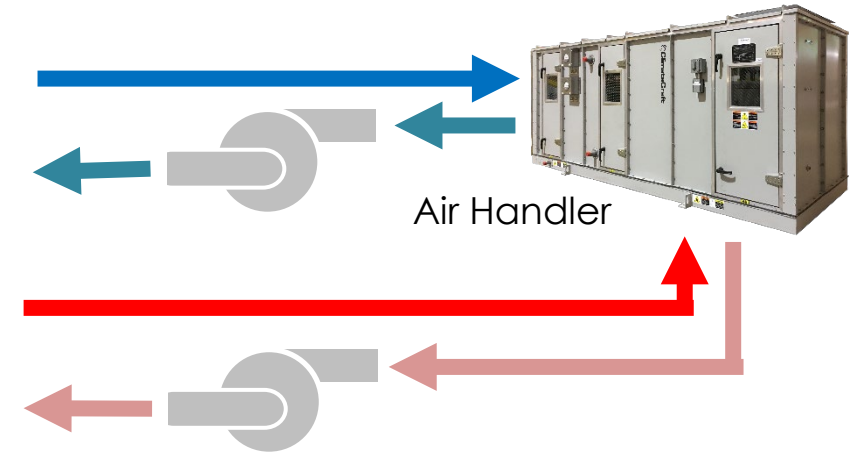
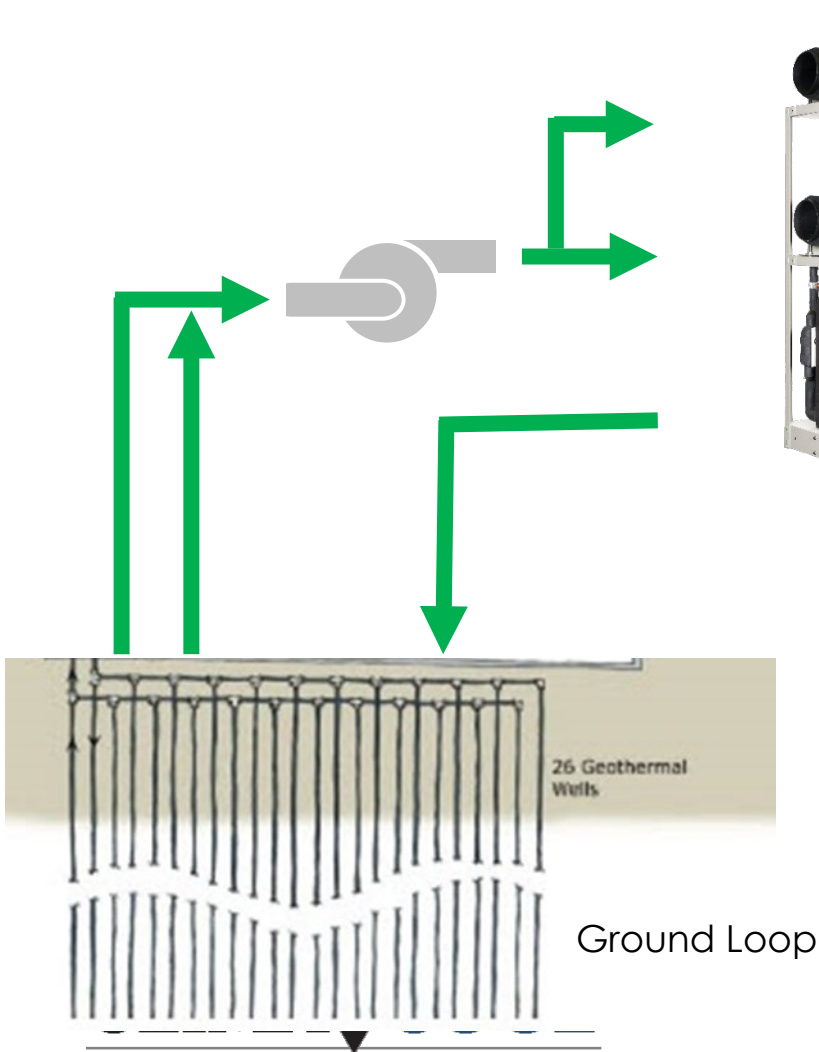
HEAT PUMP SYSTEM



EQUIPMENT CAN BECOME SINGLE PLANT SOLUTION.

