



Room Heat Pump Update

Products, Field Test, Energy Savings Modeling

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Outline

- Introduction
- Current Products
- WSU RHP Field Study – *A Sneak Peak*
- Energy Savings Modeling Results



Introduction



Room Air Conditioners

- US Stock 60-80 million units
- Lifespan: 10-12 years
- Sales/year: 4-8 million units

132.5 million total occupied housing units, 88% of which have air conditioning (Source RECS 2024)

1/3rd of these have at an average of about 1.5 RACs (Source EIA 2022)





Room Heat Pump Types

2024 DOE Developed a test procedure for the EPA ENERGY STAR program that defined 4 “Types”

EPA Type	CEE Tier	Estimated Cost	Defrost	Min Temp	Notes
1	n/a	\$400-800	Passive	Above 40°F	Same thing as reverse cycle room AC
2	1	\$600-\$1200	Active*	40°F – 17°F	Not suitable freezing climates
3	2	\$600-\$1200	Active	17°F - 5°F	Moderate heating climate temperature range
4	Adv	\$3,000+	Active	Below 5°F	Cold climate capable - Same tech as DHP

CEE Tier 1 allows Passive Defrost
 Note – CEE Tiers are likely to change in 2028



RHP Product Benefits

- Savings
 - Energy Savings 400-600 kWh/yr - average across many use cases
 - Power Savings 40-50% - when outdoor temperature > 17°F
 - First Cost **Less than 1/3rd the cost of conventional HVAC**
 - Transactional Cost **No need for permit or HVAC contractor**
- Suitable for underserved customers
 - Renters
 - L&M Income qualified
- Customer ownership and portability



MT Potential per 100,000 RHPs

Displacement of heating energy per units sold instead of RACs

- **Energy:** ~40,000 MWh/year (electric heated spaces)
~1,760,000 Therms (gas heated spaces)
- **Power:** ~76 MWp (climate zones 1-4, w/ER aux)

Data	40-60 million RACs currently in US housing 132.5 million total occupied housing units, 88% of which have air conditioning (Source RECS 2024) 1/3rd of these have at an average of about 1.5 RACs (Source EIA 2022)
Energy Savings:	400+ kWh/yr per dwelling – conservative estimate based on energy modeling of CEE Tier 2 RHPs using 3 rd party confirmed lab data, and an in-field utilization of 50%
Peak Power Savings:	Tier 2 units would draw 760W less power than comparative heating from an ER heater at a design temps above 17F. Tier 2 systems were found to have 70% capacity at 17F with a COP of 1.7. Roughly 55% of the population lives in IECC climate zones 1-3, and a 7% in climate zone 4 does not experience temperatures below 17F. 62% x 40 million = 24 million x 760W = 18 GWp Advanced Tier unit peak savings higher, and able to work in climate zone 4-6



Product Identification

CEE ROOM HEAT PUMPS

CEE Room Heat Pump Specification						
Tier	CEER	HEER	COP at 17°F	COP at 5°F	Defrost*	Capacity Ratio
CEE Tier 1	≥ 13.2	≥ 5.8	N/A	N/A	Passive	N/A
CEE Tier 2	≥ 14.4	≥ 7.0	≥ 1.75	N/A	Active	≥ 70% at 17°F/47°F
CEE Advanced Tier	≥ 15.1	≥ 8.5	N/A	≥ 1.75	Active	≥ 70% at 5°F/47°F

* Passive defrost: The removal of frost and ice on the outdoor coil when outdoor temperature is above 32°F by cycling the compressor off and continuing to run the outdoor fan.

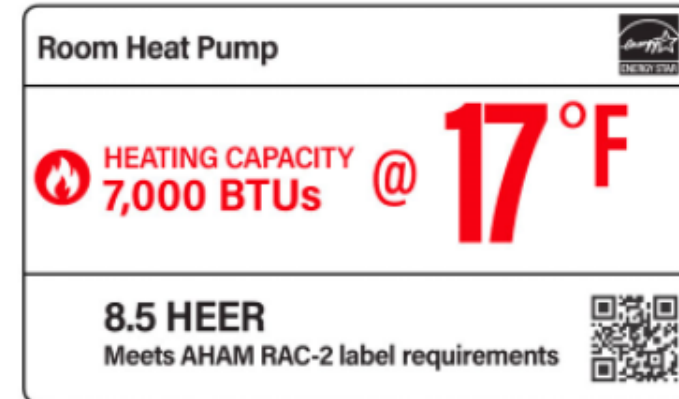
* Active defrost: The removal of frost and ice on the outdoor coil by actively heating the outdoor coil, e.g., by operating the unit in cooling mode. Running the outdoor fan without additional outdoor coil heat input is not active defrost.



26 ENERGY STAR
Most Efficient
Products Listed today



AHAM RHP Label





Product Challenges

- Dealers/Retailers, apartment owners and end users **don't know* much about RHPs**
- Currently, very limited retail availability
- Product lifespan shorter than central HVAC (10-12 years)
- They do not fit in all windows
- Not all landlords will allow customers to use them

*The RHP knowledge gap

- what are they
- why should you buy one
- how do you choose which one to buy
- how do you operate one to get the most savings and comfort



Market Barriers

- Limited Manufacturing and Variety of Products
- **Customer Awareness and Understanding**
- **Retail Availability and Retailer Understanding**
- Standards, Specifications, QPLs

- Incremental cost is always a barrier.

Room Heat Pump Collaborative

Over 40 companies and organizations from across the U.S. have come together to accelerate market adoption of qualifying RHP products through a Room Heat Pump Collaborative.

To join or learn more, contact:
Jaclyn Kahn at jkahn@resource-innovations.com

Leadership Team

CalMTA, Elaine Miller

NEEA, Christopher Dymond

NYSERDA, James Mannarino

CEE, Evelyn Lane





Current & Emerging Products



Product Availability



- CalMTA is maintaining a Product List
 - [Product List - Google Sheets](#)

Brand	Model Number	List Source	Available for Purchase?	Heat Pump Type	Cooling Capacity [Btu/h]	Heating Capacity [Btu/h]	CEER (Room)	HEER	Voltage (120/240)	Weight [lb]	Style	Included on IEEE List?	Energy Star Cooling	Capacity Ratio Percent 17°F to 47°F	COP at 17°F	Capacity Ratio Percent 5°F to 47°F
Friedrich	KHL24A35A	CCMS	Yes		24,000	21,000	10.2		240	211	Traditional Window	No	Unknown			
Friedrich	WHT12A33A	CCMS	Yes		11,100	8,900	9.3		240	115	Through the wall	No	No			
Frigidaire	FHW082WA1	CCMS	Yes		8,000	3,500	9.8		120	80	Traditional Window	No	Unknown			
Frigidaire	FHW112WA1	CCMS	Yes		11,000	3,500	9.8		120	90	Traditional Window	No	Unknown			
GE	AWGP08W	CCMS	Yes	4	8,000	8,400	13.2	7.8	120	54	Traditional Window	No	Yes	58	2	58
GE	AWGP12W	CCMS	Yes		11,000	11,100	13.2		120	59	Traditional Window	No	Yes			
GE	AJHQ8AWH	CCMS	Yes		8,300	6,000	9.8		120	85	Through the wall	No	Unknown			
GE	AJHQ8BACH	CCMS	Yes		8,300	6,000	9.8		120	85	Through the wall	No	Unknown			
GE	AJHQ12DWH	CCMS	Yes		11,500	9,000	9.6		240	94	Through the wall	No	Unknown			
Gradient	CCHP11	CCMS	Yes	4	9,300	9,000	16.8	9.4	120	140	Saddlebag	Yes	Yes	100	2.37	80
Gradient	RRHP01	CCMS	No													
GREE	GJH098W-ADRNL1A	CCMS	Yes	4	9,000	9,900	15.2	7.7	120	110	Traditional Window	No	Yes	100	2	
Honeywell	HAC-8i	ENERGY STAR	No		8,000		14.5				Traditional Window	No				
Kemle	KMT-16GHZIX	CCMS	No										Unknown			
Keystone	KSTAW08NV-HC	CCMS	Yes	1	8,000	7,000	14.5		120	64	Traditional Window	No	Yes	n/a		
Keystone	KSTAW12NV-HC	CCMS	Yes	1	12,000	10,000	13.3		120	66	Traditional Window	No	Yes	n/a		
LUBECK	57H-ID8-B12HRFNBBCL0	ENERGY STAR	No													
Midea	MWCUPIWHP-09HEFN8-BCL1N	CCMS	Yes	4	9,500	9,000	17.6	11	120	129	Saddlebag	Yes	Yes	100	2.5	100
Midea	MWCUPIWHP-09HEFN8-BCL1N	CCMS	Yes	4	9,500	9,000	17.6	11	120	129	Saddlebag	Yes	Yes	100	2.5	100
Midea	MAH09NTAGR	CCMS	Yes	4	9,500	9,000	17.6	11	120	129	Saddlebag	Yes	Yes	100	2.5	100
Midea	MAH09S1AGR	CCMS	Yes	4	9,500	9,000	17.6	11	120	129	Saddlebag	Yes	Yes	100	2.5	100

RHP Type	Listed Systems
1	~20
2	1
3	2
4	7

This list is based on ENERGY STAR List of Room ACs and contains additional product information



Type 1 – Reverse Cycle Room Air Conditioners

Window Mounted



Midea MAW08HV1CWT **Midea** MAW12HV1CWT **Frigidaire** FHWH124WB2 **Friedrich** KHVS10B11A

Saddle Mounted



Soleus WS5-10HW-301 **Soleus** WS5-12HW-301

Dual Hose Portable w/ Drain Pump



Midea Duo MAP14HS1TBL **Cooper Hunter** CH-STLS-14AC **Whynter** ARC-122DHP

Room Size	350	550	550	450	475	550	550	550	400
Price*	\$379	\$479	\$659	\$1,649	\$699	\$789	\$699	\$599	\$559
Cooling BTU/hr	8,000	12,000	12,000	10,200	10,000	12,000	14,000	14,000	12,000
CEER	14.5	13.3	10.9	14	13	13	14.2	8.9	6.9
Heating BTU/hr	7,000	10,000	11,000	8,700	10,000	10,000	12,000	12,000	10,000
Energy Star	Yes	Yes	No	Yes	Yes**	Yes**	Yes**	No	No
Inverter	Yes	Yes	?	Yes	Yes	Yes	Yes	Yes	?
Min Oper Temp	41°F	41°F	40°F	40°F	40°F	40°F	40°F	40°F	45°F
Drain Pump	NA	NA	NA	NA	NA	NA	Yes	Yes	Yes
Loudness (on low)	45 dBA	45 dBA	54 dBA	? dBA	38 dBA	38 dBA	42 dBA	47 dBA	47 dBA
WiFi / App	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No



“Window Shaker” Form Factors

GE



Friedrich
Kuhl



Remote control included

TCL



GREE



Saddle Bag Style RHPs



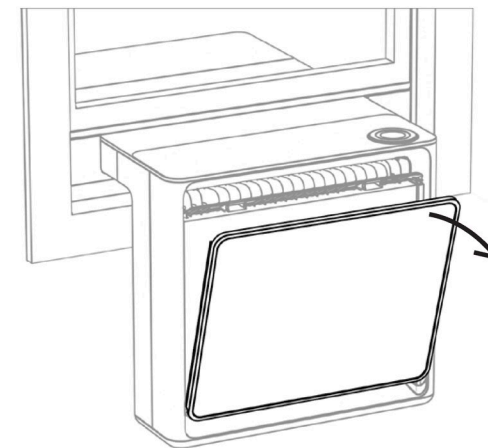
110 - 140 lbs
2 people to install
Mounting brackets
Window sealing



