



# Whole Home Heat Pump Performance - UPDATE

Board Meeting 19 November 2025

# Agenda

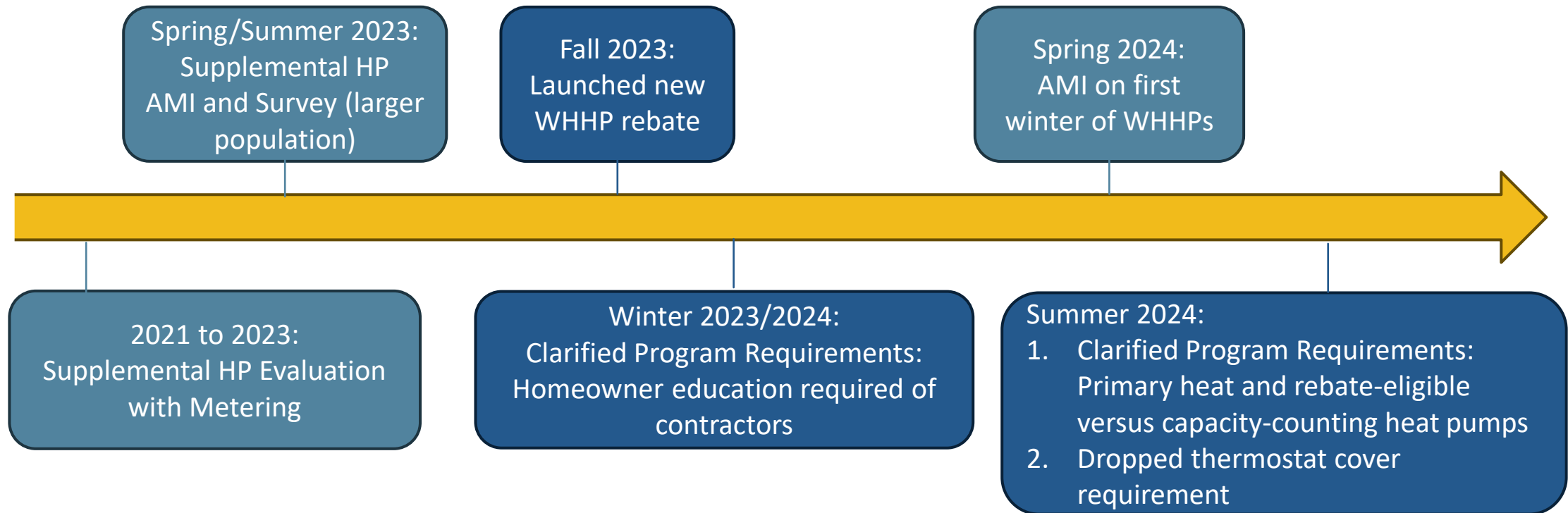
- Timeline of Efficiency Maine's Whole Home Heat Pump Activity
- Lookback at Supplemental Heat Pump Performance
- Whole Home Heat Pump Performance – Updated Analysis
- Continuous Improvement in Efficiency Maine's HP Program Design



