AI Optimization platform for commercial HVAC

Company Introduction

Decarbonization Platform Solutions

The CarbonQuest team

- Company formed in April of 2020
- Seasoned entrepreneurs with a track record of success
- Passionate, mission driven and customer-oriented team
- Years of distributed energy transition experience

We accelerate global carbon reduction by providing technology solutions for decarbonization

Company Locations - 36 Global Team Members

Serving a diverse set of distributed opportunities

300,000+

Industrial facilities

10,000+

Utility and Distributed Energy Resources

2,500,000+

Commercial buildings

District Energy:

- City District Energy
- University Campus
- Communities & Business Islands

Industrials:

- Manufacturing
- Food & Beverage
- Pulp & Paper
- Cement
- Waste to Energy

Distributed Gen:

- Cogeneration
- Combined Heat and Power
- Fuel Cells
- Microgrids

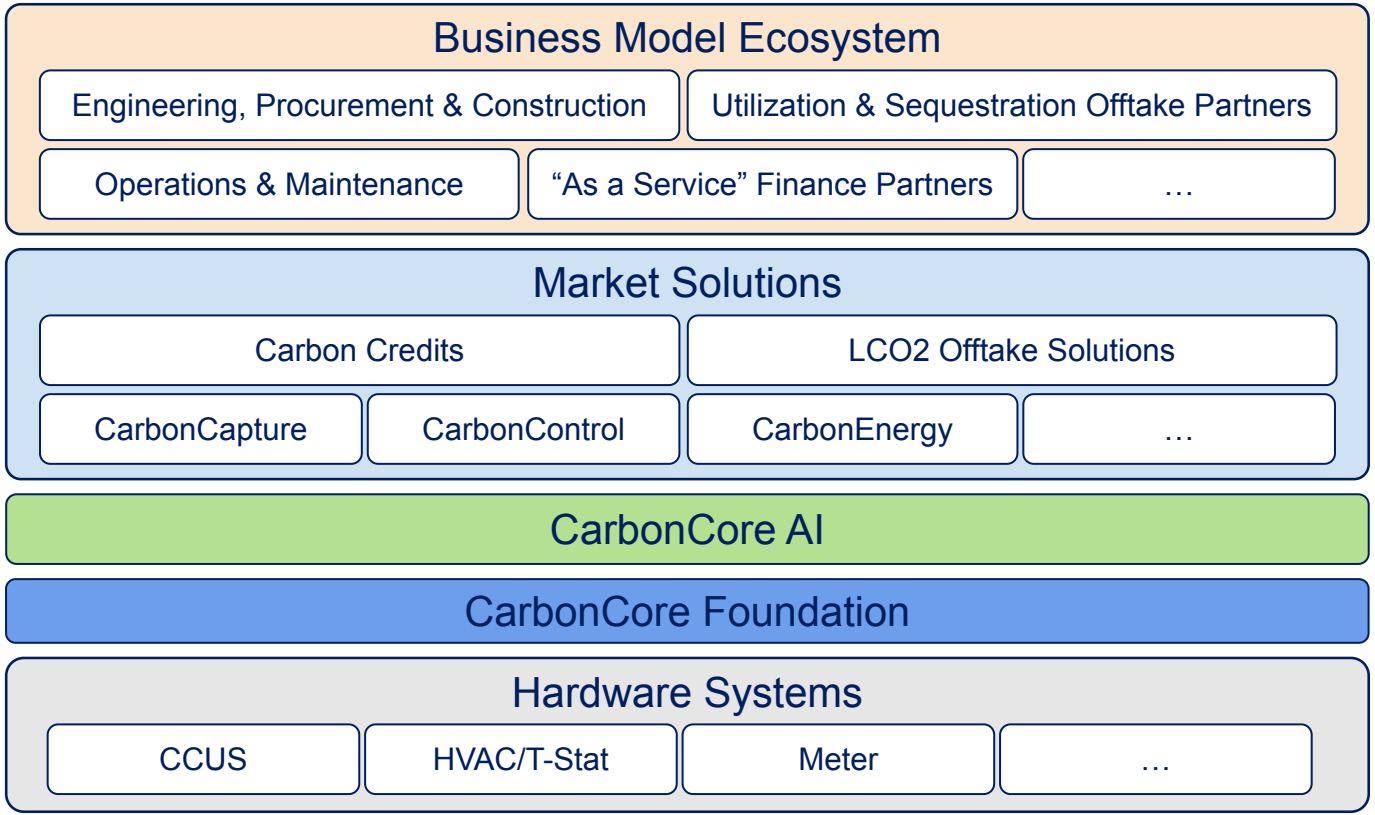
Utilities:

- Distributed Generation
- Compression Stations

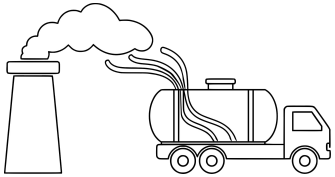
Built Environment:

- Commercial buildings
- Hospitals
- Municipals
- Schools & Universities

Decarbonization Platform Overview

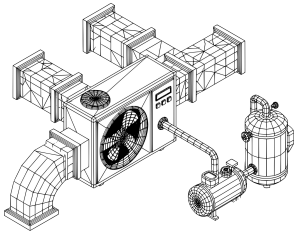


Decarbonization Market Solutions



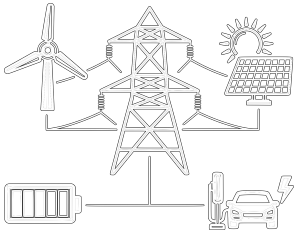
CarbonCapture

Point Source Carbon Capture for large commercial & industrial applications with Boilers, CHP, Cogen, Fuel Cells, WTE



CarbonControl

HVAC Carbon optimization for small to medium commercial applications with packaged/rooftop HVAC systems



CarbonEnergy

Energy Monitoring & Reporting for commercial & industrial loads and distributed energy resources

CarbonControl™

AI Commercial HVAC optimization

HVAC Optimization Overview

CarbonControl™

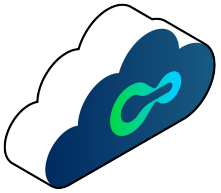
An AI platform that continuously optimizes HVAC performance for small-to-medium commercial buildings

- 1 Day Installation, WiFi Thermostats
- 10%-30% Utility (Natural Gas & Electricity) & Carbon Emissions Savings
- Remote HVAC Management
- Helps comply with WA Clean Building Performance Standards
- Enables Automatic Demand Response

How It Works

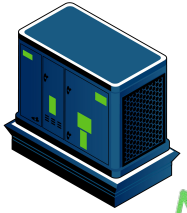
Real-time communication of data inputs: weather, occupants, indoor temp., humidity, user preferences, etc.

Remote processing of gathered data in the cloud



Artificial intelligence makes optimized control decision

Autonomous control of rooftop unit every 15 minutes



Continuous Reinforcement Machine Learning Cycle

A Proven Solution

NYC Case Study

- Common area, 4 Zones of HVAC package units
- System in use since 2022

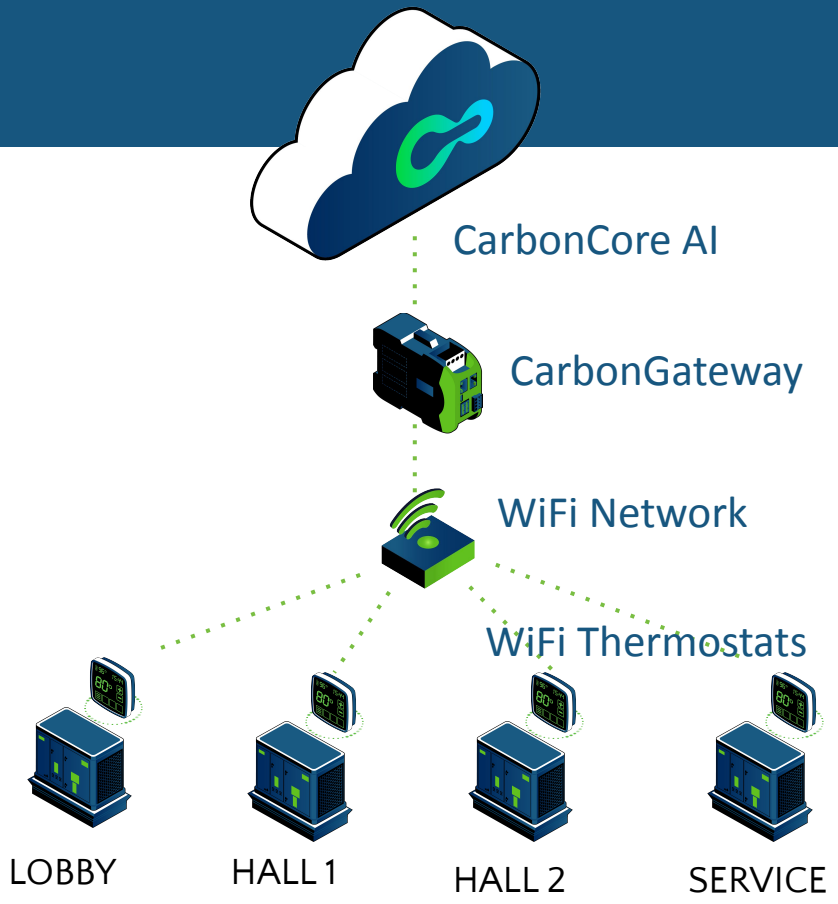
Generated with CarbonControl™:

29% annual HVAC energy savings

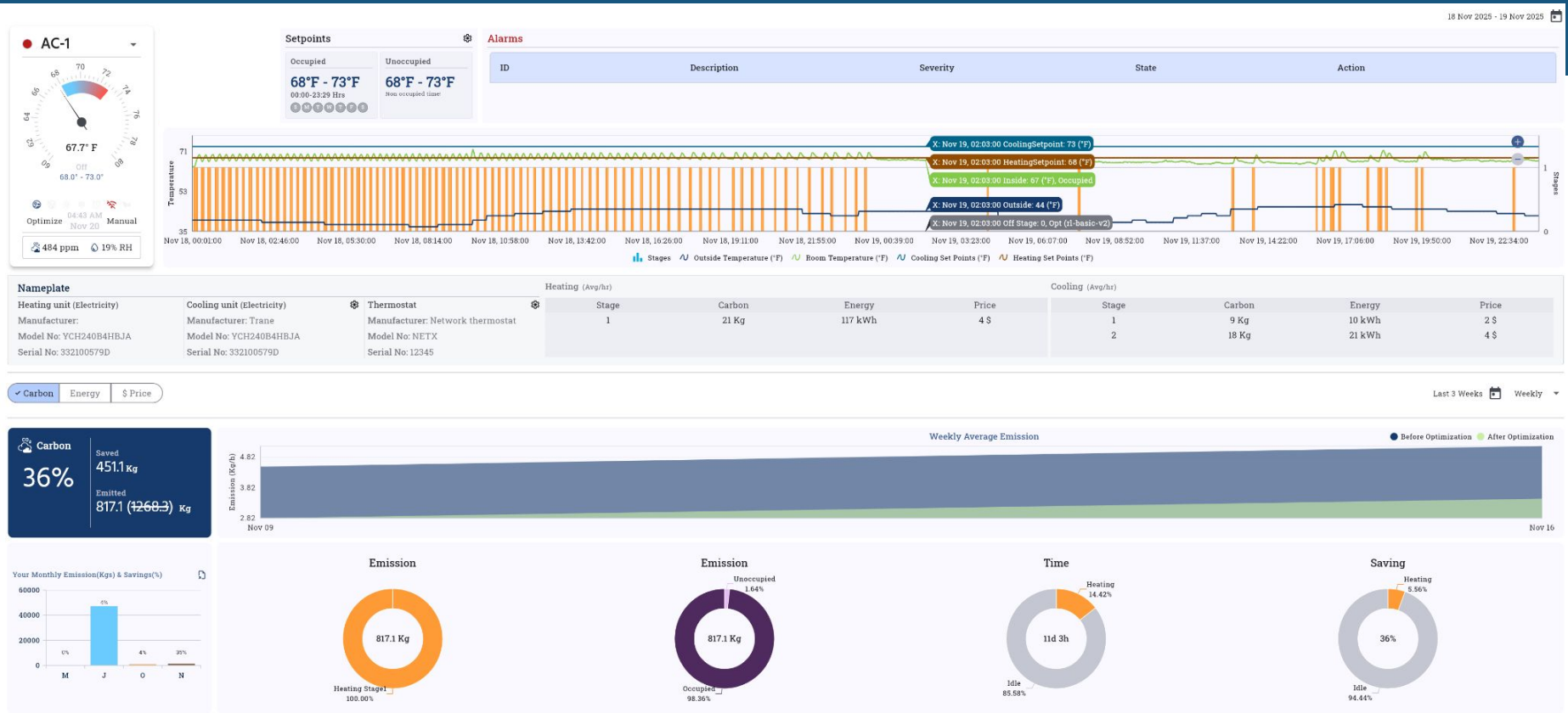
$12K annual Gas and Electric utility savings