27" - 29" minimum
window width
Vertical sliders only
Needs plug nearby



Onboard atomizer
disperses condensate
automatically
Gradient/Midea



MERV 13 air filter
Available for
Gradient model



Midea

European Model



AC only Model





Friedrich

- Friedrich Kühl introduced heat room heat pumps in 1992.
- Kühl+ and WallMaster Room Air Conditioners heat down to 45 degrees

Type	Cooling Capacity	Heat Pump Capacity
Window/ TTW Installation	9,500 BTUH	6,600 BTU
	10,000 BTUH	8,700 BTU
	12,000 BTU	11,400 BTU
	22,500 BTU	18,000 BTU
	28,000 BTU	21,700 BTU
Through-the-Wall	16,800 BTU	10,900 BTU



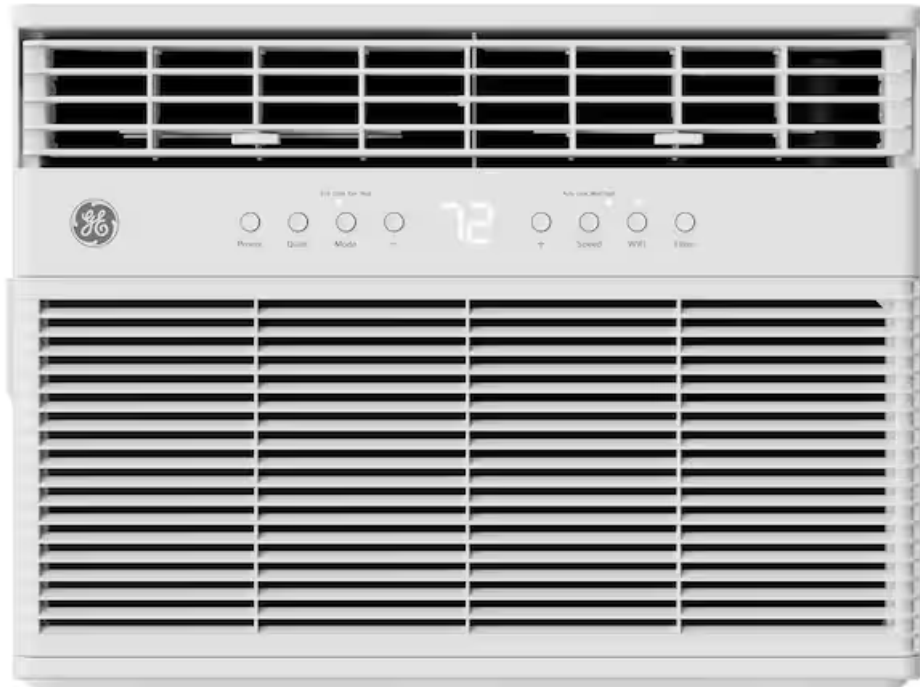
KÜHL⁺





GE

(unit being updated for 2026 Fed minimum standard change)



New



GE

8,000 BTU 115 Volt Window Air Conditioner Cools up to 350 sq. ft. with Heater, Remote in White, WiFi, Heat Pump, Estar

★★★★★ (4) Questions & Answers (1)

2025
Price



Pay **\$479.00** after **\$50 OFF** your total qualifying purchase upon opening a new card. [i](#)

[Apply for a Home Depot Consumer Card](#)

- Cools and heats medium-sized rooms up to 350 sq. ft.
- Advanced Heat Pump technology for faster warmth
- Control your AC from anywhere with the SmartHQ app
- [View More Details](#)

Out of Stock

Receive an email when this item is back in stock.



BootBox

Rendering of unit for sash window



Developing units for both sash windows and slider windows

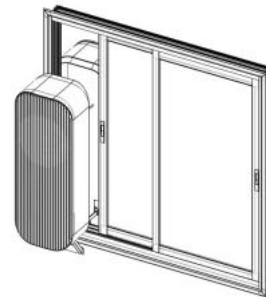


AirForm

SLIDER WINDOW UNIT



3x3' window



5x5' window

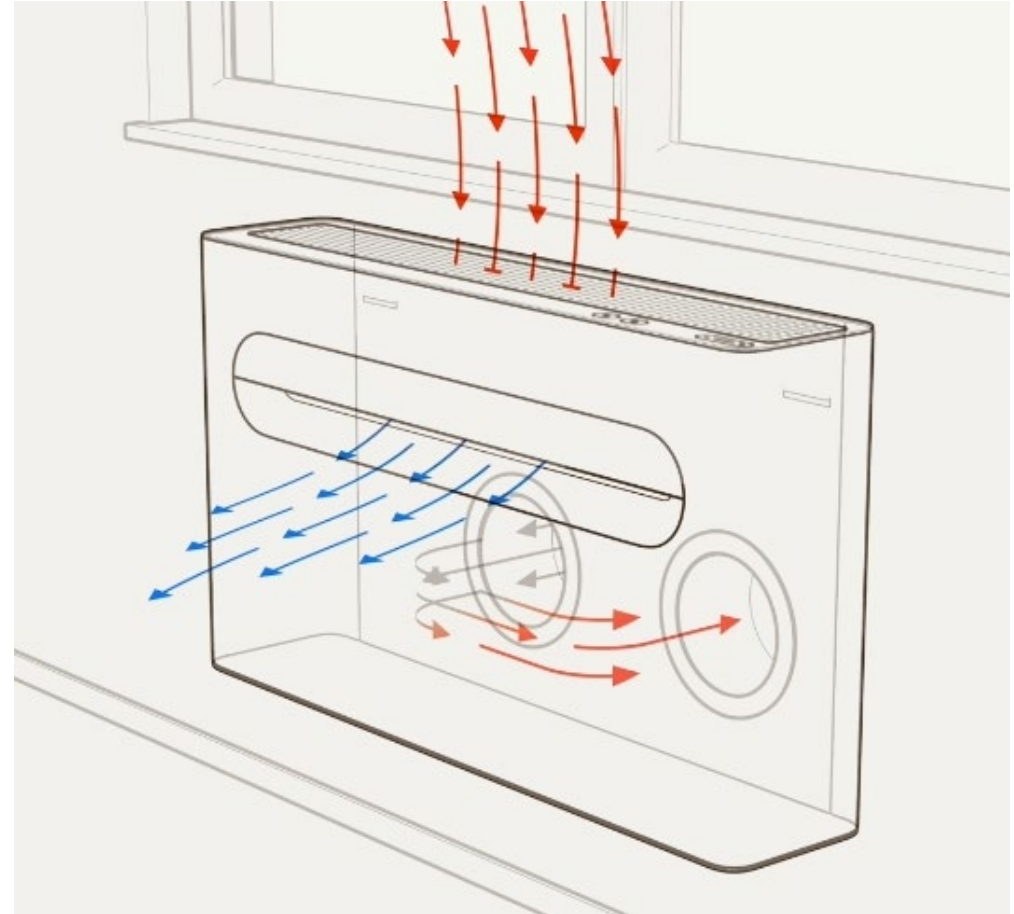


For more information email: sales@formresearch.org



Merino Energy

Monoblock Design
(not window unit placement)



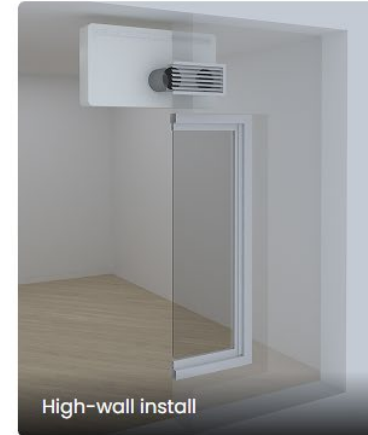


Ephoca

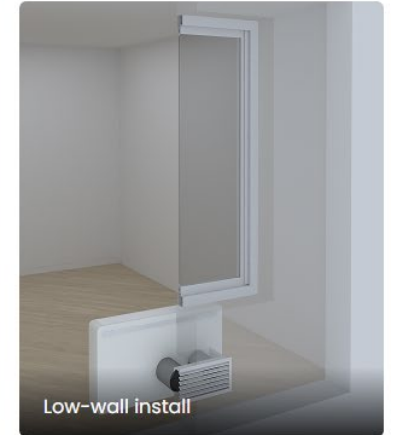
(Changing Name to Innova)



Monoblock Design
(not window unit placement)