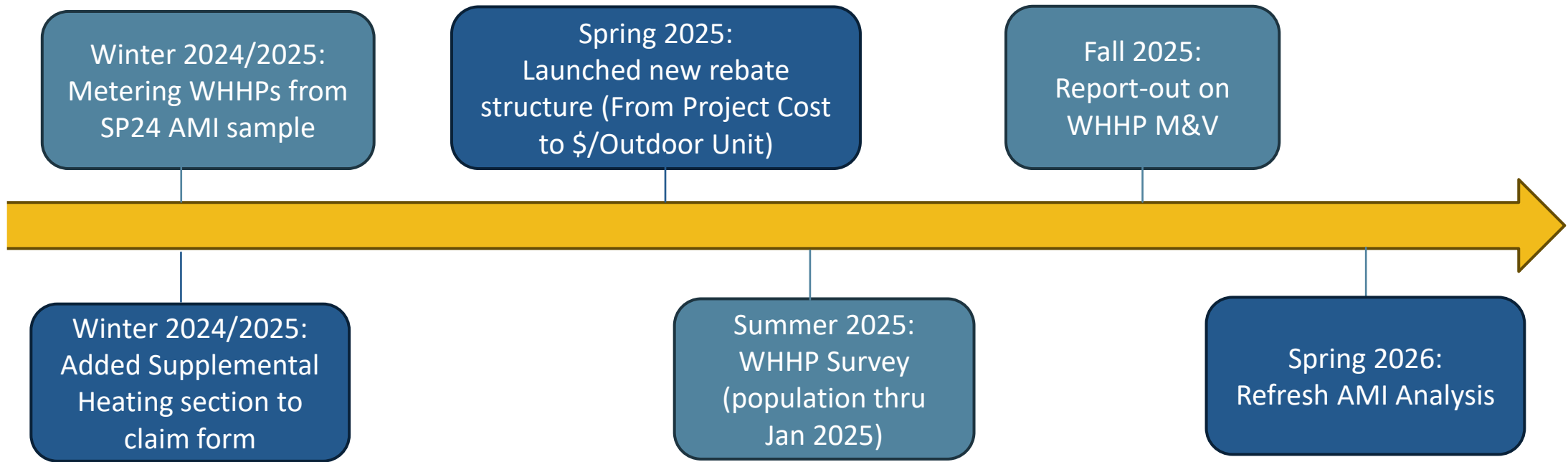
# Timeline of M&V and Program Changes



# Timeline



## Timeline, cont.



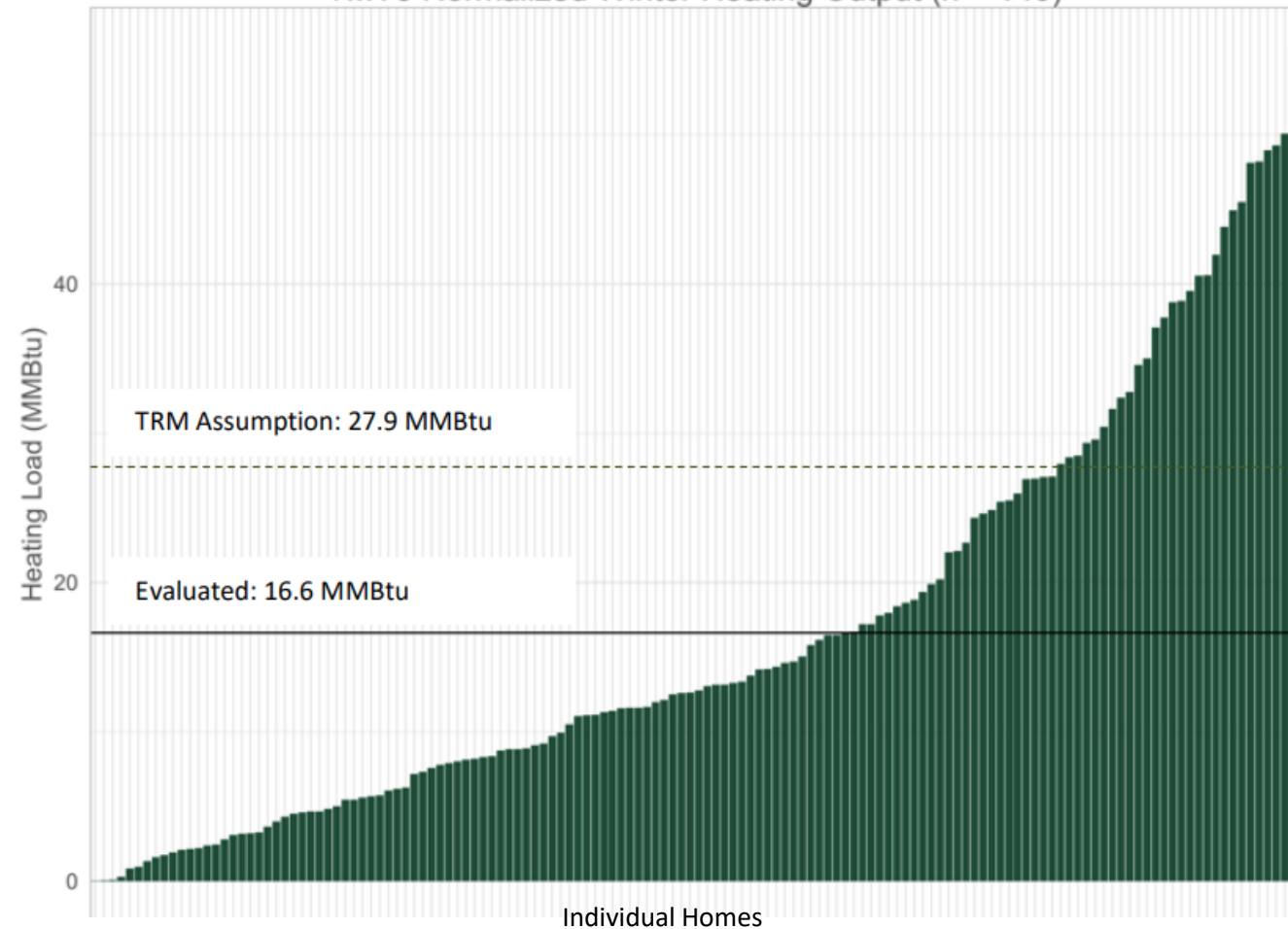


# Supplemental HP Evaluation

# Evaluated Heat Output of Old Program: Supplemental Heat Pumps installed pre 2021

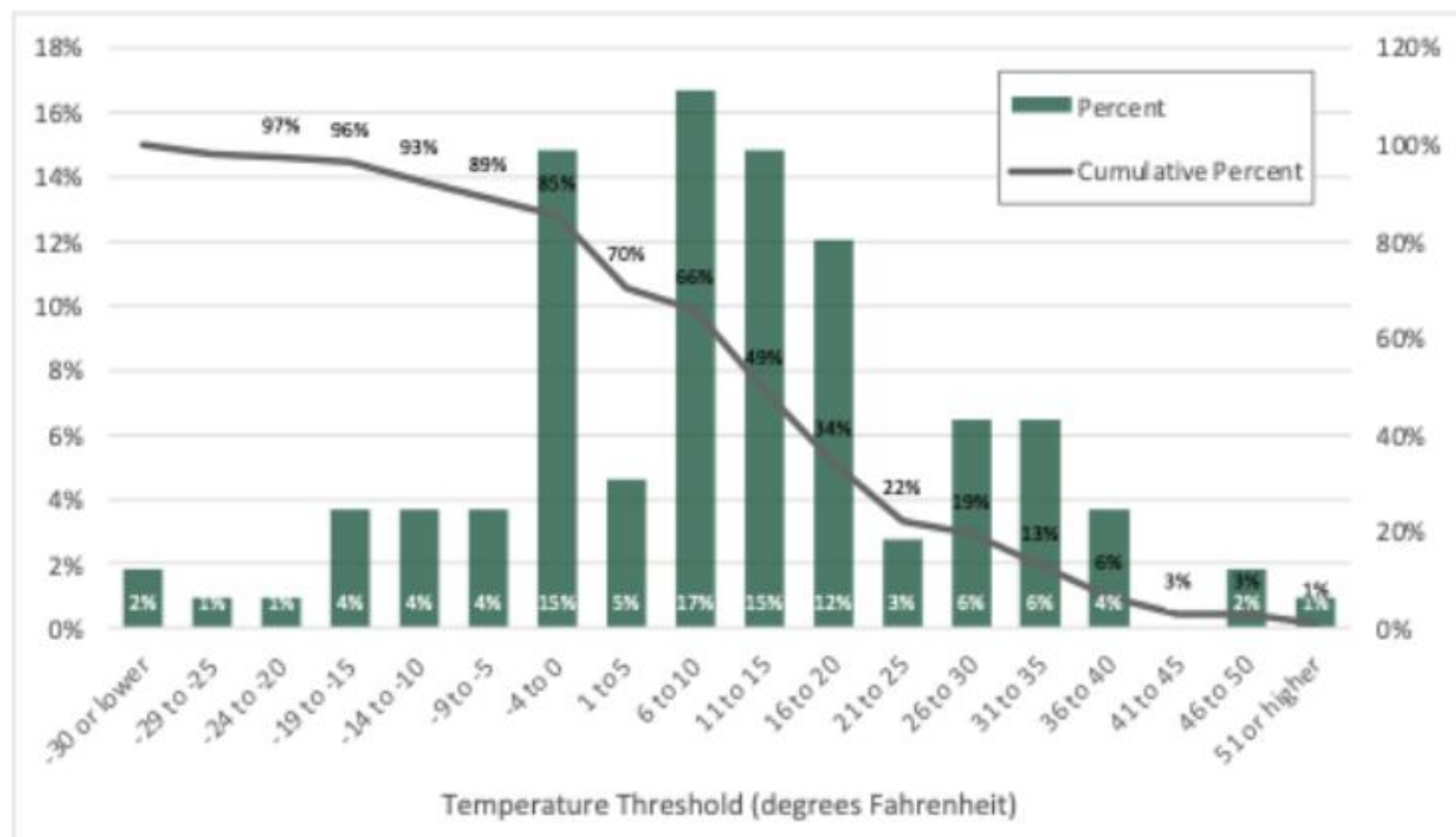
Figure 5. Heating Provided by Heat Pumps  
TMY3 Normalized Winter Heating Output (n = 140)

Average Home Annual Heat Load  
(per Residential Baseline 2024):  
**82.5 MMBtu**