- Reducing components
- Completely closed system

HEAT PUMP SYSTEM



WATER SOURCE EQUIPMENT

- Increases system efficiency
- Simultaneous efficiencies of up to 8 COP
- Qualify for IRA tax credits for up to 40% of complete project cost

GEOHERMAL PROJECT EXAMPLE

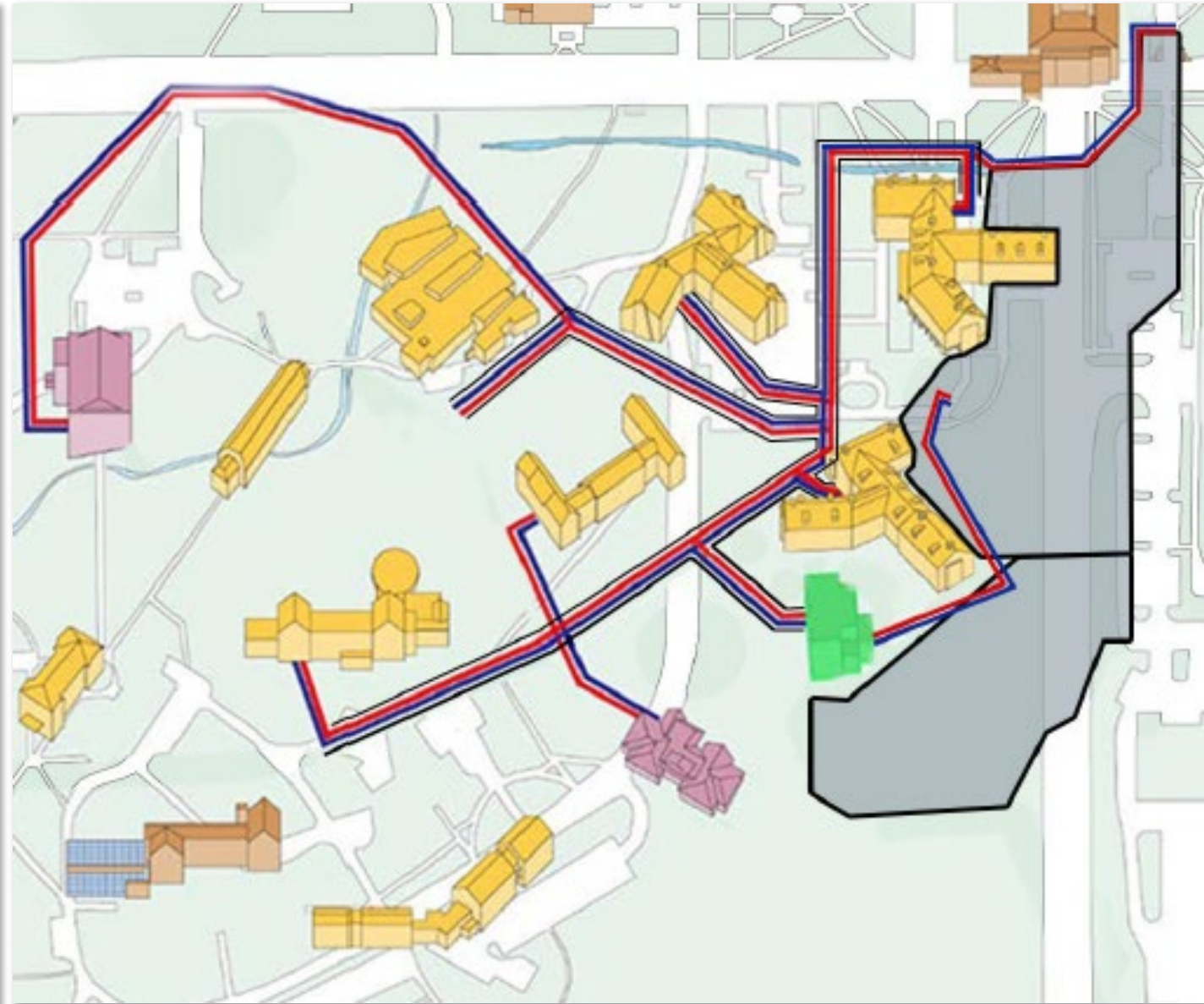
Decarbonizing Miami's campus: energy-based emissions

Most of Miami's carbon emissions are from energy used for heating and cooling its buildings.

Miami's path to carbon neutrality began with its historic residence halls (Elliot and Stoddard) in 2010, when they were converted off steam to geothermal heating and cooling. Since then, Miami's Utility Master Plan provided a roadmap for the transformation of nearly all the building heating and cooling systems off steam.

The latest energy transformation project was completed in August. This was a year-long project that converted nine buildings in the center academic quad from steam heating systems to energy efficient heating hot water (HHW) systems.