High-wall install



Low-wall install



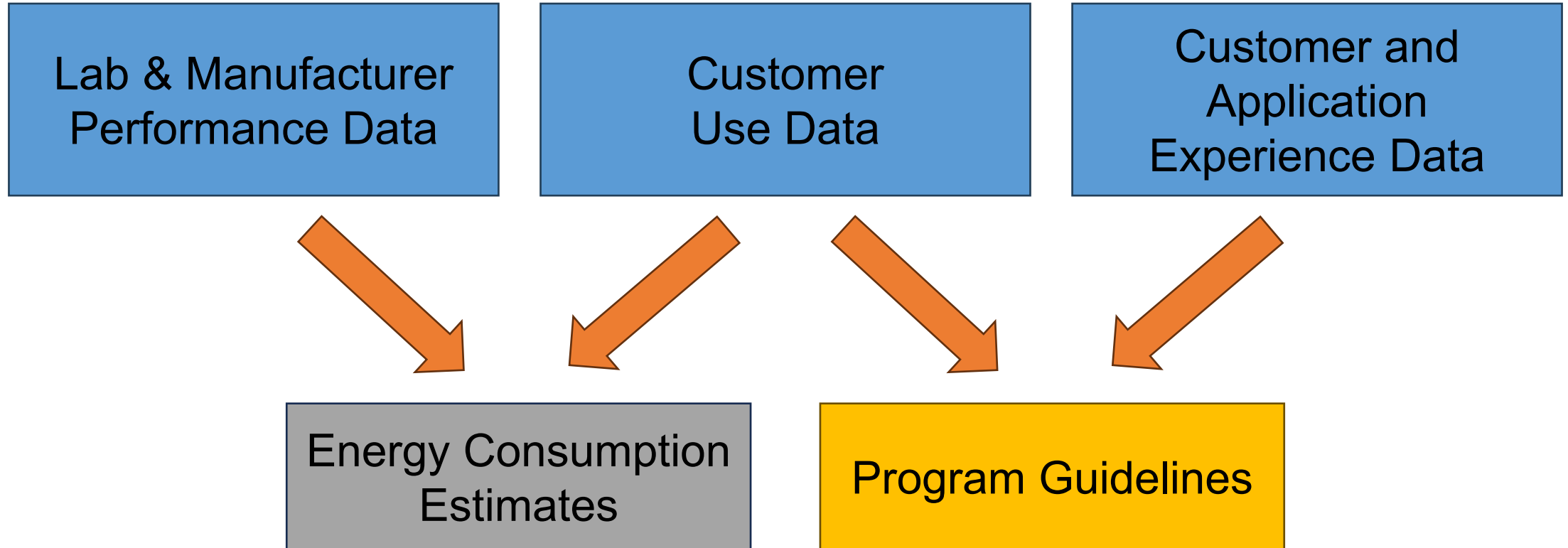
Sidewall install



Field Testing



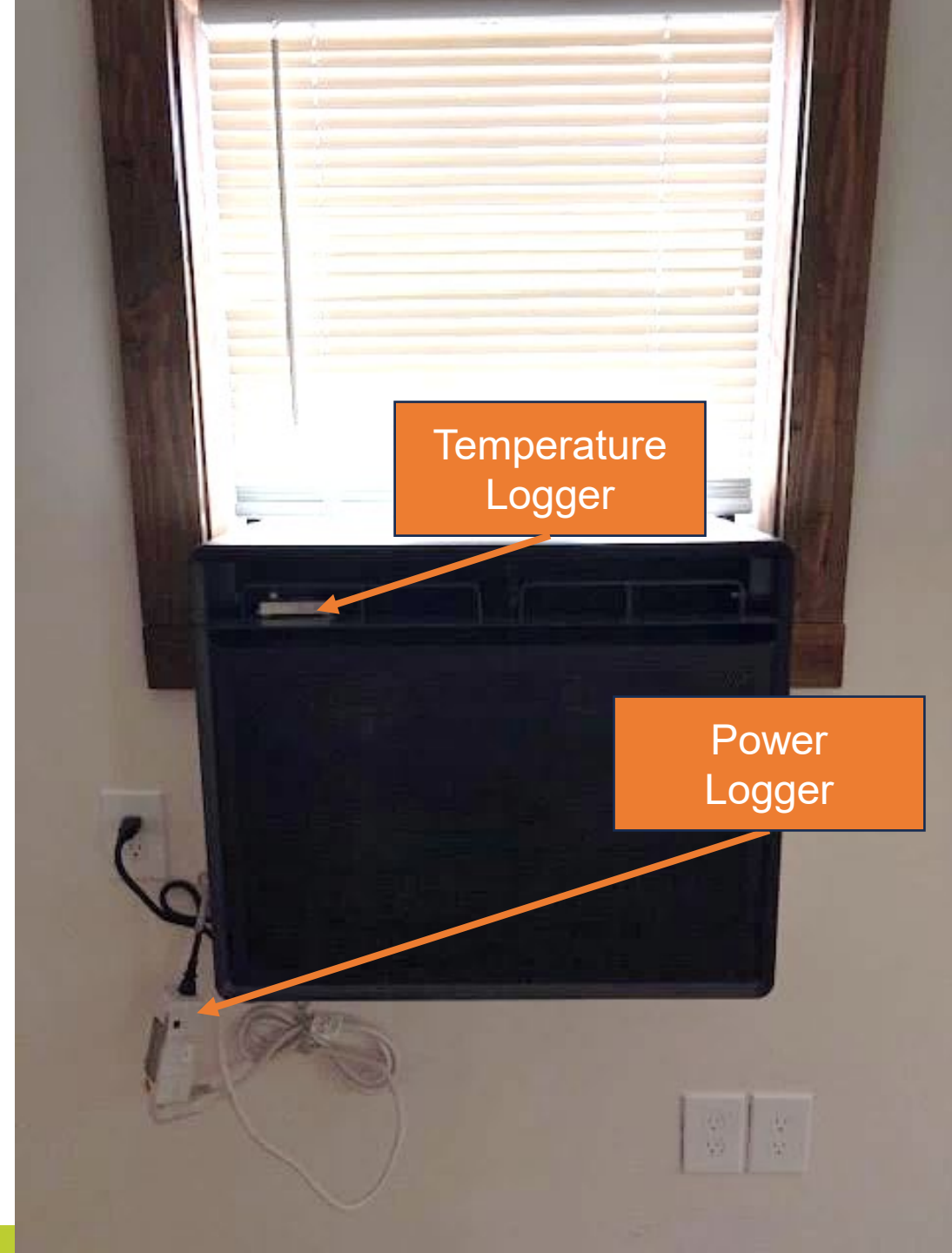
Why Field Test?





WSU Room Heat Pump Field Study

- 26 CEE Advanced Tier RHPs
 - 13 Gradient
 - 13 Midea
- Research Questions
 - What is customer experience with installation and operation?
 - How are they used?
 - What do customers and utilities need to know?



Some Observations

Need Space for Meltwater



It's a 2 Person Installation

Siding Challenges





Customer Behavior

- 25 out of 26 were able to DIY install, all used 2-people (one person requested additional installation help)
- No operation onstruction resulted in a variety of use patterns
- Roughly half of the users, operated the systems as primary heating



Temperature Loggers Provide A Lot of Information

2022 Field Test of Type 1 Portable RHP



PART NUMBER - MX100

HOBO Temperature Data Logger

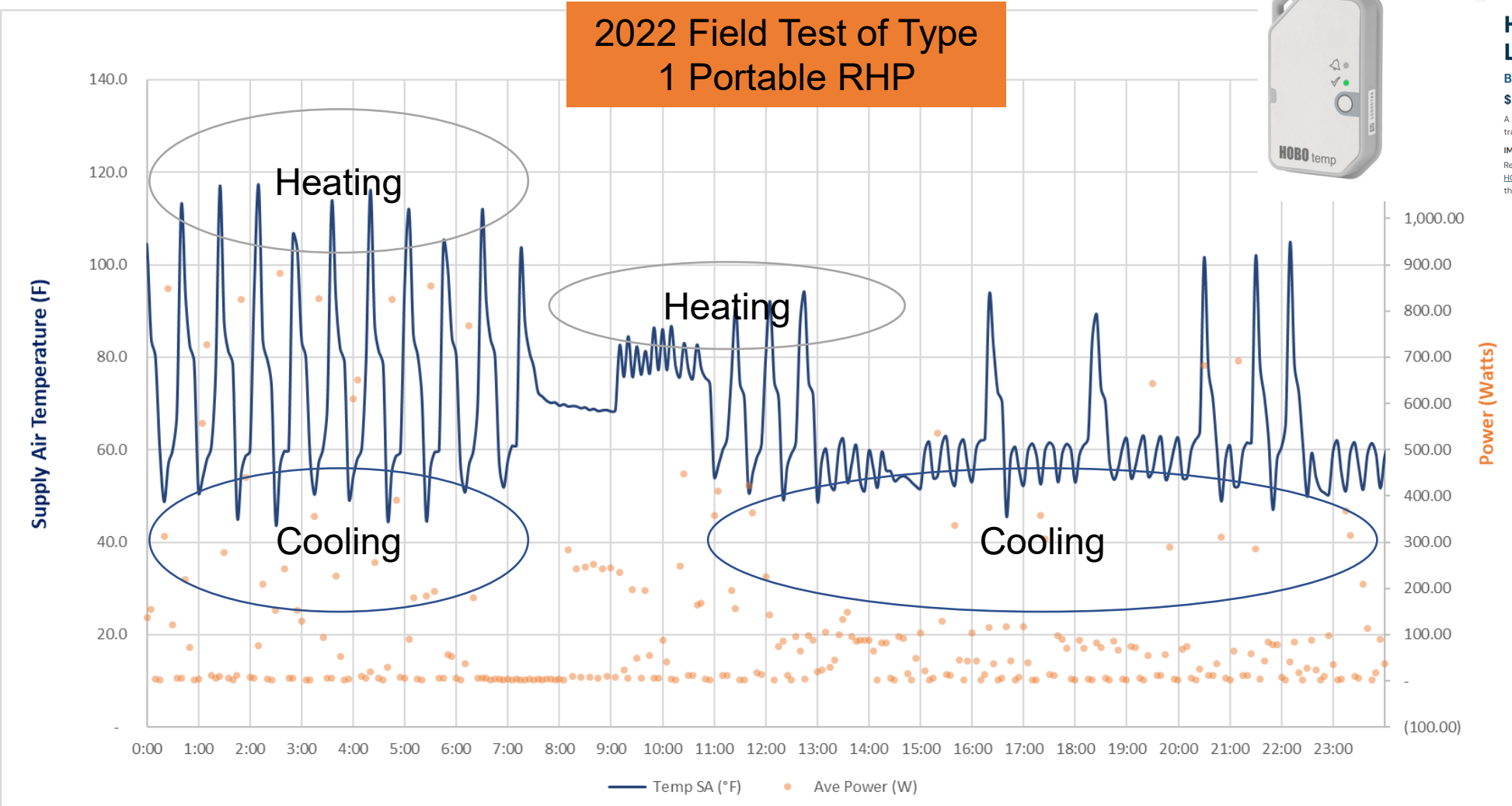
Bluetooth-enabled logger

\$59.00

A low-cost, splash-proof, Bluetooth-enabled data logger that measures and transmits temperature data wirelessly to mobile devices or Windows computers.

IMPORTANT INFORMATION

Requires a compatible mobile device or Windows computer running the [HOBOnnect](#) app. System requirements for the app can be found at the bottom of the [HOBOnnect software page](#).

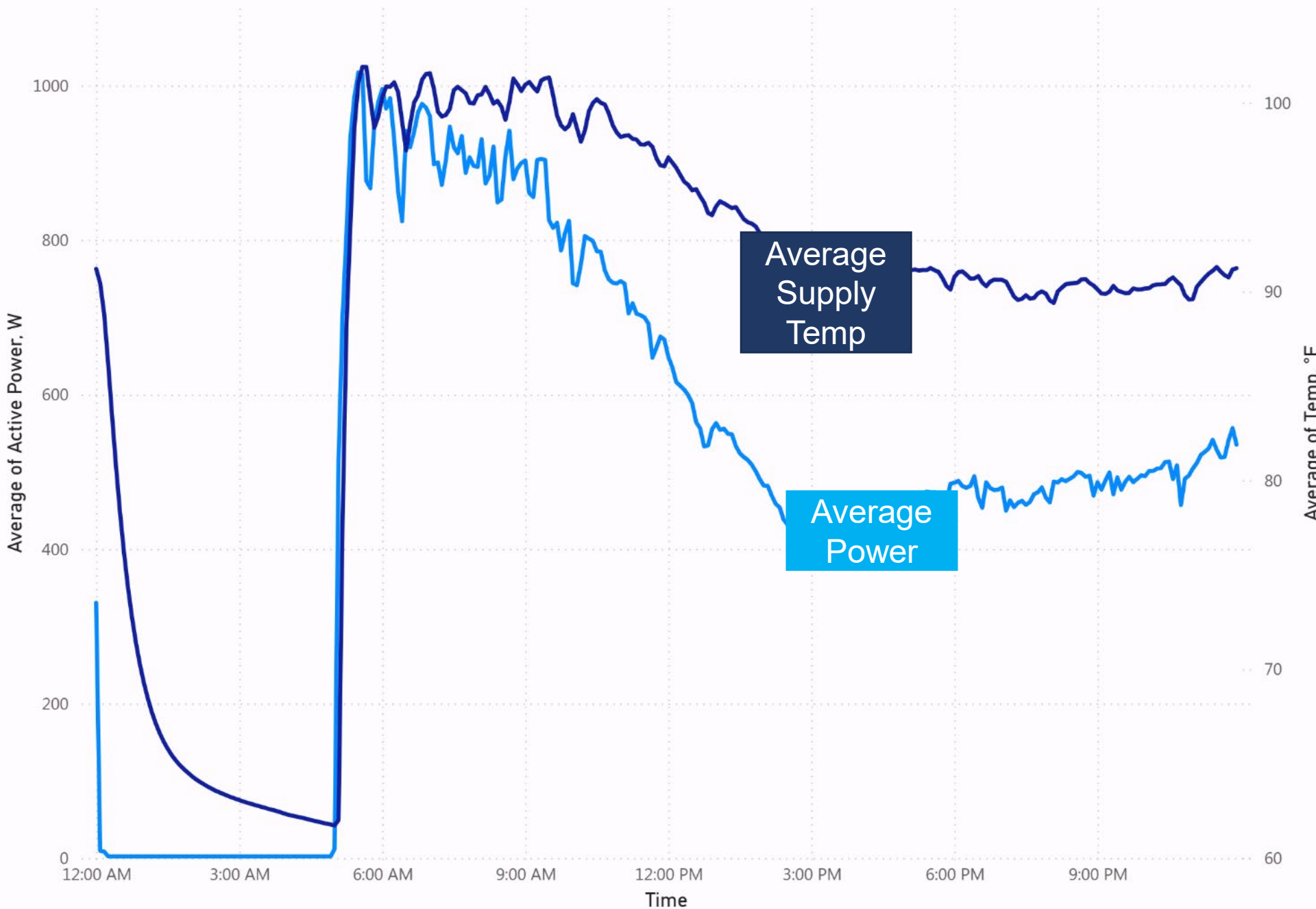


2022
Key Learning

**AVOID USING
AUTO MODE**
(it may result in cycling
or competing system
operation)

Average of Active Power, W and Average of Temp, °F by Time

Average of Active Power, W and Average of Temp, °F by Time
● Average of Active Power, W ● Average of Temp, °F



