

Future Energy Systems Center

Heating Demand Estimation Across the U.S. Building Stock via Multimodal Data Fusion

Project Highlights

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Project Team

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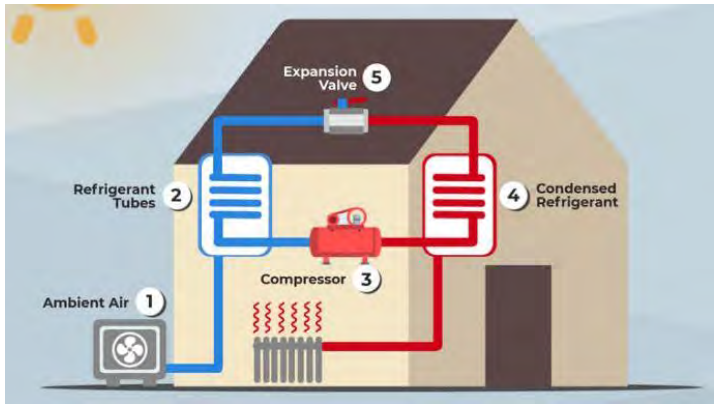
Project motivation and objectives

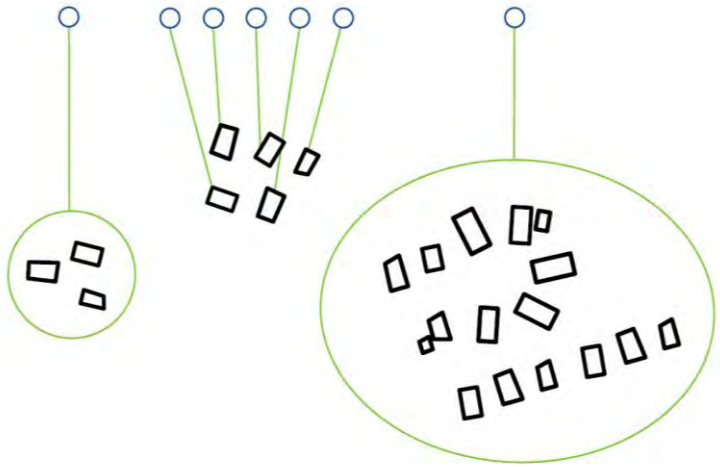
Motivation

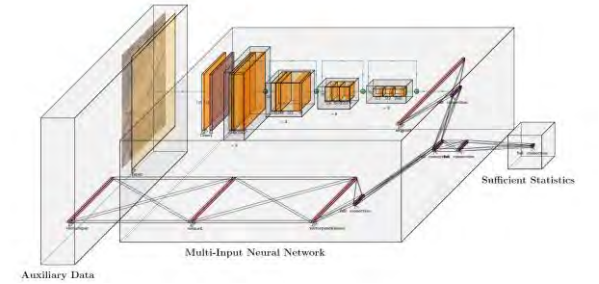
- High spatial and temporal-res heating demand estimates are needed for planning energy systems and decarbonizing the heating sector.
- Status quo methods are aggregated, not “data-driven,” and reflect high error.

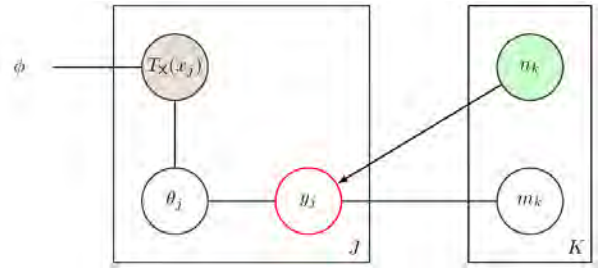
Objectives

1. **Develop systems for scalable high-resolution demand estimation.**
2. **Enable machine learning from metered data at arbitrary spatial and temporal resolutions.**