# Self-Reported Turn-Off Temperature in Old Program Supplemental Heat Pumps installed Pre 2021

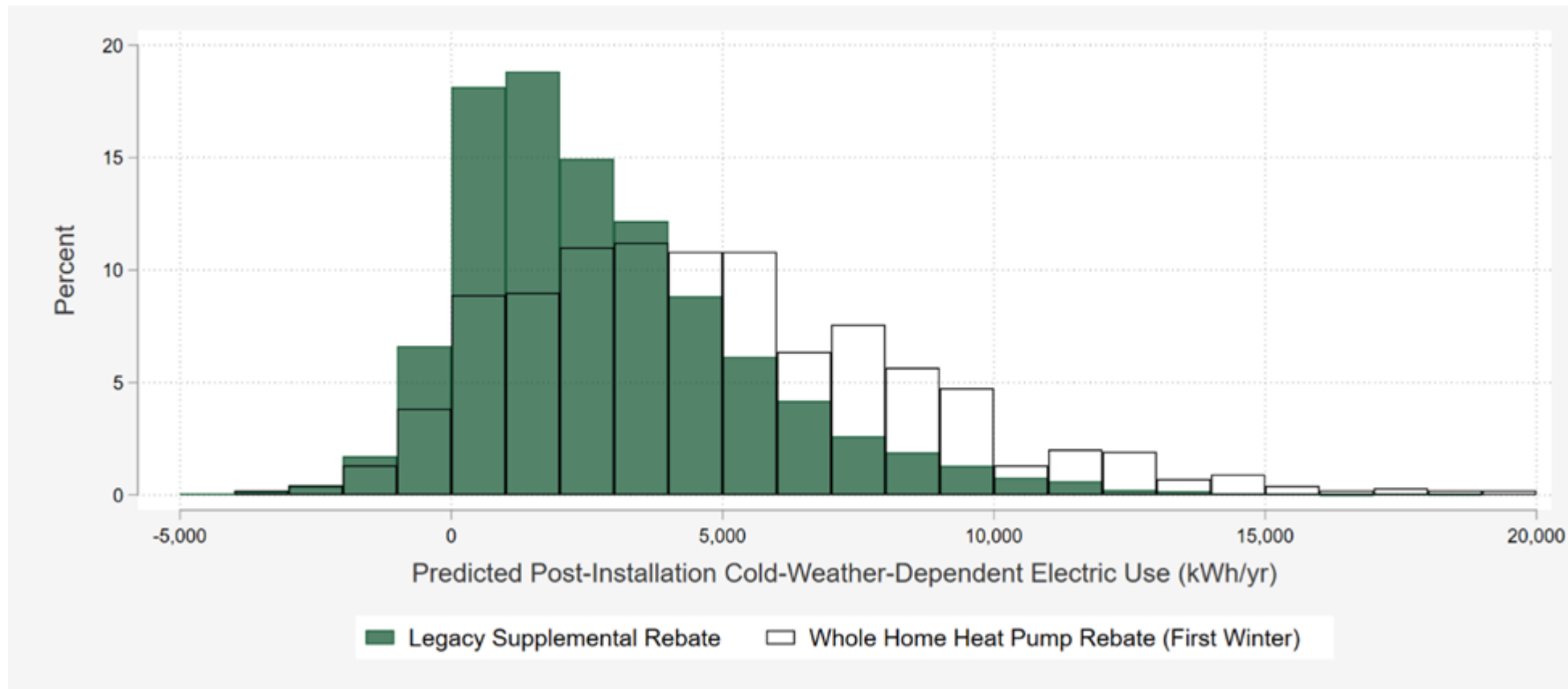
Figure 24. Outdoor Temperature Where Users Report Shutting Off Heat Pumps (n=112)



# Whole-Home Heat Pump Metering: Sample

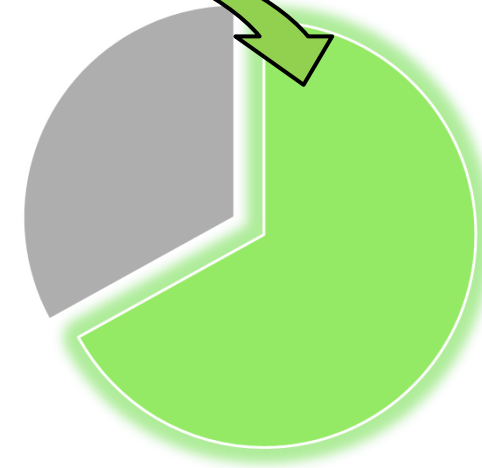
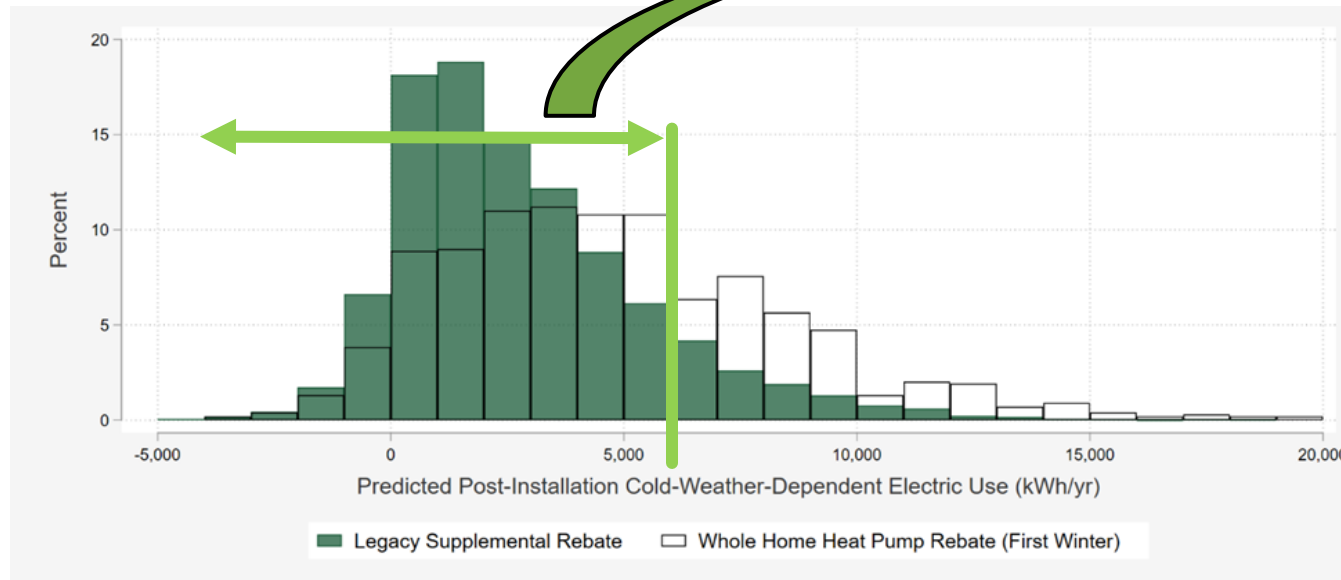
WHHPs rebated 9/18/2023 to 2/28/2024