Site 11L
Seattle, WA
Midea
All of February Average
Usage Mode: Normal
Operation with night
setback
User Archetype:
Nighttime OFF

Average of Active Power, W and Average of Temp, °F by Time

● Average of Active Power, W ● Average of Temp, °F



Unit Power

Temp Sensor
(located wrong)

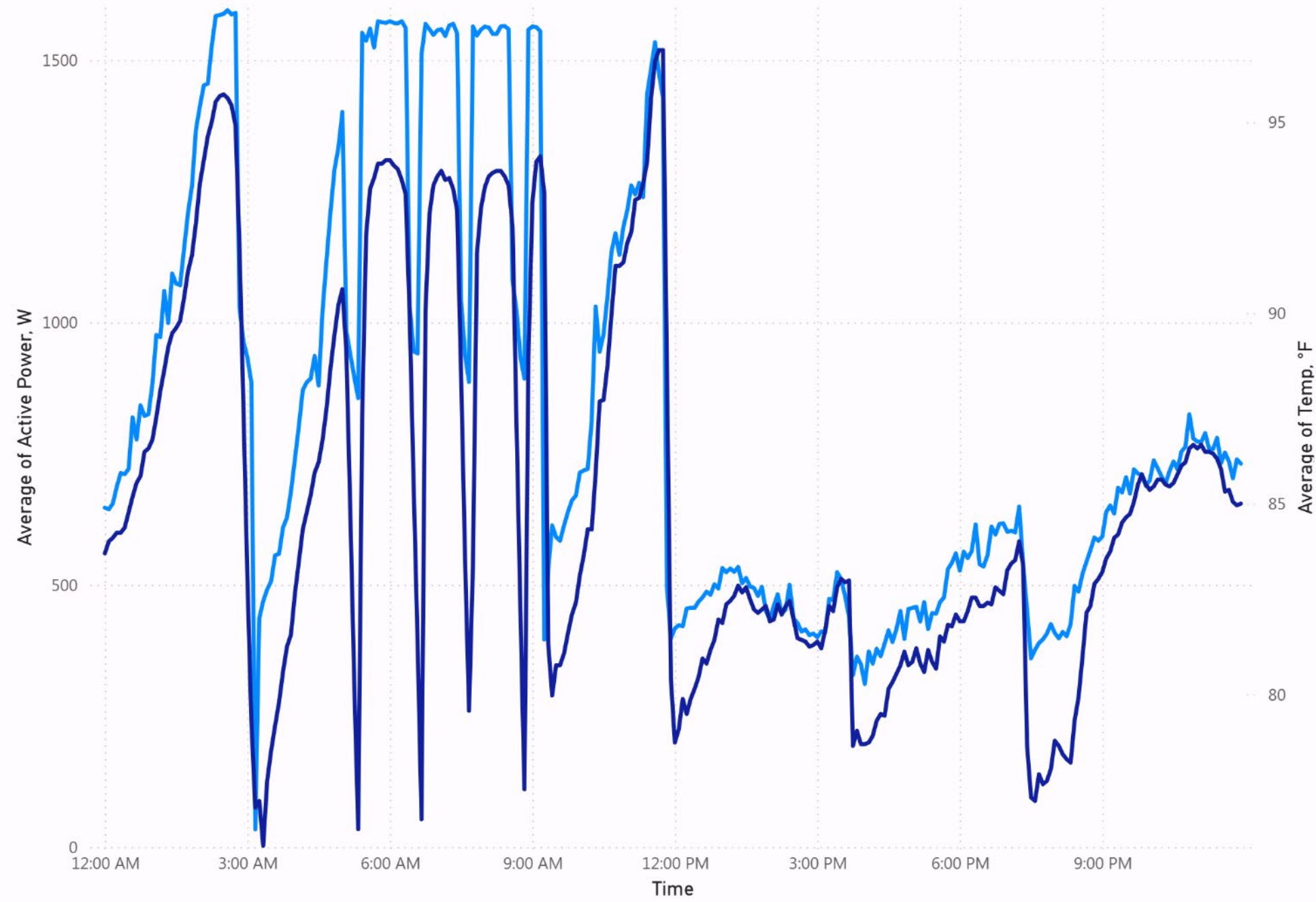
Site 10B
Corvallis, OR
January 25, 2026

Usage Mode: Whole Home, Mild PM setback

User Archetype
Continuous Operation

Average of Active Power, W and Average of Temp, °F by Time

● Average of Active Power, W ● Average of Temp, °F

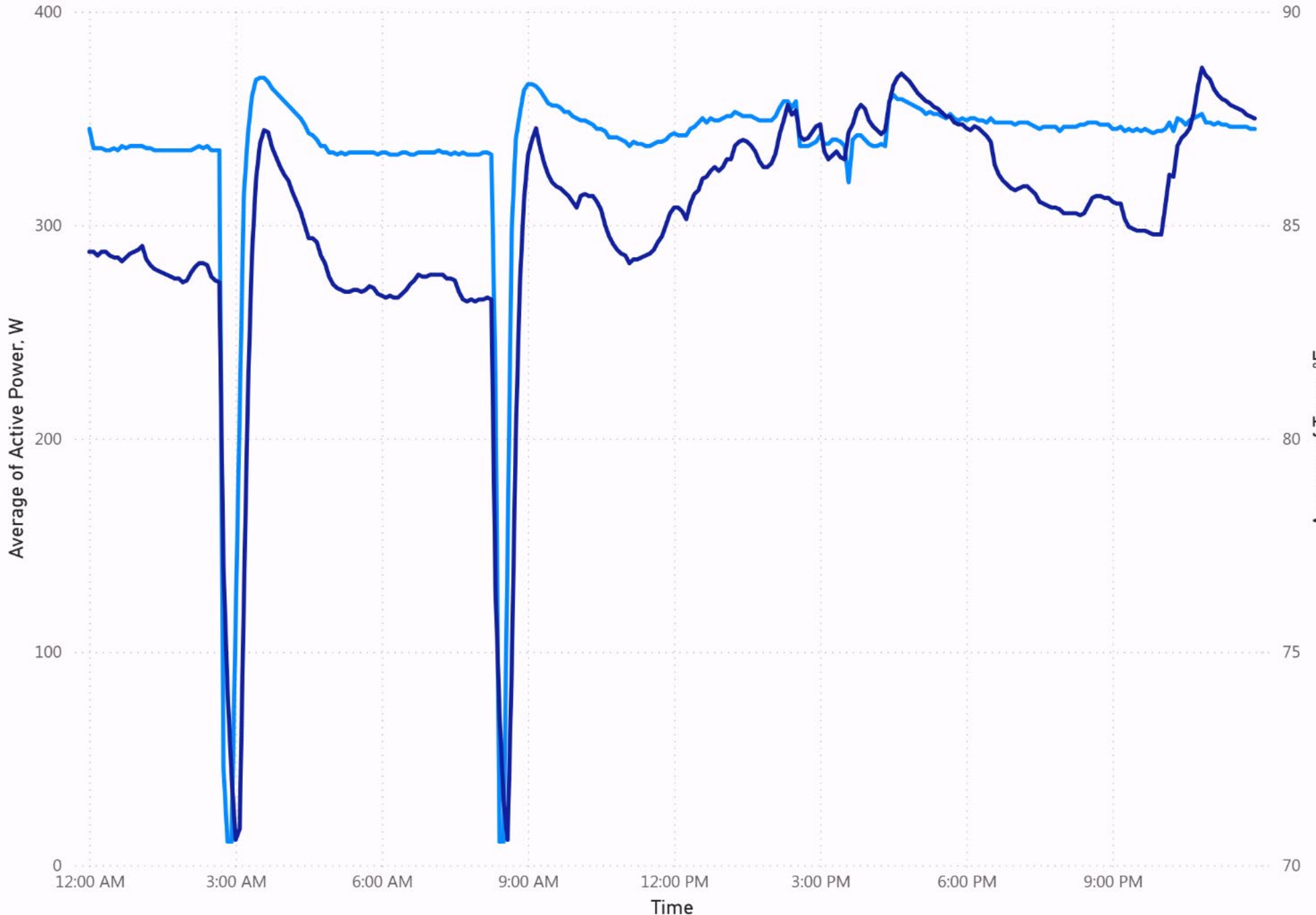


Site 10 M
Gradient
Seattle, WA
Jan 25, 2026

Maximum draw in the morning, several defrost periods, mode shift in afternoon

User Archetype:
Always ON
+
Competing System

● Average of Active Power, W ● Average of Temp, °F



Site 11J
Seattle, WA
Midea
February 14, 2026

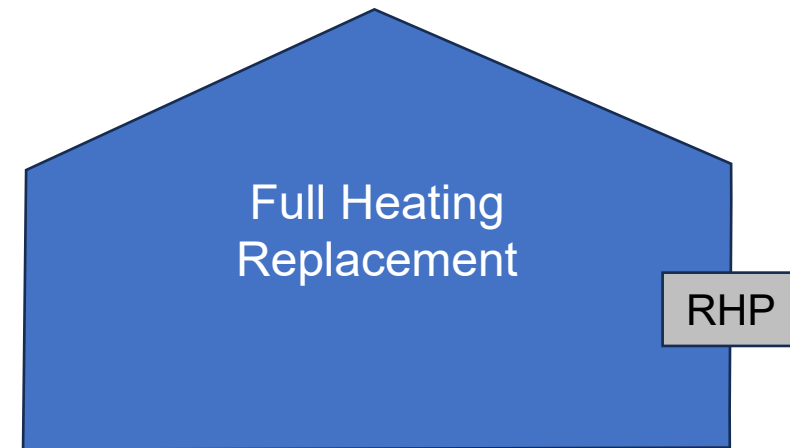
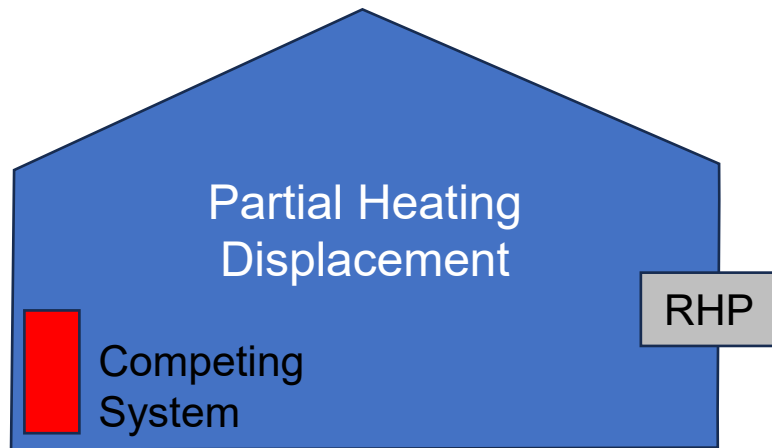
Usage Mode: All Day

Note the relatively low consumption (Sub 400W) on a unit that can draw up to 1500W

