



EcoCosm
ENERGY REINVENTED

Building Decarbonization





Why Decarbonize Now?

**Corporate Net Zero
targets: 50% by 2030
zero by 2050**



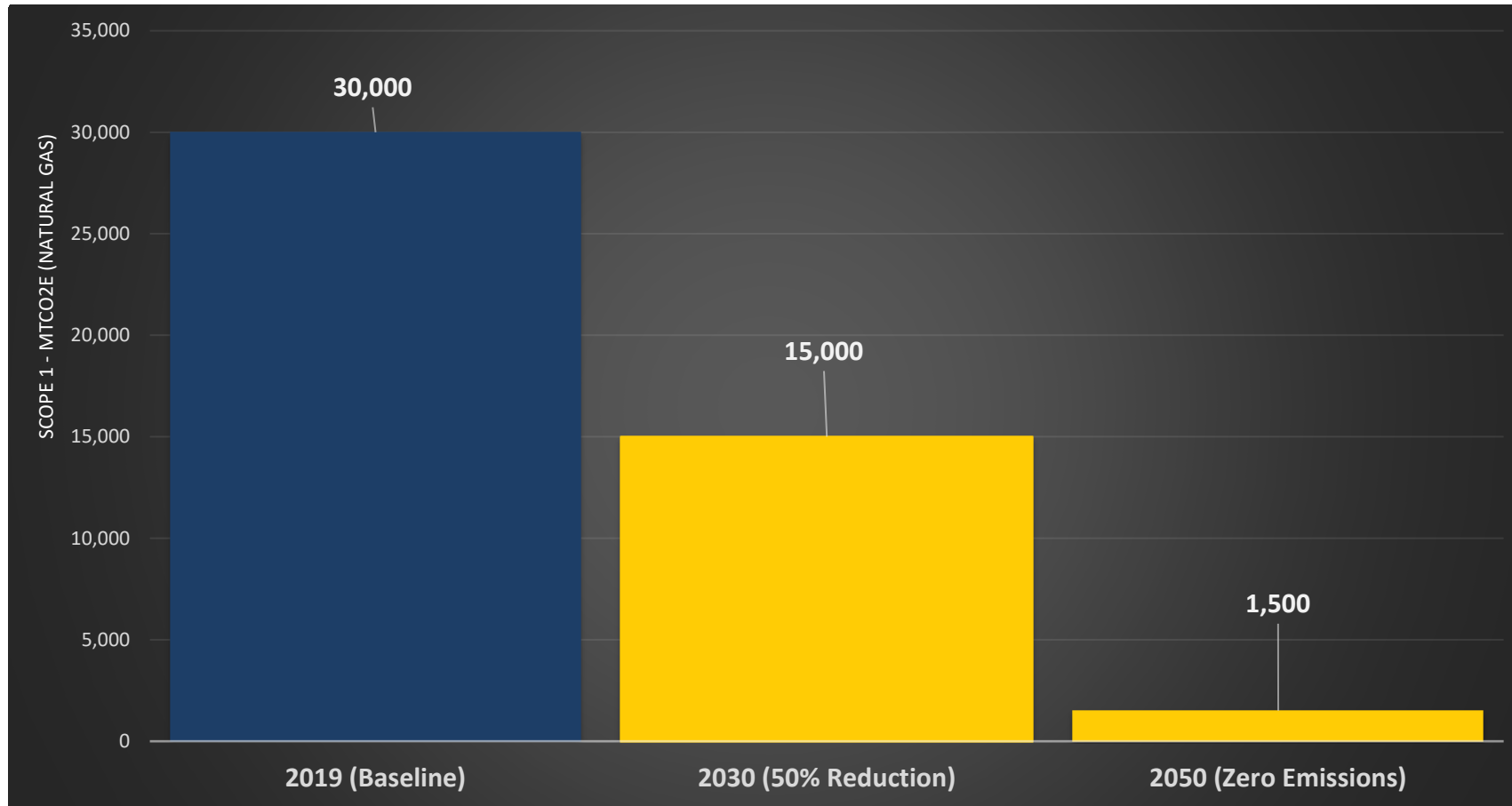
**High vacancy & occupant
demand for healthy &
efficient workspace**