# Impetus for Metering: Post-Installation Heat Pump Electricity by Home (as estimated by AMI alone)



# Metering Sample

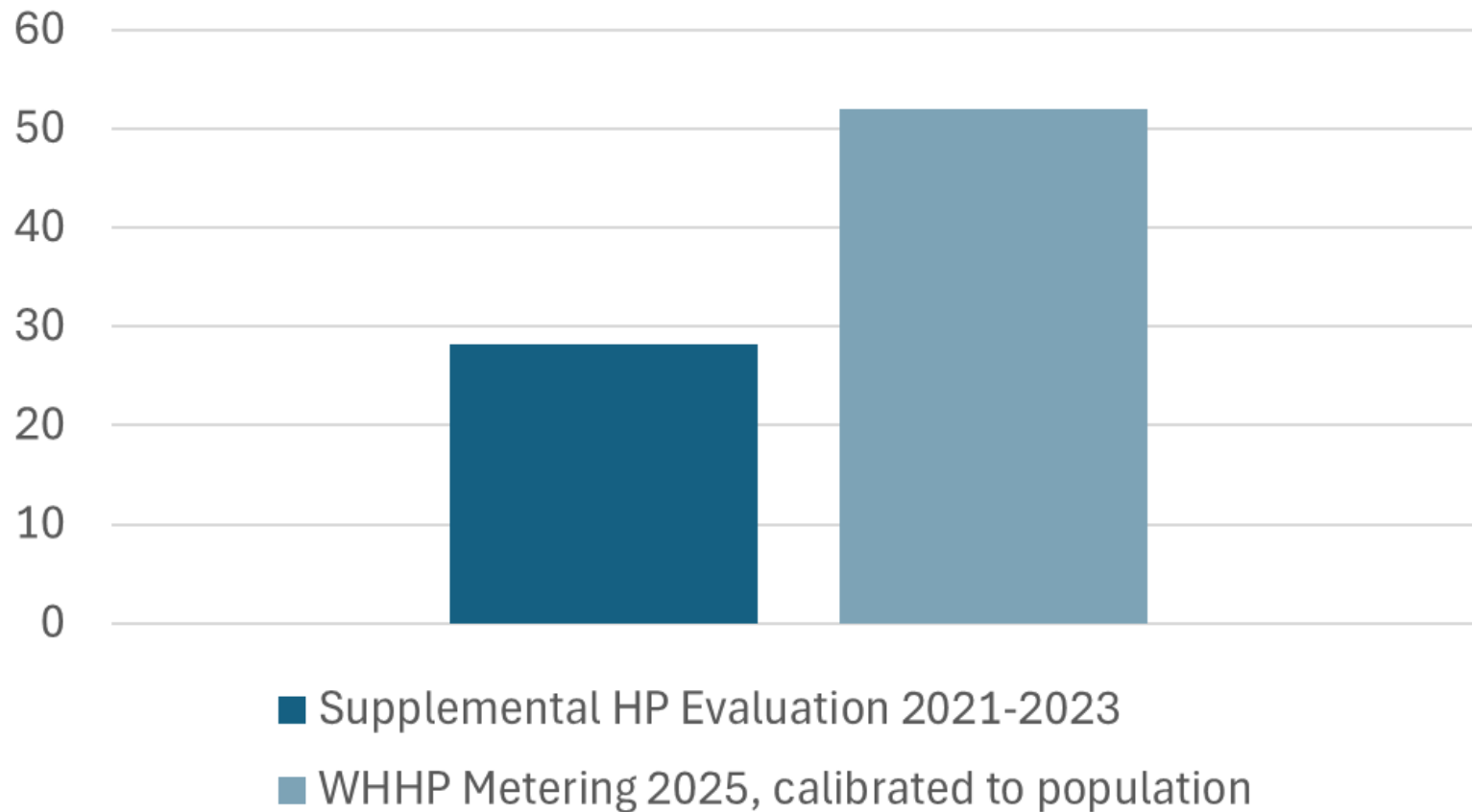
- First 6 months of WHHP program
- Bottom 2/3rds of population – aimed to understand what's going on in homes with less than expected temperature-dependent kWh, AML model doesn't fit
- Did not meter top 1/3 due to strong temperature-dependent AML signatures