User Archetype:
**“Silent/Eco”
Mode**



Displacement ---- vs ---- Replacement



- Existing system competes with RHP
- RHP does **not** need to be sized to meet design load
- Savings are highly affected by thermostat settings of both systems
 - Set RHP heating temp at least 3°F warmer than incumbent heat
 - Avoid using Auto mode

- RHP does all heating and cooling
- Must have adequate cold weather capacity ---- CEE Advanced Tier
- Maximum energy savings



Energy Modeling



Energy Modeling



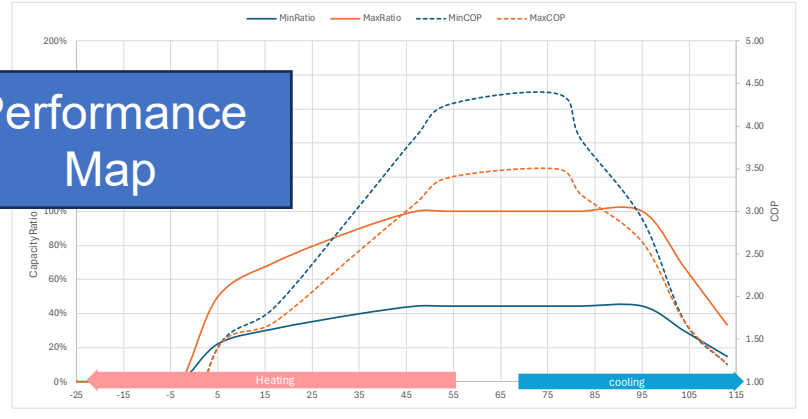
- **California Simulation Engine Energy Model**
 - Better defrost and performance map capability than EnergyPlus
 - Single Zone space
 - 4 RHPs archetypes --- normalized capacity to 9,000 Btuh at 47F and 95F
- **10,800 Parametric Runs**
 - System types: CEE Tier 1, CEE Tier 2, CEE Advanced Tier
Fed minimum Room AC, Fed minimum central AC
 - Number of RHPs: 1, 2, 3, 4
 - Building Types: SF 1-story, SF 2-story, MF interior, MF corner, Manf Home
 - Vintage: 1971-1980, NEW (Current IECC Code)
 - Behavior: Always On, Competing Systems, Intermittent Use
 - Climate Zones: Miami, Houston, Phoenix, Atlanta, Las Vegas, San Francisco,
Baltimore,
Albuquerque, Seattle, Chicago, Denver, Minneapolis, Helena, Duluth,
Fairbanks



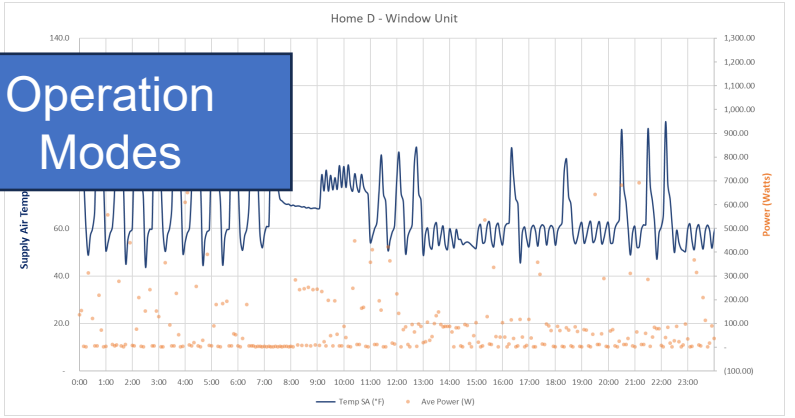
Energy Modeling

Map Set: Archetype 0
 HP Choice: B 2
 CEER:
 HEER:
 CapRatio@17F: 70%
 Cap@47F: 9,000 Btuh

Performance Map



Operation Modes



Building Energy Simulation (CSE)



Energy Use Pivot Table

IECC	Location	Heating System	Building Types	Occupant Behaviors	Fraction of House Served
1A	Miami	CEE Tier1	SF 1-story 1975	Primary Heat source	100%
2A	Houston	CEE Tier2	SF 1-story 1985	Secondary Heat Source	65%
2B	Phoenix	CEE Adv	SF 1-story 2019	Intermittent Heat/Cool	25%
3A	Atlanta	CEE Adv+	SF 2-story 1975		
3B	Las Vegas		SF 2-story 1985		
3C	San Francisco	Zonal ER w/AC	SF 2-story 2019		
4A	Baltimore	EFAF w/AC	MF Lowrise 1985		
4B	Albuquerque	Gas Wall w/AC	MF Lowrise 2019		
4C	Seattle	GasFAF w/AC	DOE SF		
5A	Chicago		MF Midrise 2019		
5B	Denver		MF Highrise 1985		
6A	Minneapolis		MH 1975		
6B	Helena		MH 1985		
7	Duluth		MH NEEM		
8	Fairbanks				

Performance Maps

- 4 Archetypes
- Data from OEMs and 3rd party load-based testing by 

Archetypal Performance maps					High Performance High Capacity														
CEE Tier 1					CEE Tier 2					CEE Adv Tier					HPHC				
Choice A					Choice B					Choice C					Choice D				
MaxCap@47: 9,000 target					MaxCap@47: 9,000 target					MaxCap@47: 9,000 Targets					MaxCap@47: 9,000				
CEER: 13.2					CEER: 14.1					CEER: 15.2					CEER: 10.9				
HEER: 5.8					HEER: 7.6					HEER: 9.0					HEER: 10.9				
RHP Type: 2					RHP Type: 3					RHP Type: 4					RHP Type: 4				
Turndown: 2					Turndown: 2.25					Turndown: 2.5					Turndown: 2.75				
CapRatio@17F: 70%					CapRatio@17F: 70%					CapRatio@5F: 70%					CapRatio@5F: 100%				
Cut In/Out: 30/20 F					Cut In/Out: 15/15 F					Cut In/Out: -10/-15 F					Cut In/Out: -20/-25 F				
Temp (F)	Min Cap	Max Cap	Min COP	Max COP	Temp (F)	Min Cap	Max Cap	Min COP	Max COP	Temp (F)	Min Cap	Max Cap	Min COP	Max COP	Temp (F)	Min Cap	Max Cap	Min COP	Max COP
-25	n/a	n/a	n/a	n/a	-25	n/a	n/a	n/a	n/a	-25	-	-	1.00	1.00	-25	-	-	1.10	1.10
-10	n/a	n/a	n/a	n/a	-10	n/a	n/a	n/a	n/a	-10	1,200	3,000	1.00	1.00	-10	1,818	5,000	1.40	1.40
-3	n/a	n/a	n/a	n/a	-3	n/a	n/a	n/a	n/a	-3	1,880	4,700	1.30	1.30	-3	2,836	7,800	1.65	1.65
5	n/a	n/a	1.00	1.00	5	2,000	4,500	1.40	1.40	5	2,520	6,300	1.70	1.70	5	3,273	9,000	2.05	2.05
17	2,500	5,000	1.50	1.50	17	2,800	6,300	1.87	1.70	17	3,600	9,000	2.31	2.10	17	3,273	9,000	2.64	2.40
34	3,500	7,000	2.35	2.35	34	3,556	8,000	2.99	2.49	34	3,600	9,000	3.60	3.00	34	3,273	9,000	3.84	3.20
47	4,500	9,000	3.40	3.00	47	4,000	9,000	3.88	3.10	47	3,600	9,000	4.38	3.50	47	3,273	9,000	4.75	3.80
54	4,500	9,000	3.60	3.20	54	4,000	9,000	4.25	3.40	54	3,600	9,000	4.75	3.80	54	3,273	9,000	5.00	4.00
77	4,500	9,000	3.60	3.50	77	4,000	9,000	4.38	3.50	77	3,600	9,000	5.00	4.00	77	3,273	9,000	5.00	4.00
82	4,500	9,000	3.40	3.20	82	4,000	9,000	3.84	3.20	82	3,600	9,000	4.80	4.00	82	3,273	9,000	4.80	4.00
95	4,500	9,000	2.40	2.40	95	4,000	9,000	2.90	2.64	95	3,600	9,000	3.30	3.00	95	3,273	9,000	3.63	3.30
104	3,000	6,000	1.70	1.70	104	2,667	6,000	1.70	1.70	104	3,000	7,500	2.00	2.00	104	2,836	7,800	2.40	2.40
113	1,500	3,000	1.10	1.10	113	1,333	3,000	1.20	1.20	113	1,560	3,900	1.50	1.50	113	1,455	4,000	1.50	1.50
COP35int Cap35int COP62low CAP62low					COP35int Cap35int COP62low CAP62low					COP35int Cap35int COP62low CAP62low					COP35int Cap35int COP62low CAP62low				
1.88 4,667 3.60 4,500					2.19 5,215 4.25 4,000					2.64 5,760 5.50 3,600					2.82 5,673 5.00 3,273				



11,000+ Parametric Runs

Building Types

Single Family 1-Story
Single Family 2-Story
Manufactured Home Single-Wide
Multi Family Corner Unit
Multi Family Interior Unit

HVAC System

Central Air Conditioner
Room Air Conditioner
CEE Tier 1
CEE Tier 2
CEE Adv Tier
HPHC (aka Max Tech)

Locations

Miami, FL
Houston, TX
Phoenix, AZ
Atlanta, GA
Las Vegas, NV
San Francisco, CA
Baltimore, MD
Albuquerque, NM
Seattle, WA
Chicago, IL
Denver, CO
Minneapolis, MN
Helena, MT
Duluth, MN
Fairbanks, AK

