Figure 1: Study Workflow

Legend:
- Data Source
- Processing
- Modeling
- Outputs

RECS 2020
Microdata
(n=18,496)

Filter: Gas-Heated
(n=9,411)

Feature Engineering
(24 variables)

Outlier Removal
(2-98 percentile)

Train/Val/Test
(60/20/20)

XGBoost
Regression

SHAP
Analysis

Scenario
Enumeration

Model Metrics
(Table 3)

Feature Importance
(Table 4)

Viability Results
(Figures 8-11)