# Whole-Home Heat Pump Performance

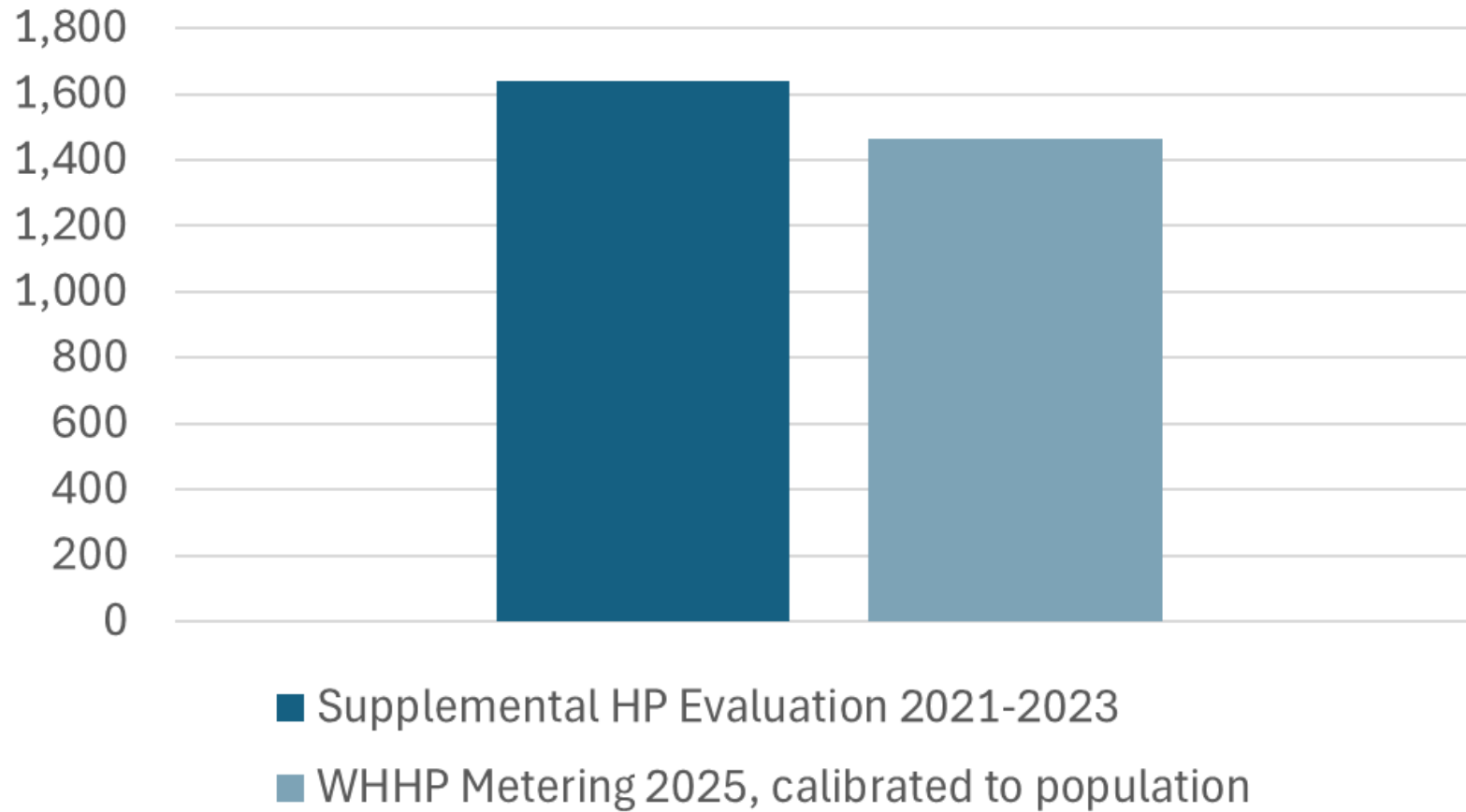
WHHPs rebated 9/18/2023 to 2/28/2024

# Approximate Heat Load Offset per Home (MMBtu)



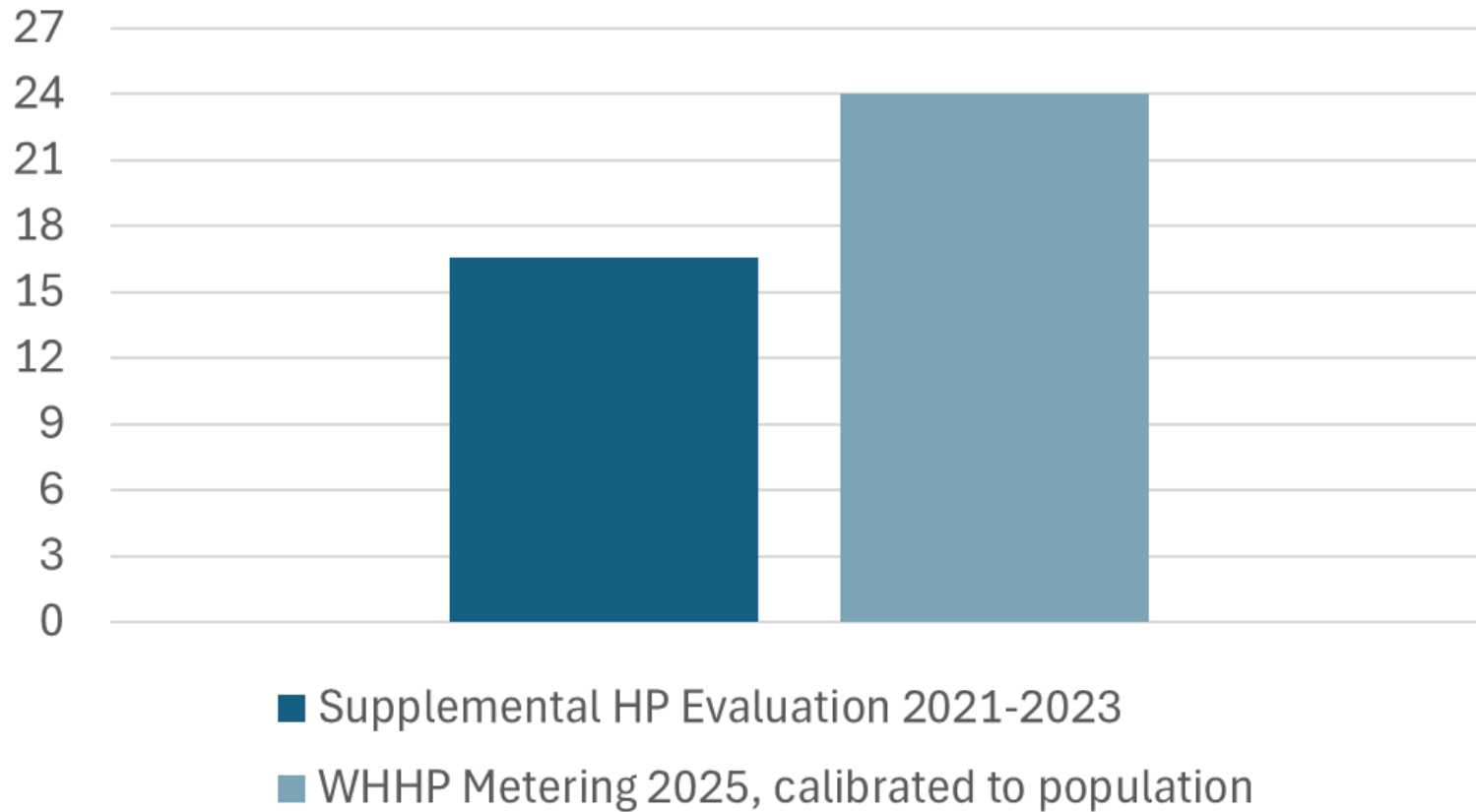
+84%

## Average Home Size (square feet)



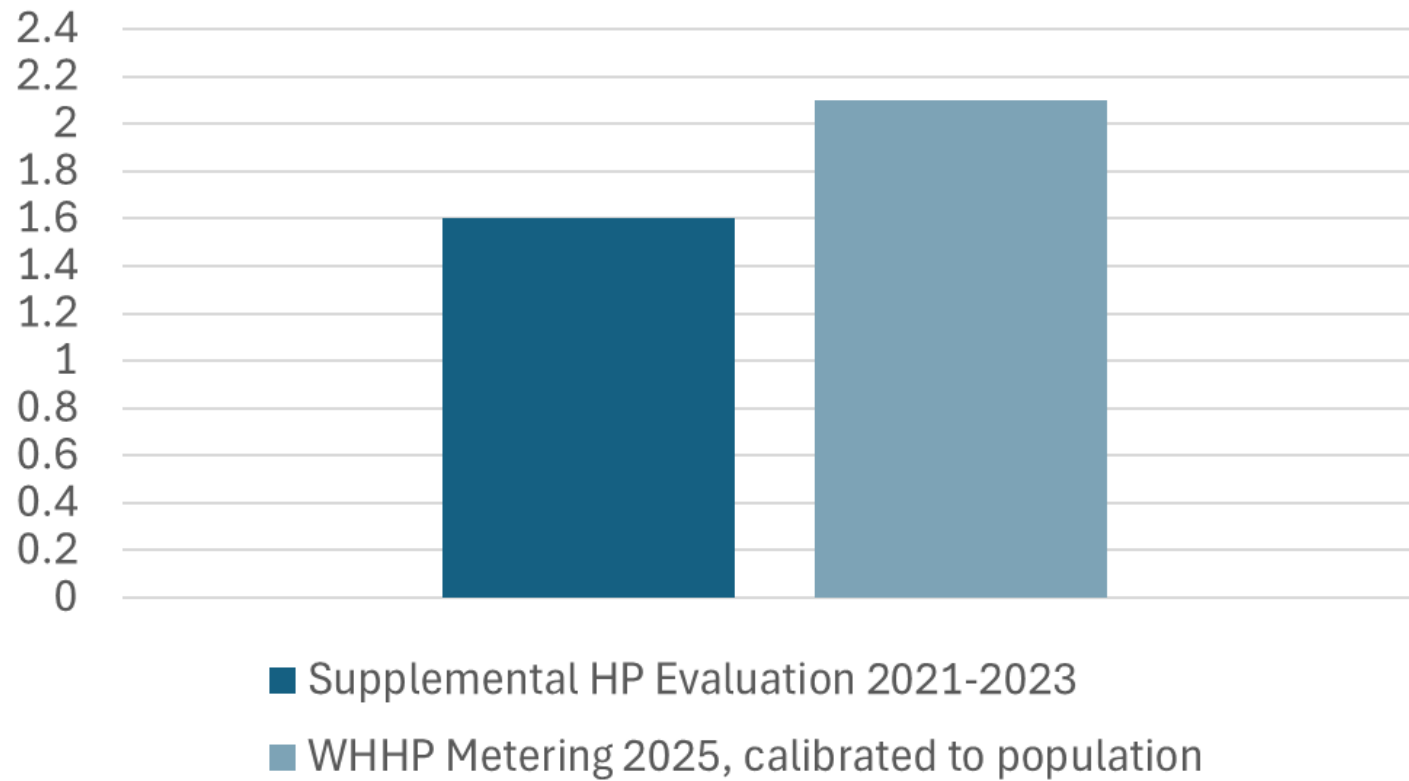
-11%