Number of RHPs

1
2
3
4

Operational Modes

Always On
Intermittent Use
Competing Systems

Vintages

1971-1980
New

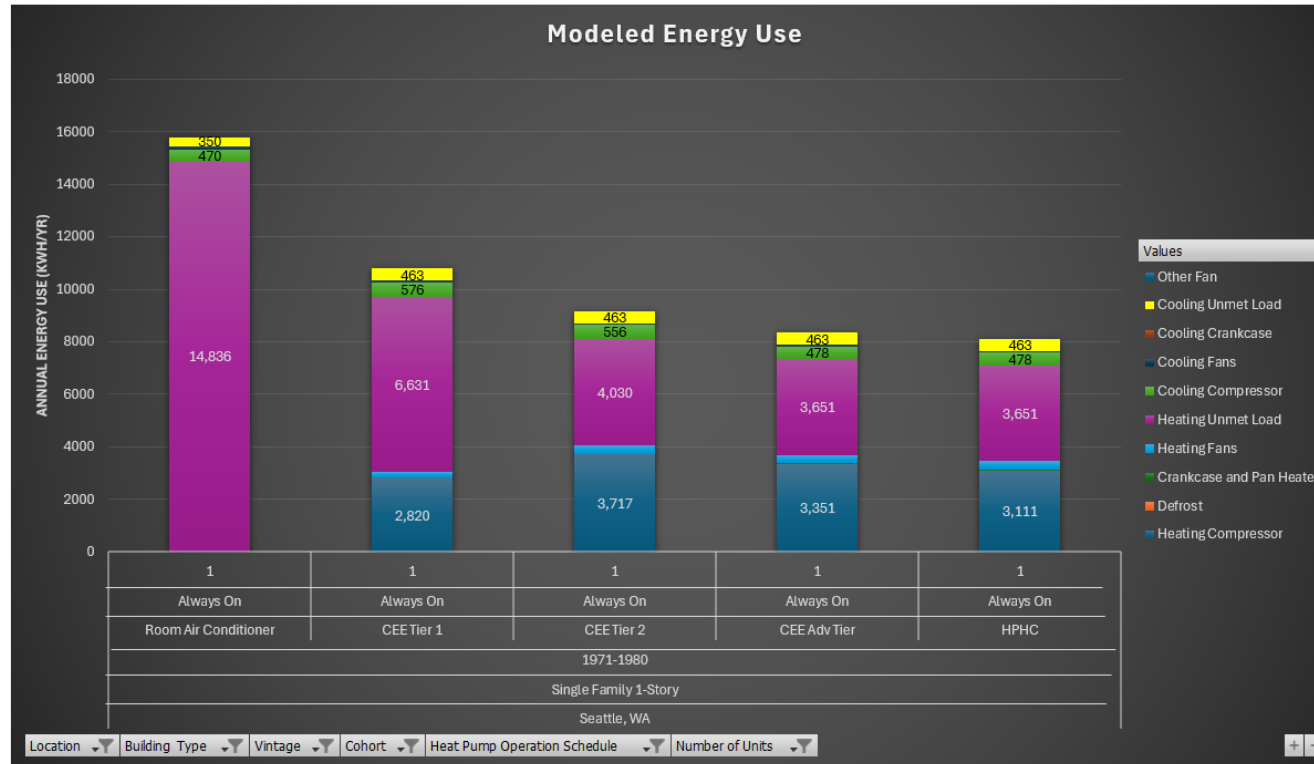


Energy Model Results Spreadsheet

energy use tab

Location	Building Type	Vintage	Cohort	Heat Pump Operation S...	Number of Units
Albuquerque, NM	Manufactured Home Single-Wide	1971-1980	CEE Adv Tier	Always On	1
Atlanta, GA	Multi Family Corner Unit	New	CEE Tier 1	Competing Systems	2
Baltimore, MD	Multi Family Interior Unit		CEE Tier 2	Intermittent Use	3
Chicago, IL	Single Family 1-Story		Central Air Conditioner		4
Denver, CO	Single Family 2-Story		HPHC		
Duluth, MN			Room Air Conditioner		
Fairbanks, AK					
Helena, MT					
Houston, TX					
Las Vegas, NV					
Miami, FL					
Minneapolis, MN					
Phoenix, AZ					
San Francisco, CA					
Seattle, WA					

RHP Units
Control
Cohort
Vintage
Building
Location





Energy Model Results Spreadsheet

net energy savings tab

Net Savings Pivot Table

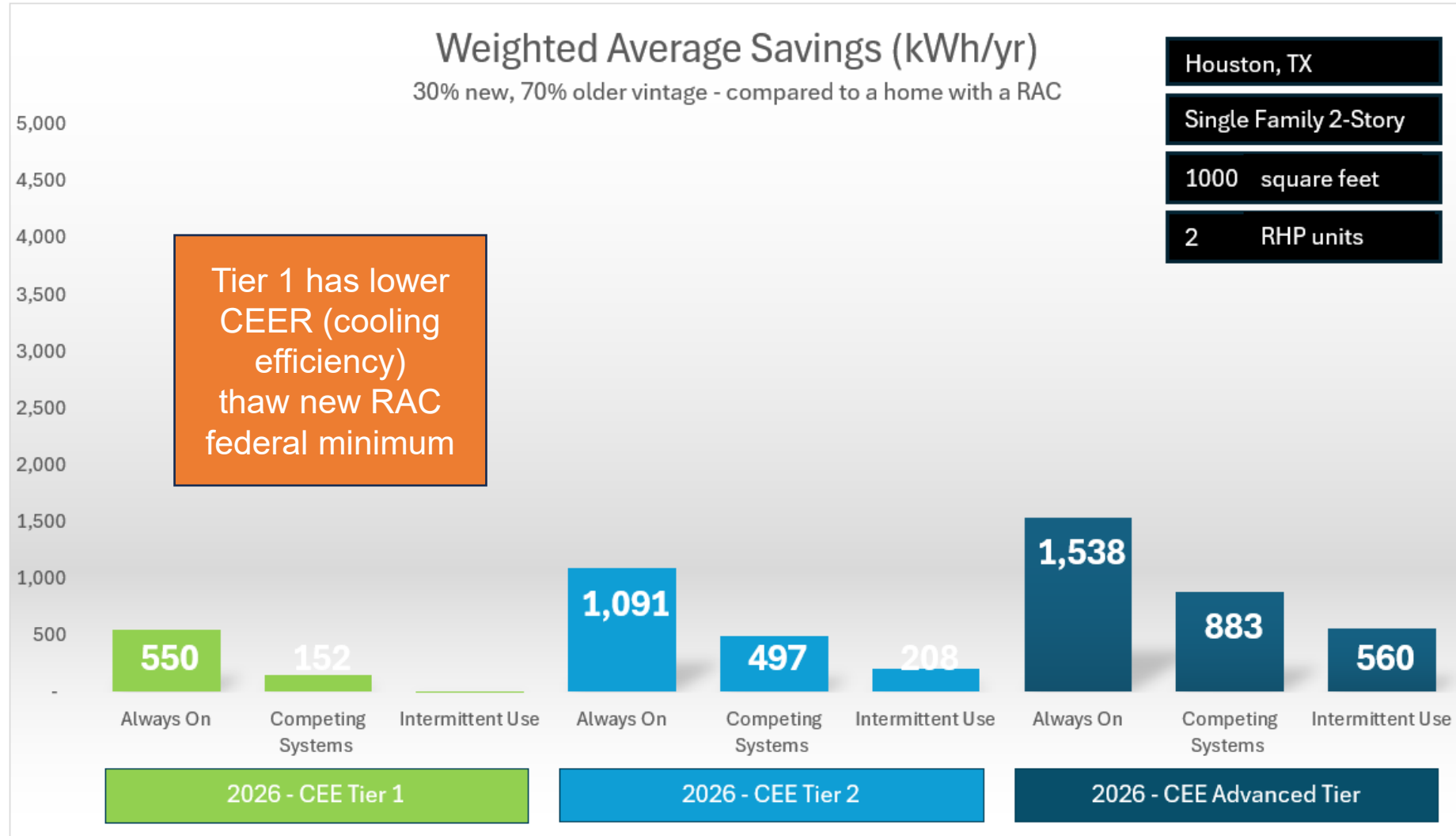
Location	Building Type	Vintage	Cohort	Heat Pump Operat...	Number of Units
Albuquerque, NM	Manufactured Home Single-Wide	1971-1980	CEE Adv Tier	Always On	1
Atlanta, GA	Multi Family Corner Unit	New	CEE Tier 1	Competing Systems	2
Baltimore, MD	Multi Family Interior Unit	(blank)	CEE Tier 2	Intermittent Use	3
Chicago, IL	Single Family 1-Story		Central Air Conditi...	(blank)	4
Denver, CO	Single Family 2-Story		HPHC		(blank)
Duluth, MN	Single Family 2-Story		Room Air Conditioner		
Fairbanks, AK	Multi Family Perimeter Unit				
Helena, MT					
Houston, TX					
Las Vegas, NV					
Miami, FL					
Minneapolis, MN					
Phoenix, AZ					
San Francisco, CA					
Seattle, WA					
(blank)					