**Rising policy pressure to
decarbonize existing
buildings & disclose
GHG emissions**

**Significant increases in
utility costs & aging
HVAC infrastructure**



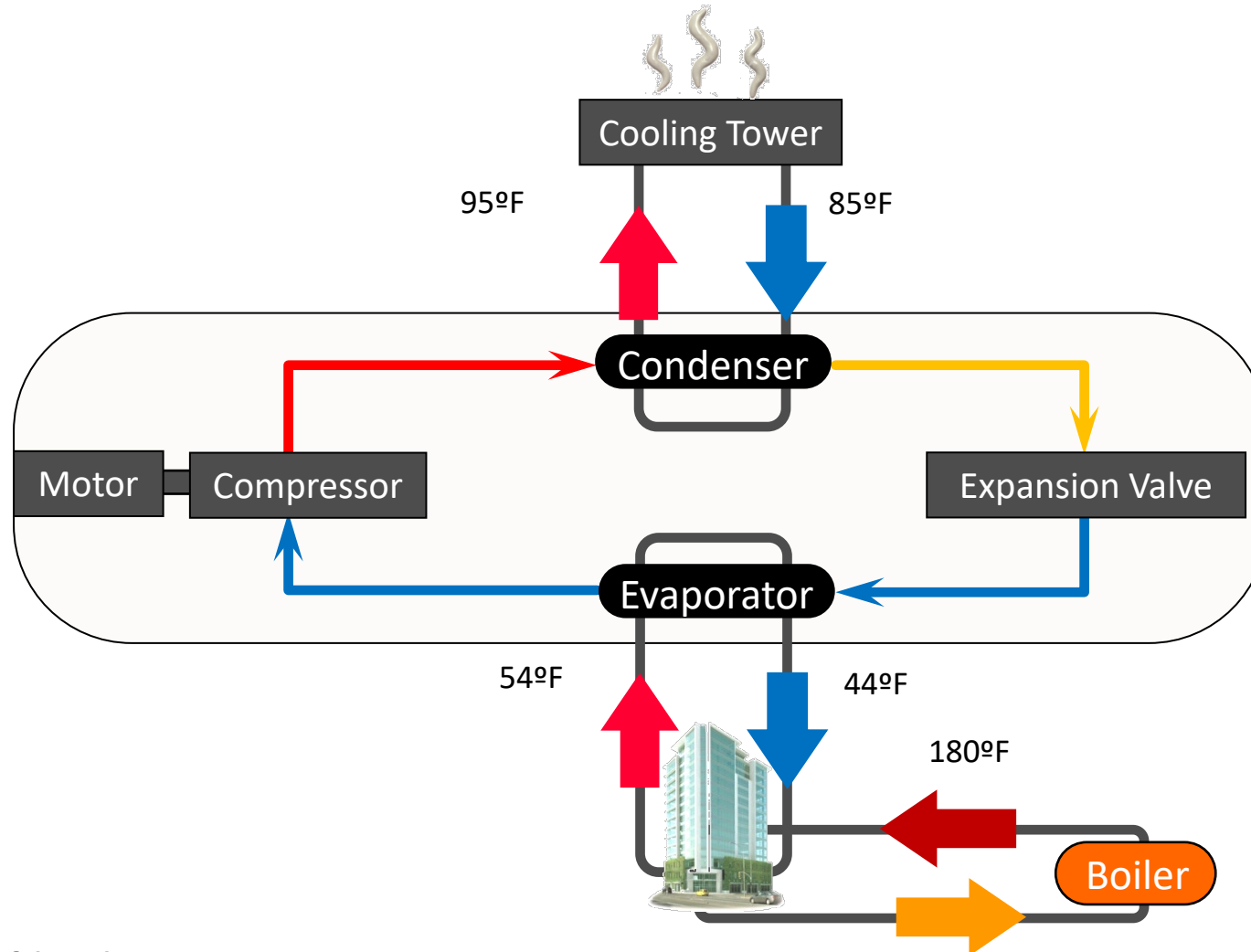
Staging the Process is Critical



Reducing Scope 1 emissions 50% by 2030 requires action now