$8.5K annual LL97 penalty savings

32 tons of avoided CO_2



Example Day in the Life



Technical Features

- Zone based control options
  - Customized air circulation control
  - Indoor air quality via CO2 sensors
  - Remote temperature sensors (with future bluetooth wireless)
  - Occupancy sensors (with future lighting controls)
- Thermostat Controls & Default schedule operate offline in case of internet outages
- Thermostat wiring uses typical/standard RTU wiring configuration
- OEM Partner (Network Thermostat) with decades of experience and massive deployed base

Example Proposal

CarbonControl™

CarbonControl HVAC Optimization

The Opportunity

Your 14 rooftop HVAC units waste approximately $10,000 annually without smart controls. CarbonControl's AI-powered optimization delivers 20-25% energy savings while maintaining comfort through continuous 15-minute adjustments, weather-responsive setpoints, and occupancy-based scheduling.

Your Financial Returns

Investment	Annual Savings	Payback Period
$20,020 Total Year 1	**$6,910** Year 1 net savings	**2.9 years** Simple payback

5-Year Net Savings: $37,550 • 59 tons CO2 avoided annually

What's Included

Year 1 Investment Breakdown:

- CarbonControl hardware: $15,820 (14 units)
- Year 1 Software Subscription fee: $2,800 ($200/RTU ongoing for optimization, monitoring and remote access for application user accounts)
- Installation labor (customer-arranged): $1,400 estimated (~14 hours at $100/hr)
- Total Investment Year 1: $20,020

Annual utility savings: $9,710

Less: Ongoing service fee: -$2,800

Net annual savings: $6,910 Compare Your Options

Scenario	5-Year Cost	Result
Do Nothing	$220,000+	Wasted energy
CarbonControl	$182,450	**Smart investment**
Your Savings	**$37,550**	**Resources for students**

$37,550 saved over 5 years - resources for students instead of utility bills.

Conservative scenario: Even at 15% savings (vs. 20-25% target), payback is 3.6 years with $18,000 in positive returns.

CarbonControl by CarbonQuest • info@carbonquest.com

Example Quote

CarbonControl System Costs:			
Item	**$/each**	**unit**	**total**
CarbonControl Hardware			
Thermostats (1 per RTU)	$900	14	$12,600
Remote Temp Sensor (if TSTAT is far from actual zone)	$98	0	$0
CarbonGateway (1 per project unless very large campus with separate networks at different buildings)	$1,800	1	$1,800
Cell Modem (if we can't use customer internet)	$460	1	$460
WiFi Access Points - 1 minimum per gateway (additional access points needed if TSTATs are far away from each other ie more than 100ft or in separate rooms)	$318	2	$636
Firewall (if needed)	$258	0	$0
Router w POE (if needed)	$318	1	$318
Total HW:			**$15,814**
Installation	**$/each**	**unit**	**total**
Thermostats	$250	0	$0
Gateway Installation	$500	0	$0
WiFi Access Point installation	$150	0	$0
Total Install:			**$0**
Total CAPEX:			**$15,814**

Installation	$/each	unit	total
Thermostats	$250	0	$0
Gateway Installation	$500	0	$0
WiFi Access Point installation	$150	0	$0
Total Install:			**$0**
Total CAPEX:			**$15,814**
Annual SaaS Fees			
Per Thermostats	$200	14	$2,800
Per cellular modem (data plan if needed)	$300	0	$0
Total Annual SaaS:			**$2,800**

BAS Integration Option

- BAS Vendor integration options:
  - API (cloud or local gateway)
  - Gateway to Local Controller via ModbusTCP (or other standard protocol)

- What do we need:
  - CarbonControl Optimization Enable per Zone
  - Write access to the following:
    - Zone based schedule control
    - Per zone setpoint control
  - Read access to environment and equipment telemetry data
  - May require code/script modifications to enable continuous optimization


CarbonQuest
We would love to answer any questions you have
info@carbonquest.com
New York City, New York | Spokane Valley, Washington | Washington, DC