of RHPs
Control
RHP Type
Vintage
Building
Location



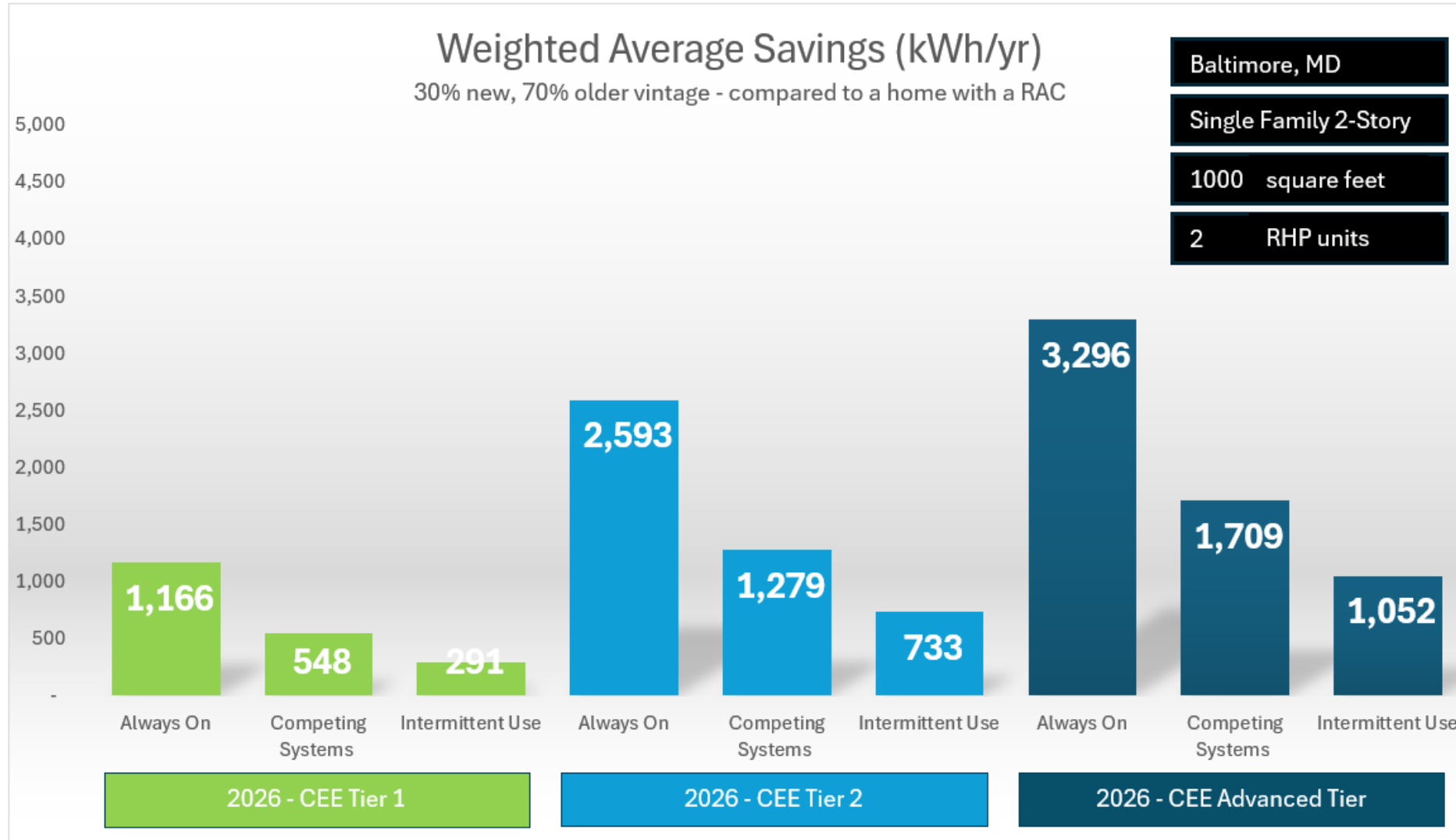


Houston, Single Family 2 Story



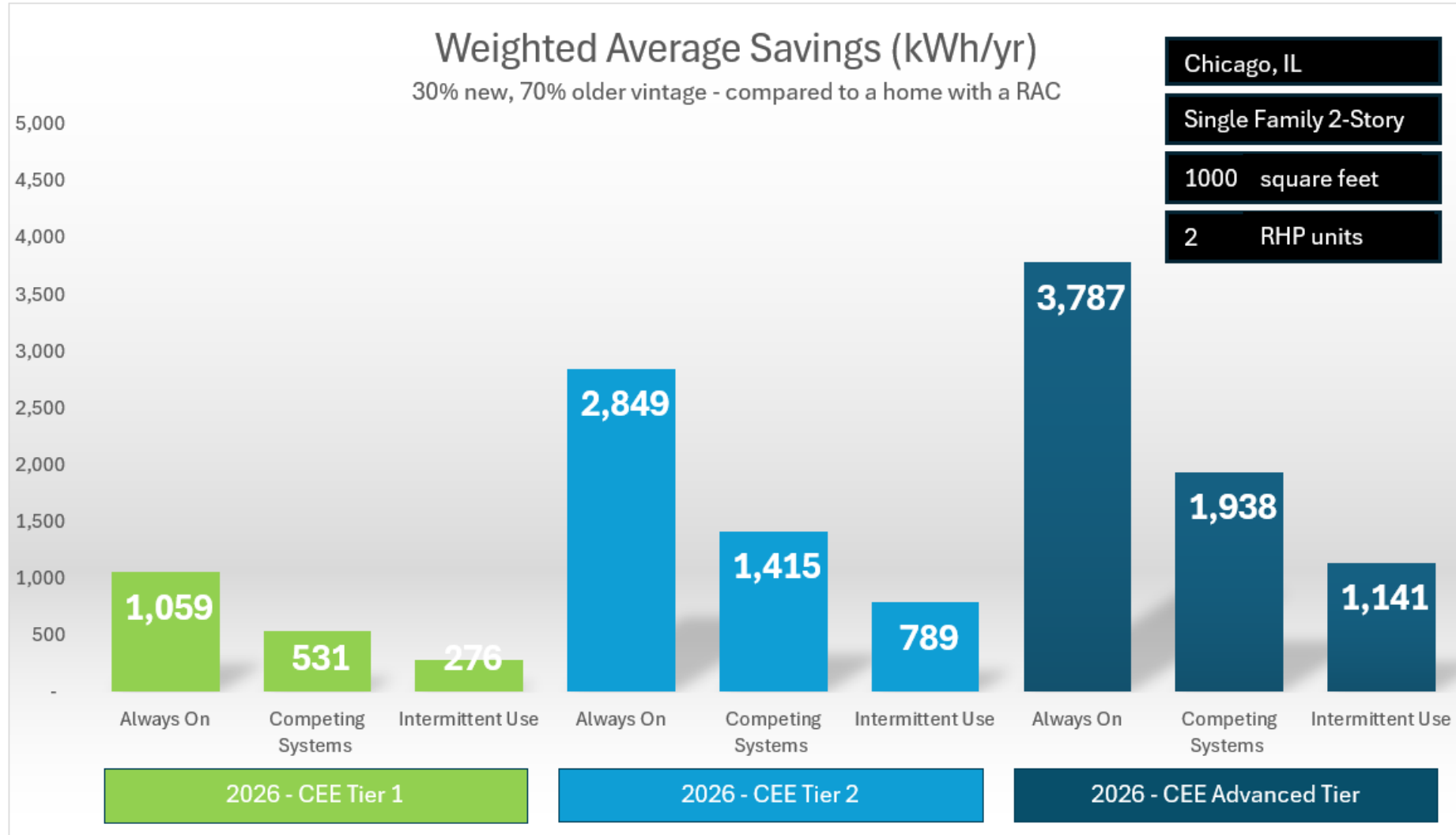


Baltimore, Single Family 2-Story



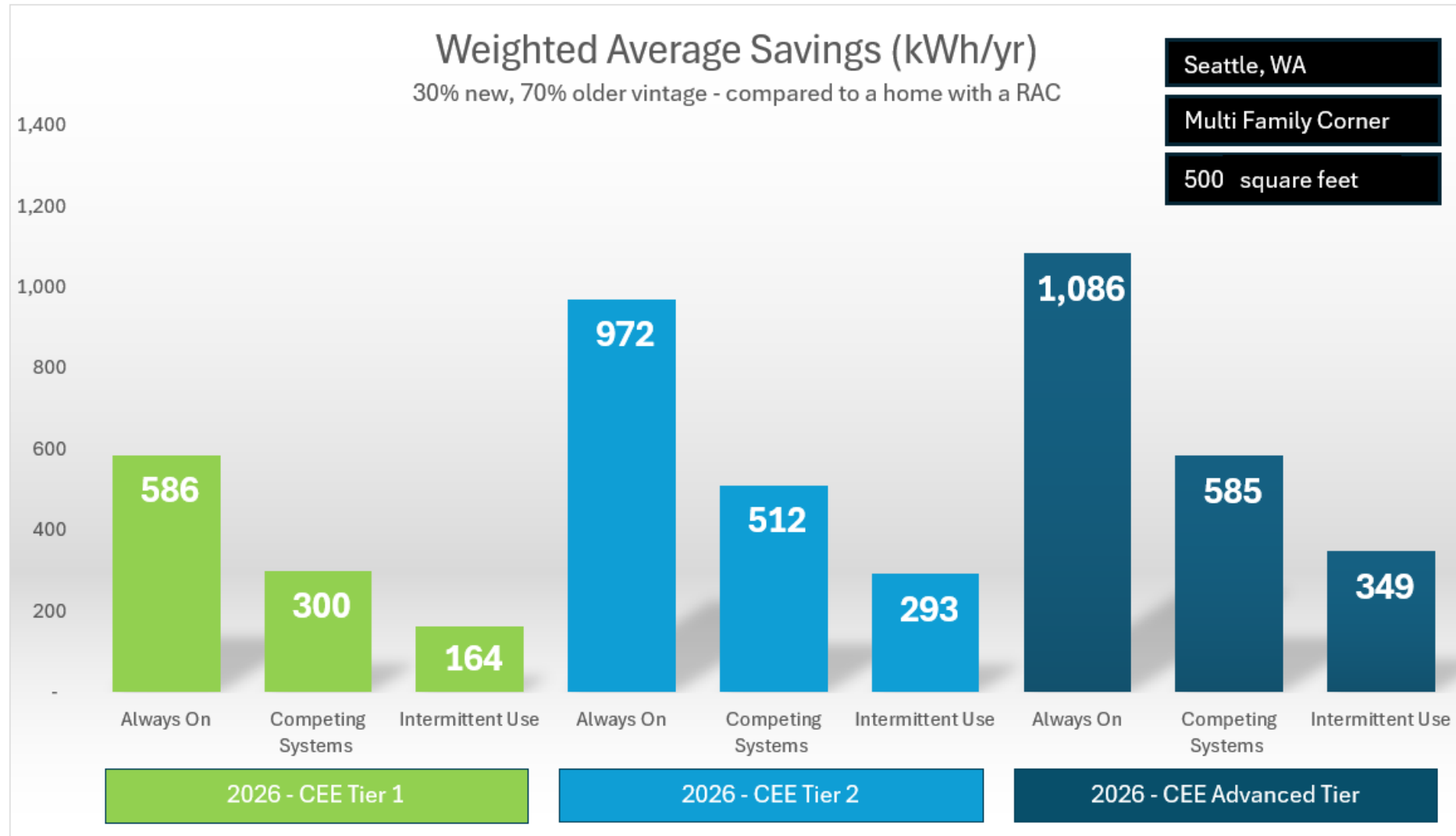


Chicago, Single Family 2-Story



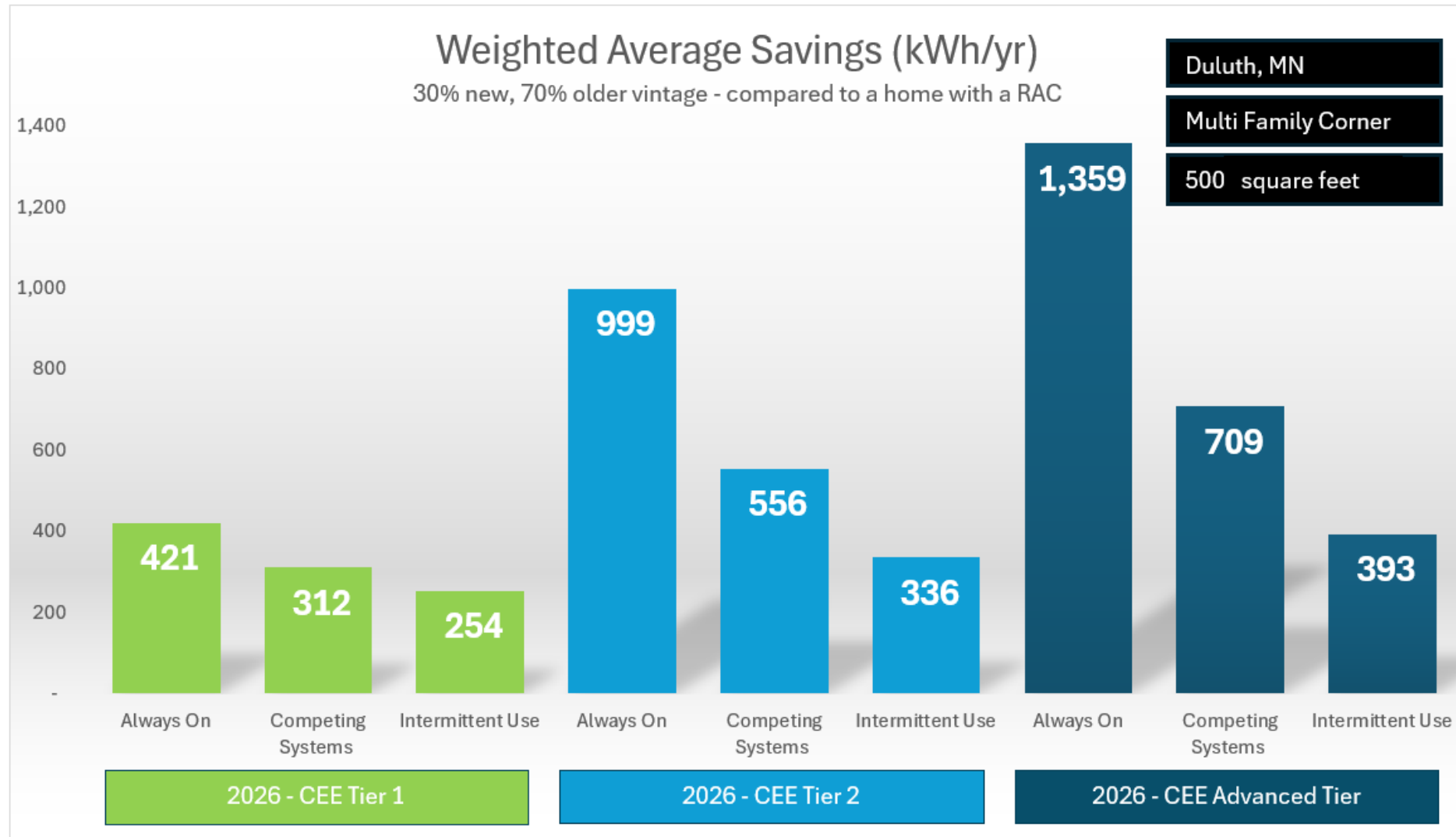


Seattle, Multi-Family Corner Unit





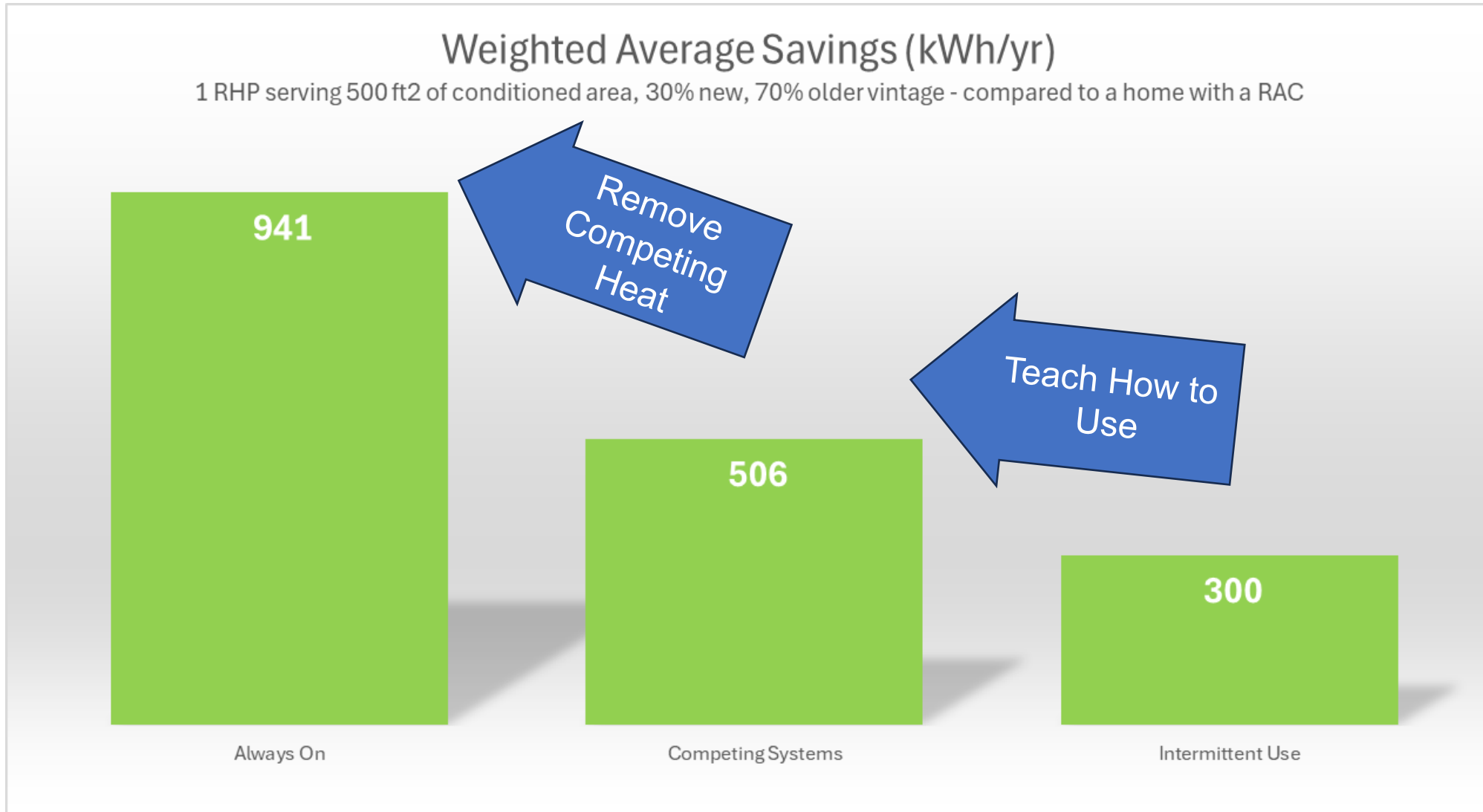
Duluth, Multi-Family Corner Unit





How To Improve Savings

Chicago
Main Living area of 1000 ft²
Corner Apartment Unit
(assumes 500 ft² conditioned)

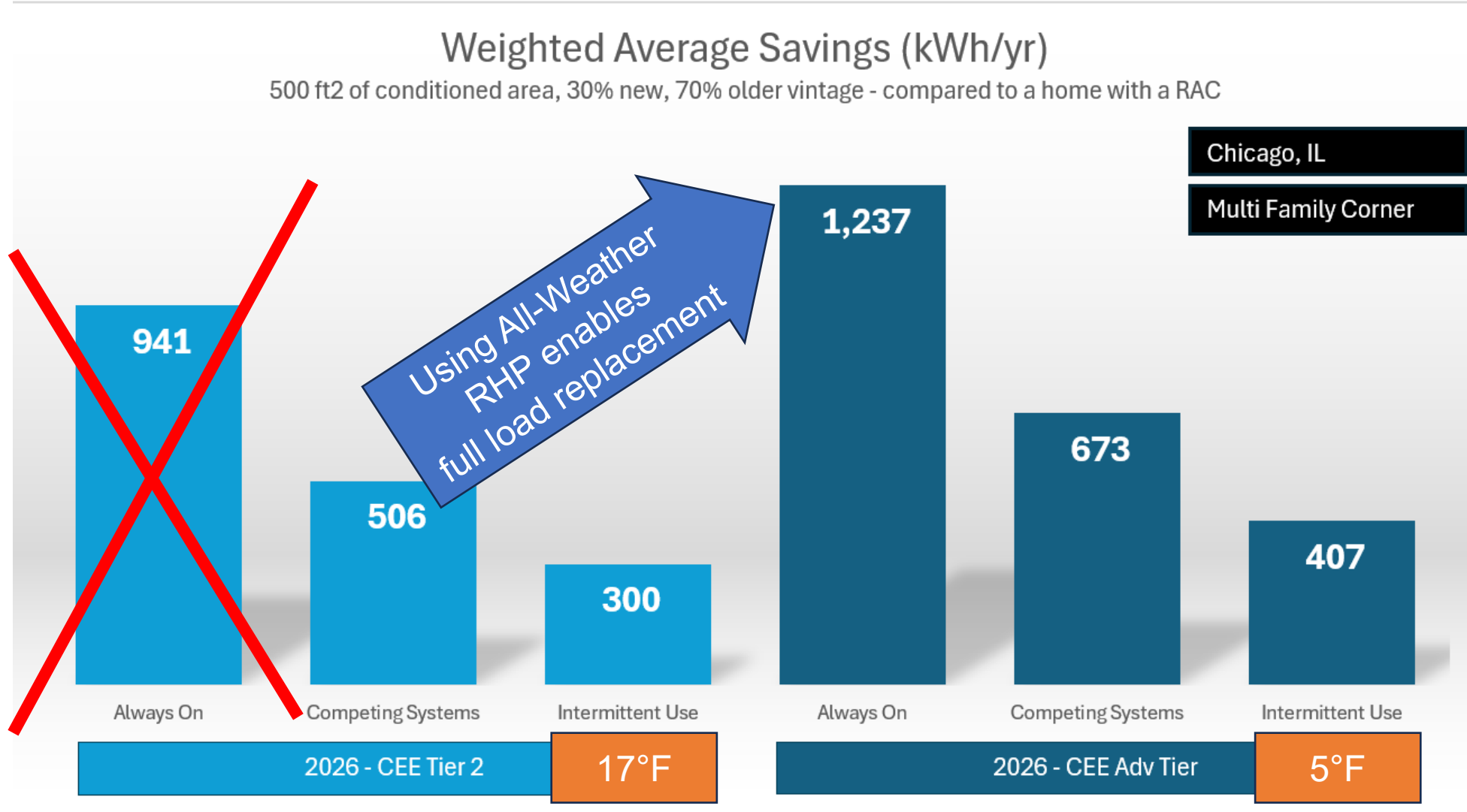




Full Load Replacement

Likely Needs to use CEE Advanced Tier

Chicago
Main Living area of 1000 ft²