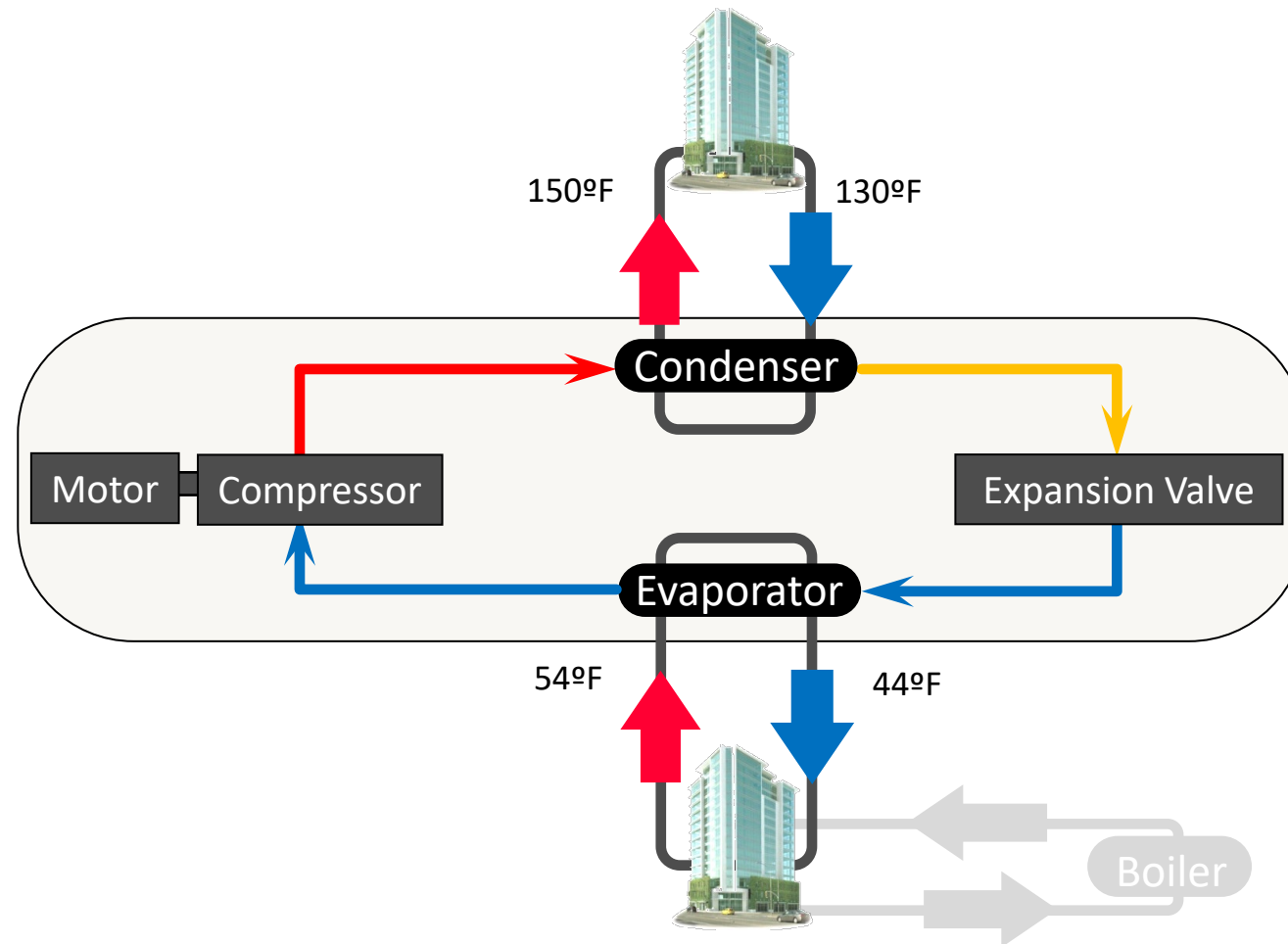


Typical Buildings are Costly and have a Large Carbon Footprint





Decarbonized Buildings Can Reduce Costs and Eliminate Carbon





Typical Decarbonization Designs Drive Excessive Capital and Operating Expense

Costly design at a 1,000,000 ft² Portfolio could mean:

- \$20 Million in CapEx (at \$20/ft²)
- 3-4x Increase in Energy OpEx

Costly Designs	CapEx	OpEx	Elec Svc Upgrade
Electric Boiler (sized one for one)	\$\$\$	\$\$\$\$	X
Air Source Heat Pumps (sized one for one)	\$\$\$\$\$	\$	X
Air Source HP to Water Source HP	\$\$\$\$\$	\$\$	X
Upgrade all Reheat VAVs	\$\$\$\$	(-\$)	NA
Renewable Natural Gas	\$	\$\$\$\$\$	NA



Innovative Decarbonization Designs Drive Significant Cost and Carbon Reductions

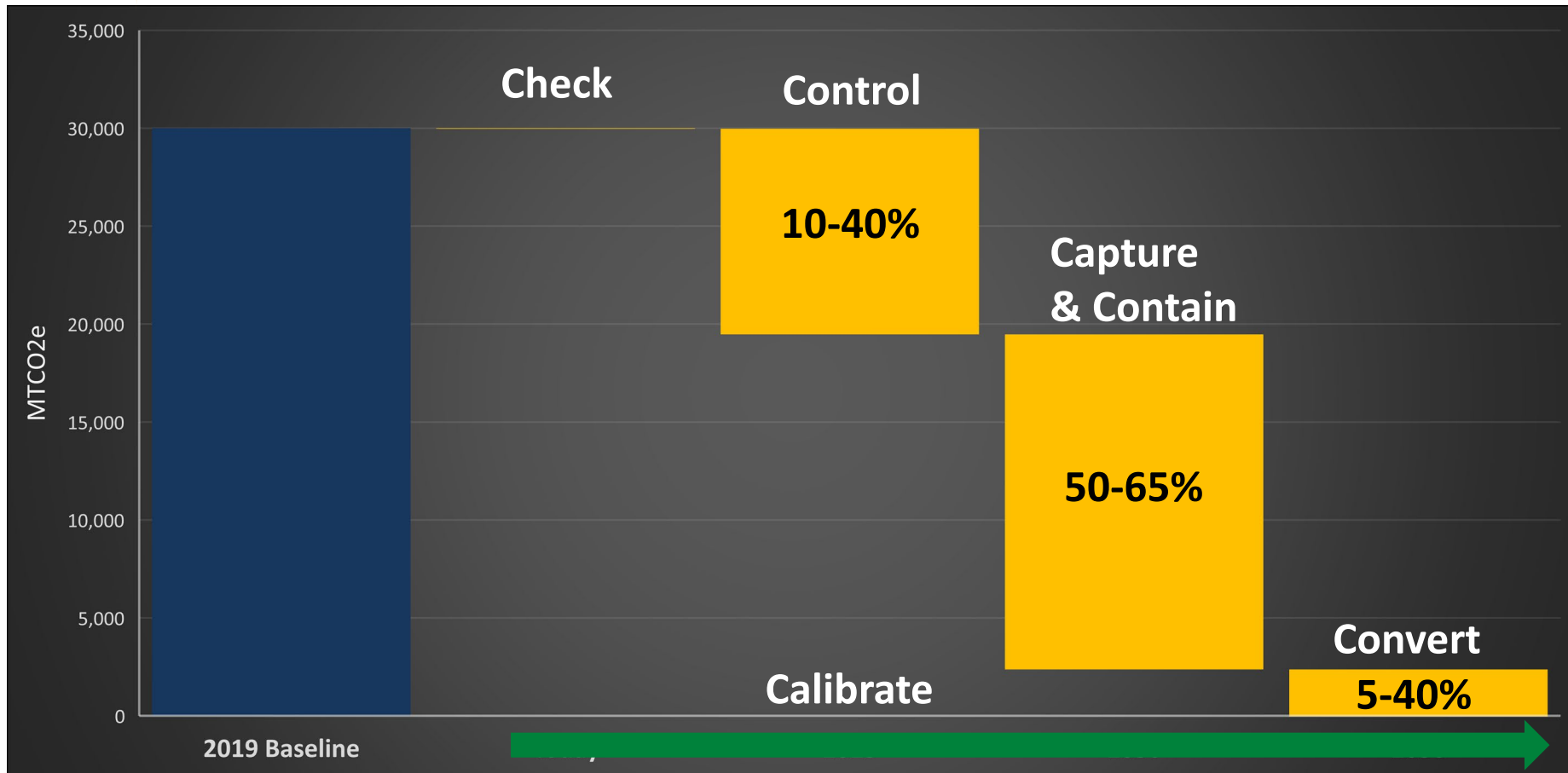
Decarbonization goals are achievable with carbon reduction strategies:

- \$10 Million **Reduction** in CapEx (or more)
- 18% **Decrease** in Energy OpEx

Strategic Design	CapEx	OpEx	Elec Svc Upgrade
Lower Heating Hot Water Temps (stress test each bldg)	\$	(-\$)	NA
Leverage Heat Recovery & Right Size Heat Pumps	\$\$\$	(-\$)	NA
Thermal Energy Storage (Ice, CW, HHW, Steam)	\$\$\$	(-\$)	NA
Apply Geo Exchange & Solar Thermal	\$\$\$\$	(-\$\$)	NA
50% Reduction in Scope 1 by 2030	Achieved		

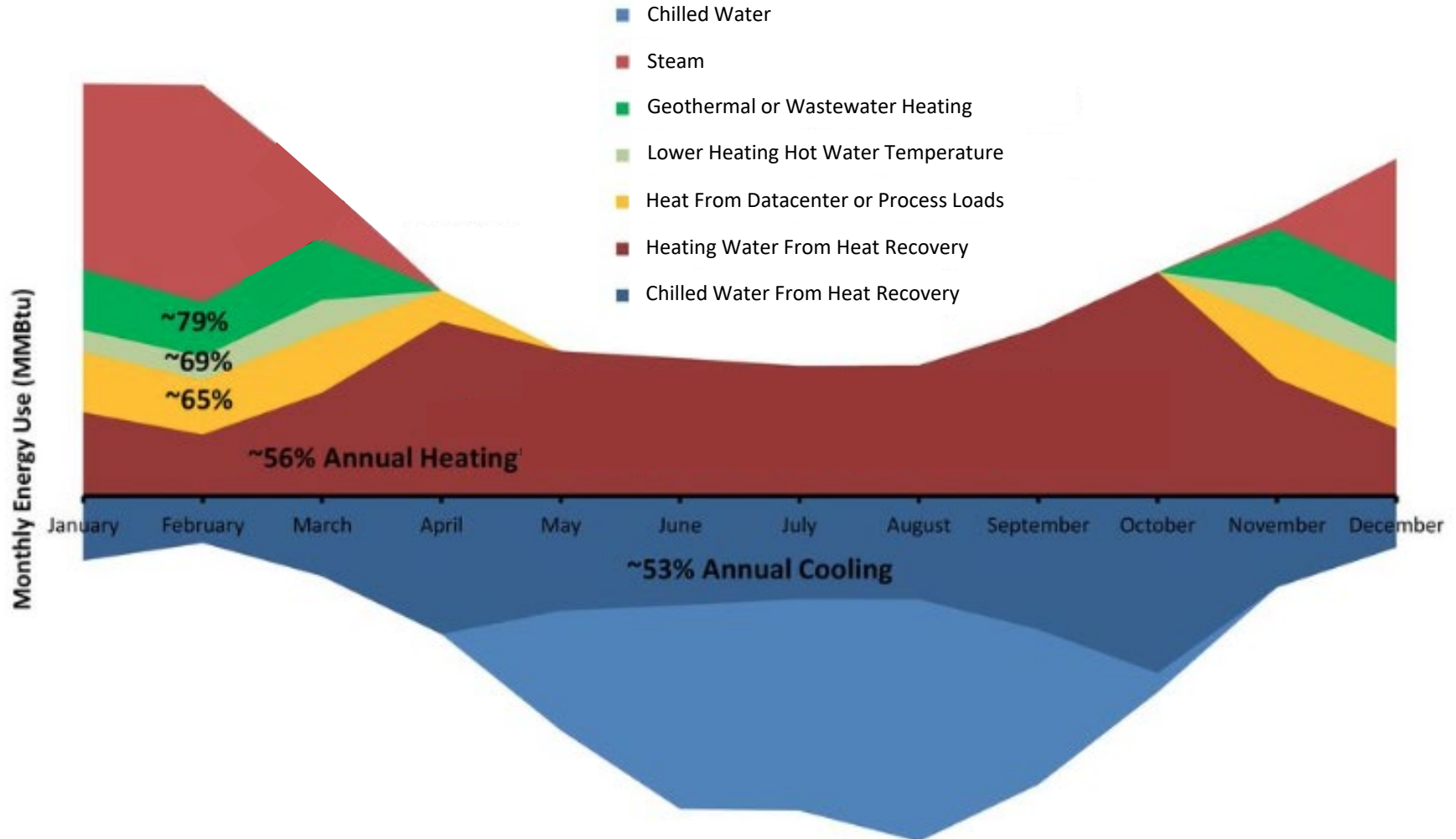


EcoCosm Carbon Zero Strategy – The 6 C's





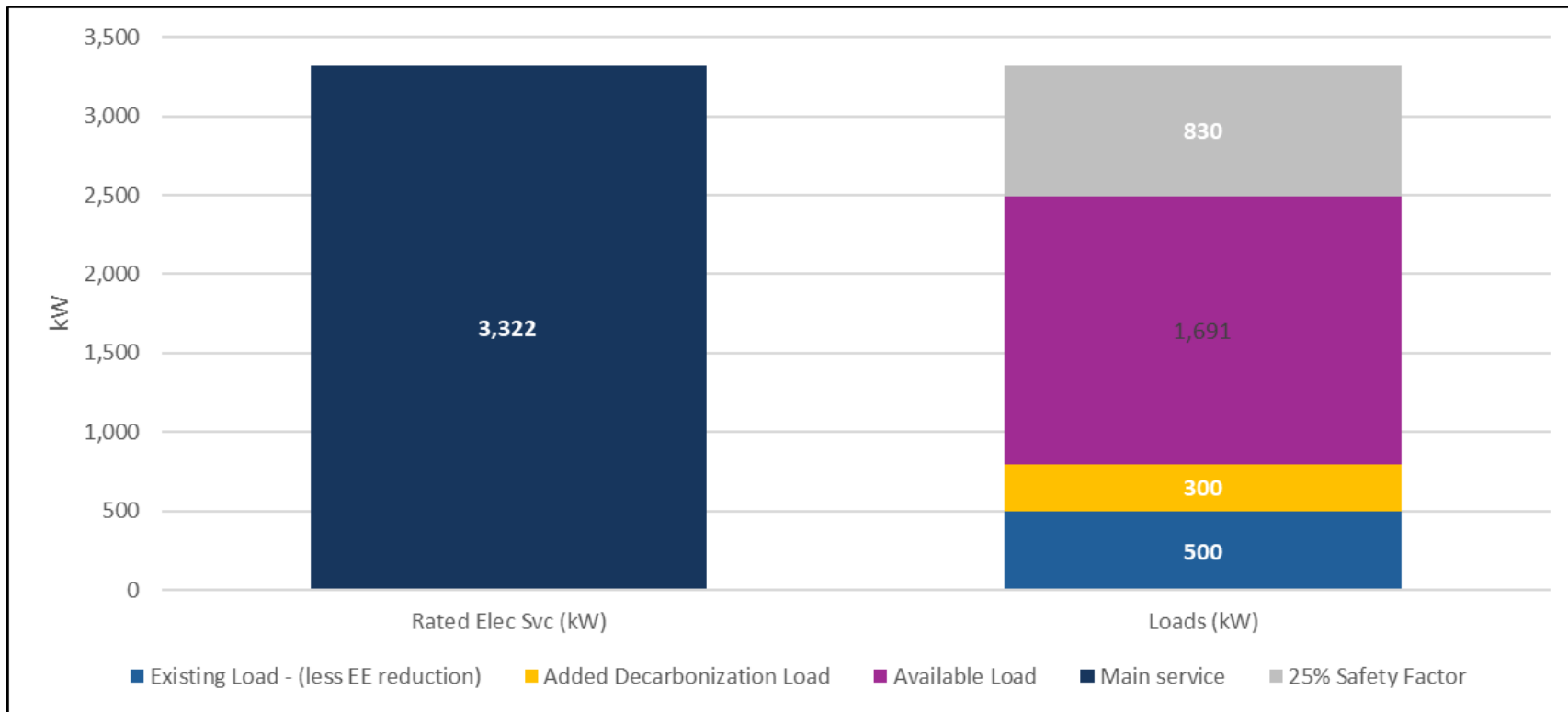
Carbon Zero Strategy To Achieve Decarbonization by 2050