# Average Heat Load Offset per HP (MMBtu)



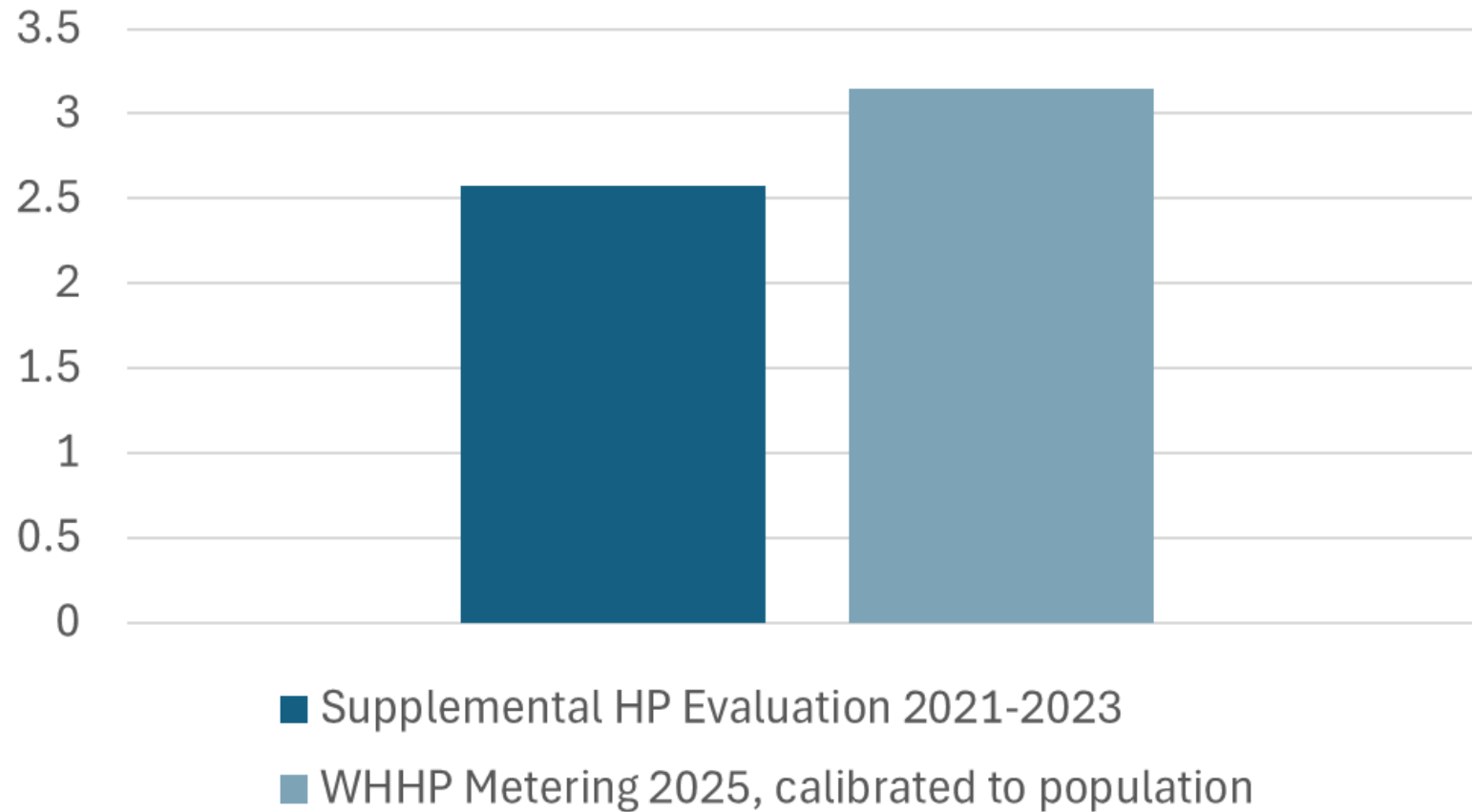
+45%

# Average Quantity of HPs per Home



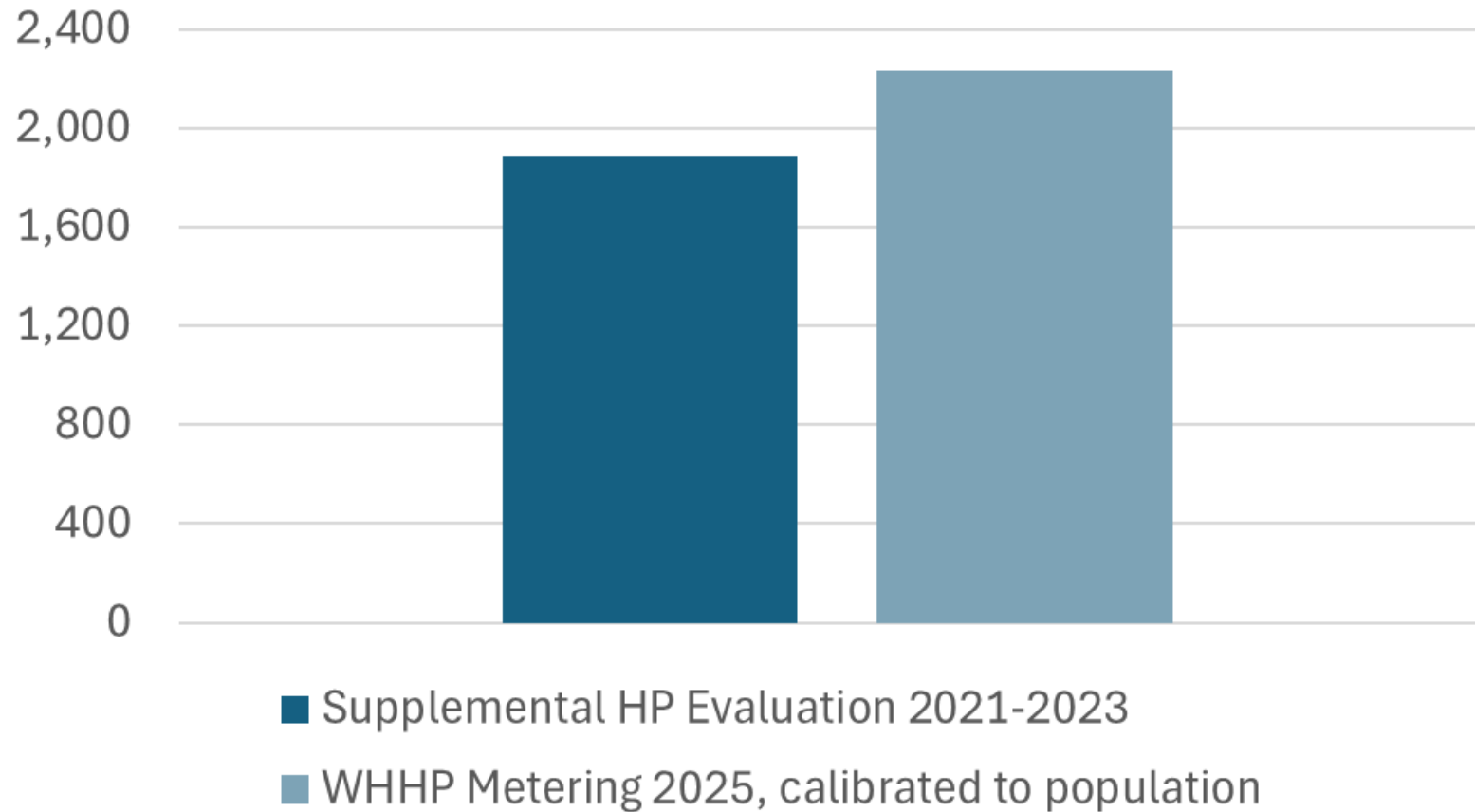
+31%

## Seasonal COP (1= 100% efficient)



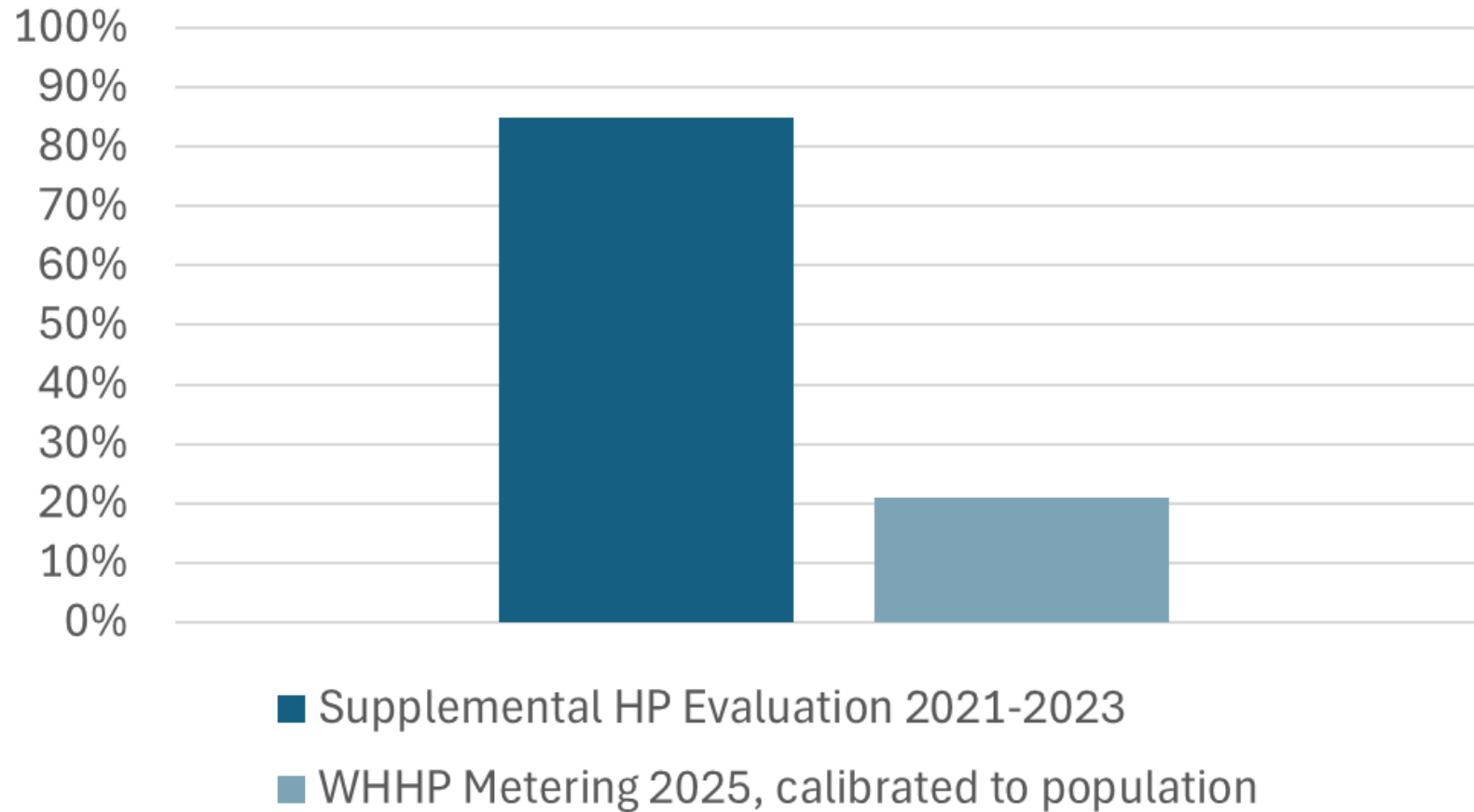
+23%

## Average kWh Consumed per HP



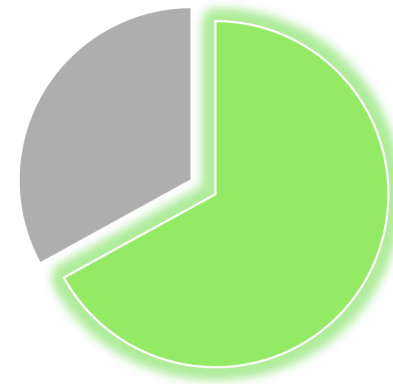
+18%