Corner Apartment Unit
(assumes 500 ft² conditioned)



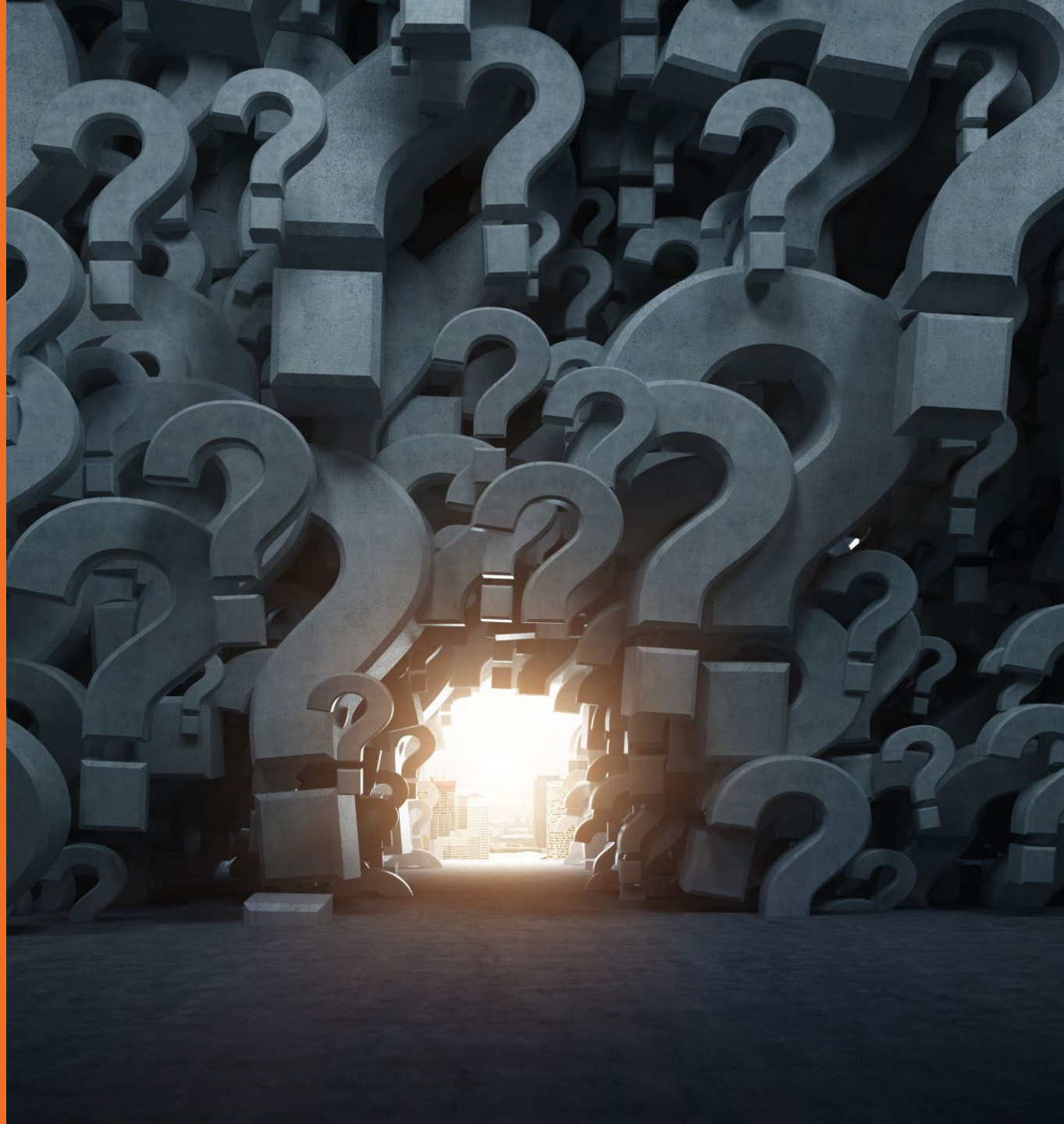


Summary

- RHP have good potential as a utility measure
 - Good savings in electric heated spaces, low cost
- Primary Barriers
 - Limited availability
 - Customer and Vendor unfamiliarity
- Energy Savings are highly dependent on behavior
 - Run time and operational mode
 - Competition with pre-existing heating system



*Questions
and
Discussion*





Specification Questions

- Is Active Defrost Essential?
- How Important is Cooling Efficiency?
- Should “without louvers” systems have a separate tier?
- Is Capacity Ratio Relevant?
- How to differentiate displacement vs. replacement?
- What Educational Collateral is needed?