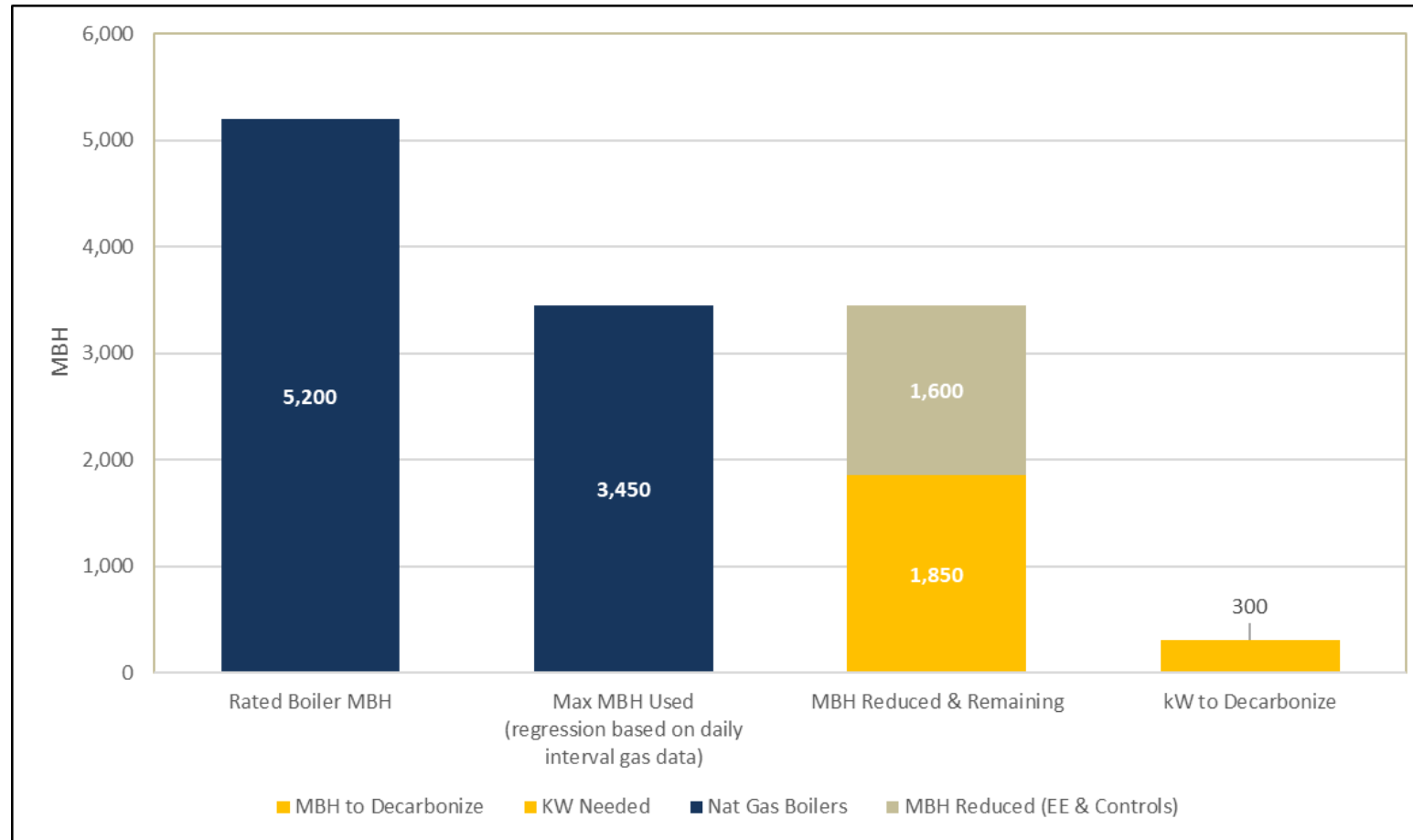
Myth: Upgrading Electric Service is Required

Typical San Francisco Office ~250,000 ft²





Myth: Heat Pumps Need to Be the Same Size as Natural Gas Boilers





Assess Condition of Existing Equipment



**Stack rank your assets based on end of useful life
Leverage replacement budgets to Decarbonize**



Thank you!



EcoCosm

Justin Tiedemann, CEO

415-340-2390

justin@ecocosminc.com