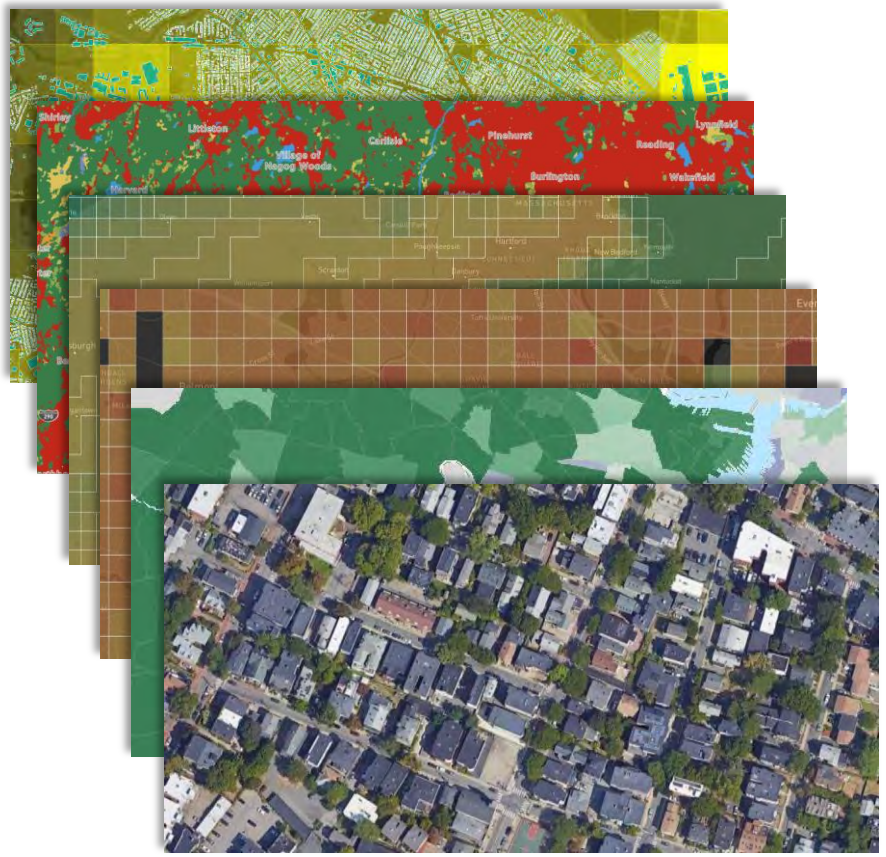


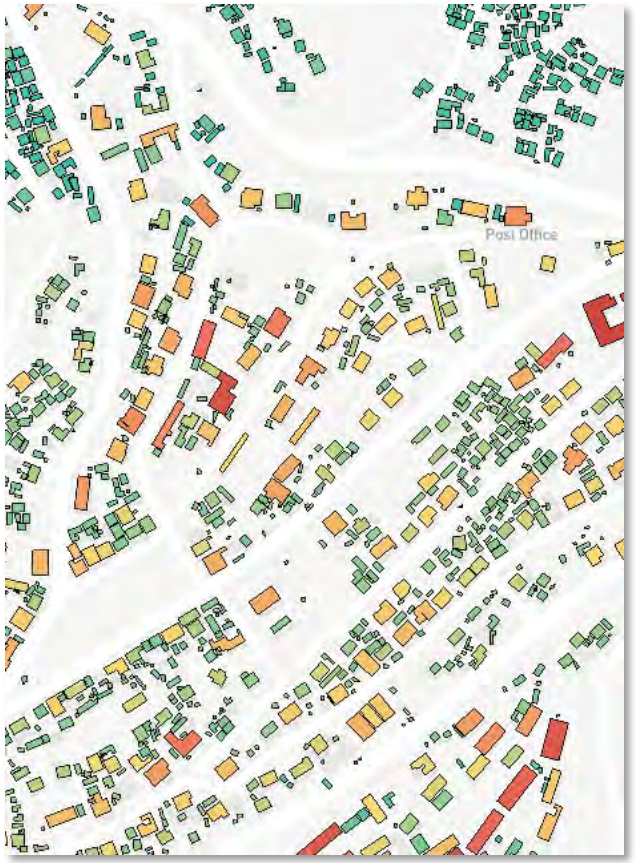




Results and Takeaways

	Hourly	Monthly
Consumer-level	In progress	In progress
Zip code-level		Obtained
City gate-level	Obtained	Obtained





We are developing the most scalable and spatially & temporally resolved model for estimating and forecasting heating demand across the US N.E., Mid-Atl., Mid-W., & beyond.