# Percent of Heat Pumps Turned Off by Users at -5°F

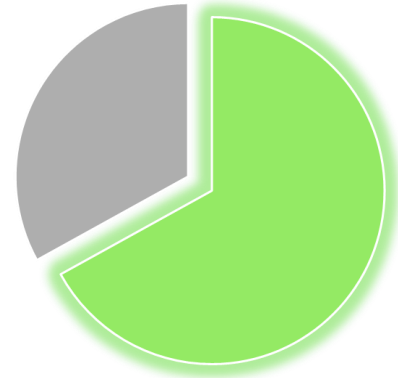
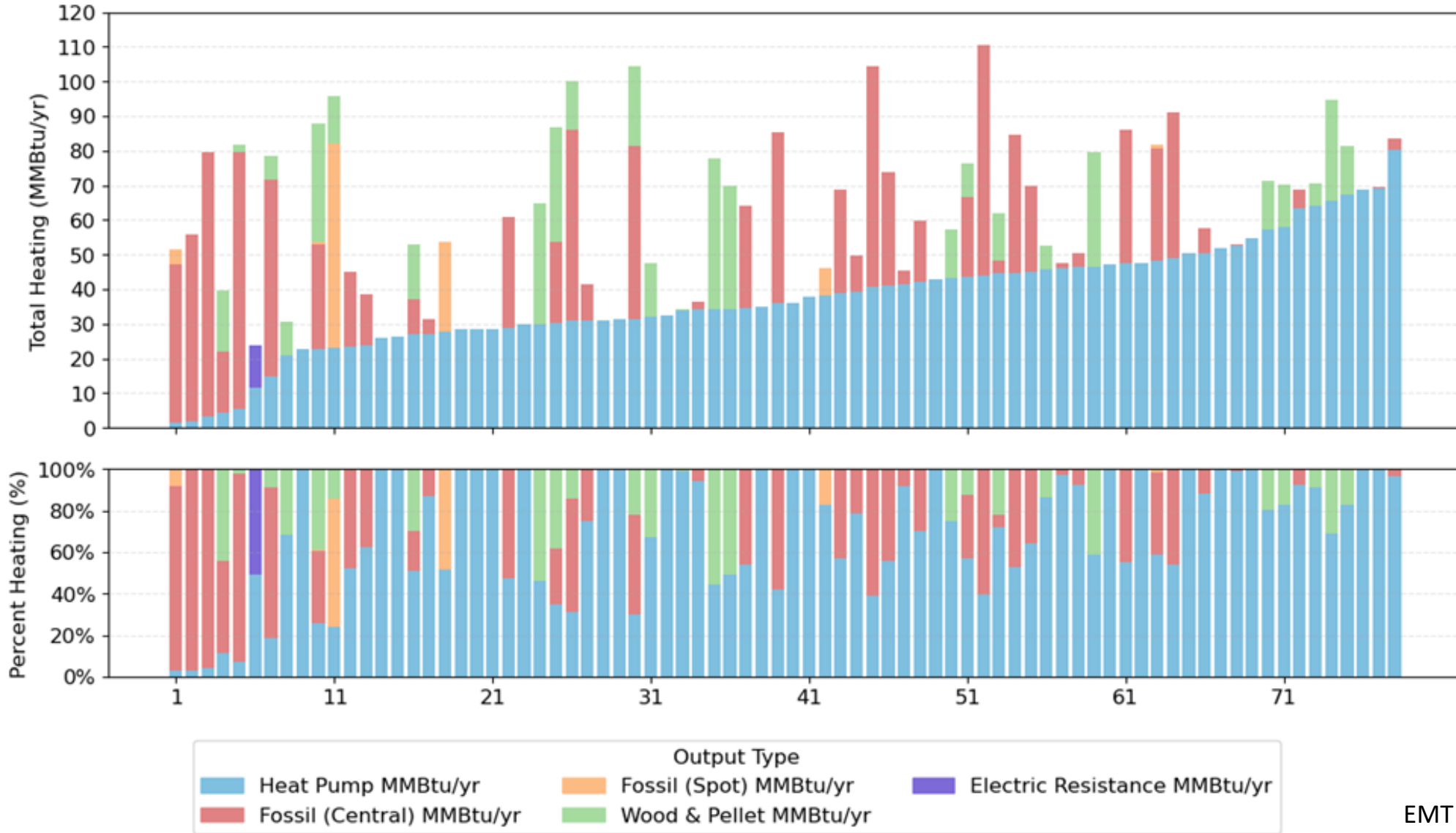


-75%

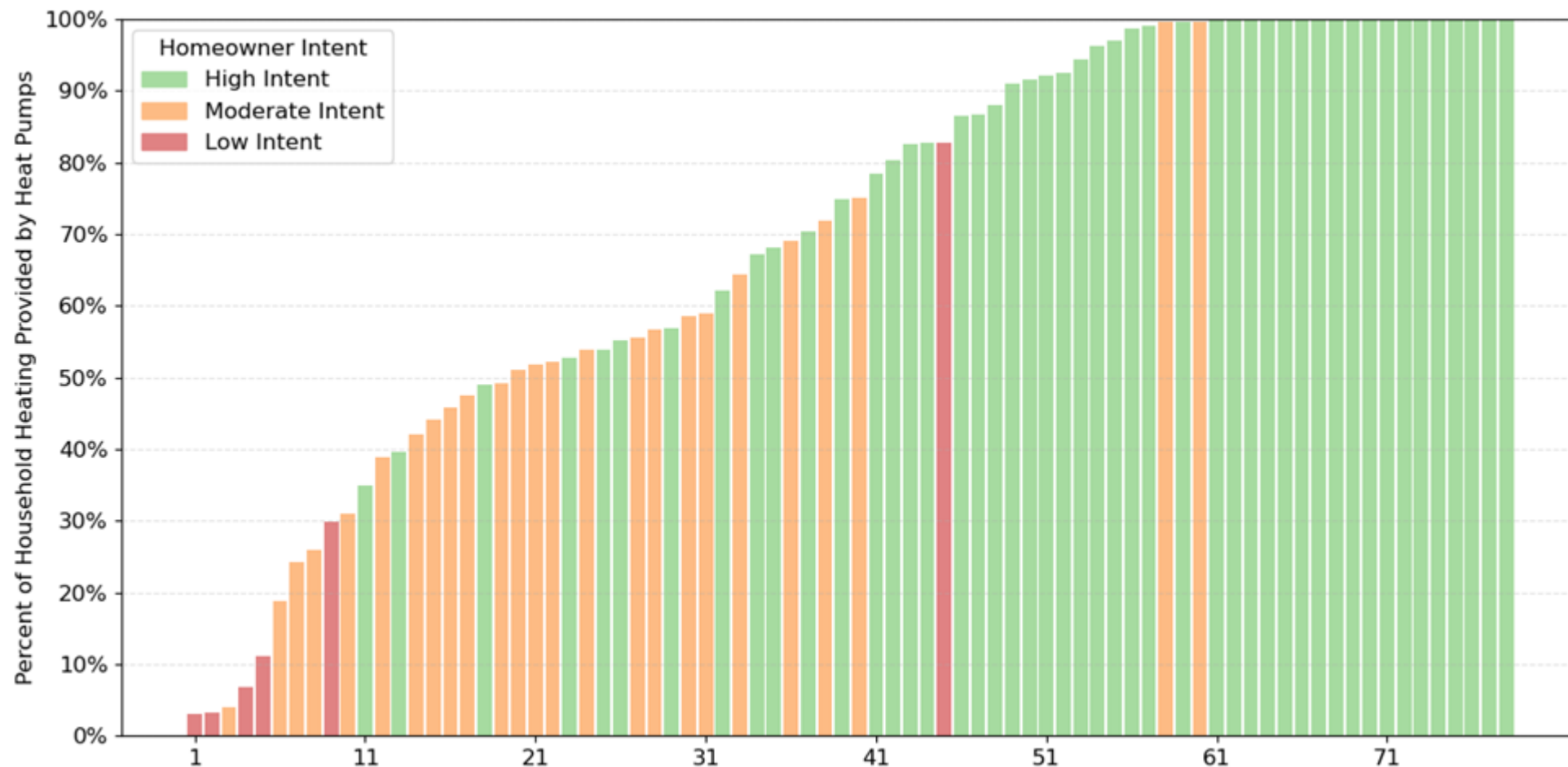
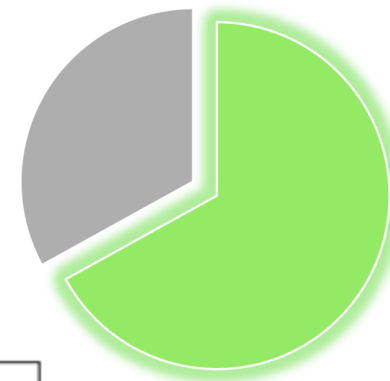
# Deeper Dive



# Heating by Heat Source per Home, Ordered by Heat Pump Heating Output



# Comparing Homeowner Intent with the Portion of Home Heating by Heat Pumps



# Continuous Improvement

# On-Going Actions

- AMI and Survey larger population (to assess program changes from 2025)
- Continue to boost contractor and customer confidence
- Increase performance through inspection process
- Meter multizone heat pumps



# Questions?