Since 2008 Miami has reduced its energy-based carbon emissions per



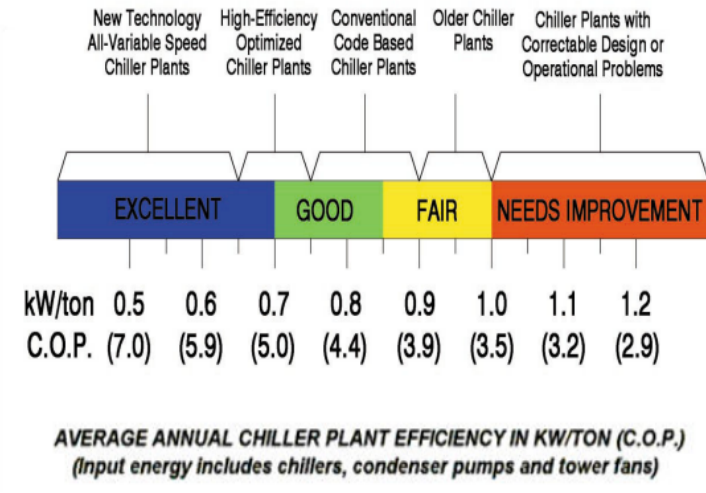
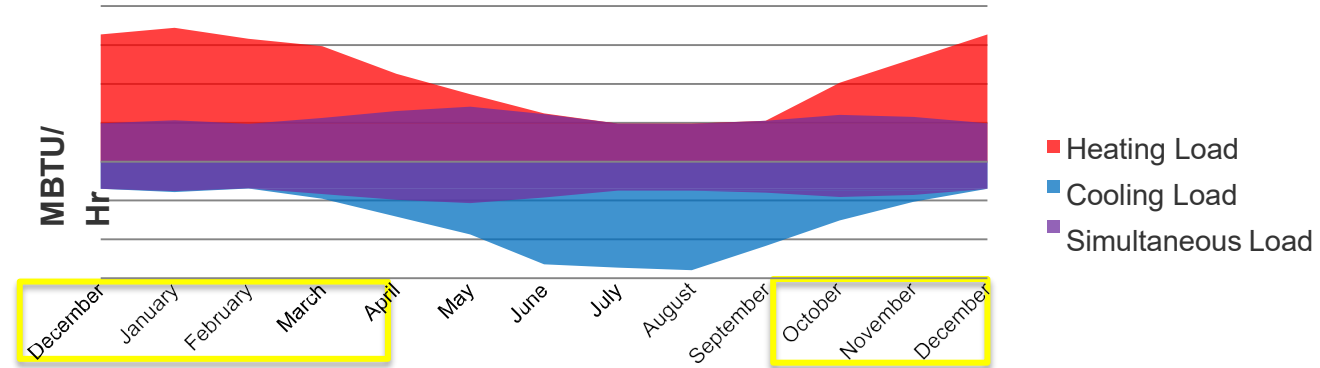
SIMULTANEOUS PROFILE

Changing the conversation of part load performance

- Heating dominant months
 - No chiller part load efficiency gains

- Plant operation .41 kw/ton
 - Boiler operating .93 cop is almost 4 kw/ton

- Averages 5+ COP across the year



SYSTEM EXAMPLE

Boiler tower / WSHP



Cooling Tower



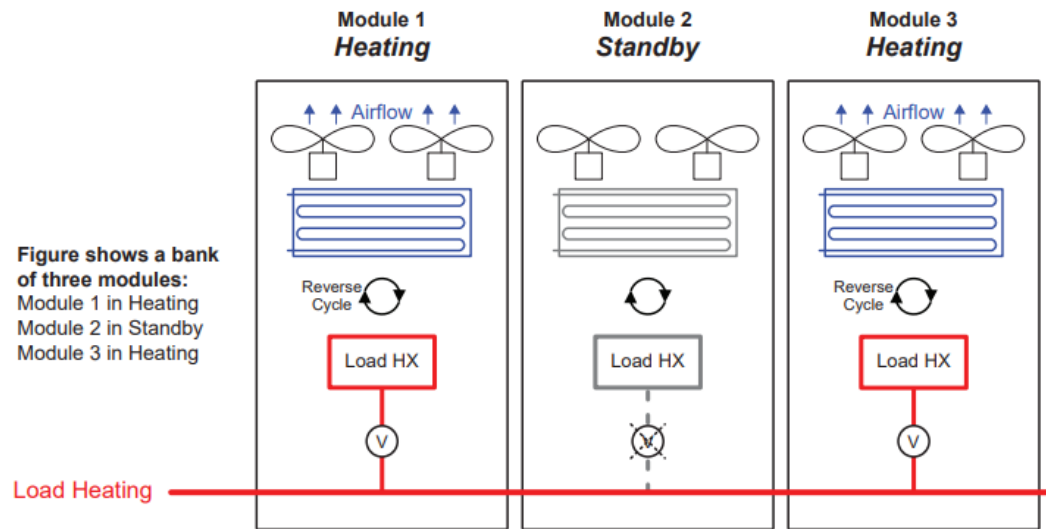
Boiler



SYSTEM EXAMPLE

Replace boiler and tower with air source heat pumps

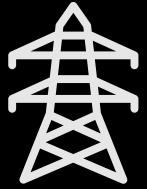
- Completely closed system solution
- Completely electric system solution
- Dynamically maintain loop temp to maximize system efficiency



* Simplified single line water circuit shown; V = motorized isolation and control valve



KEY TAKEAWAYS



All electric solutions



Application flexibility



Efficient and intelligent solutions



CLIMA COOL



ClimateCraft

YES. We would love to follow up with you.

We know you couldn't make it to all of our presentations, it's a busy week! We hope you enjoyed your time. Let us know which content you'd like us to send you and we will reach out to you next week!



Let's Talk

Scan me

