AEG Task Force
Heat Pump Readiness Tool

November 15th Update

Agenda

- Background & Objective Overview
- Present to-date progress on task force objectives
- Next steps for SOW

Background

The “NYC Carbon Neutral Roadmap Report” identified 18,700 buildings/year (best case scenario) need to electrify annually between 2020 – 2050 to achieve 80x50.

Within those 18,7000 buildings commercial office buildings account for 1 Billion sq. ft.

TABLE 4: KEY BUILDINGS AND INDUSTRIAL SECTOR FINDINGS FROM THE PATHWAYS MODELING

	Electrification	Low Carbon Fuels	Diversified
The scale and pace of energy efficiency and electrification retrofits is high.			
Proportion of buildings electrifying space heating and hot water systems by 2050 (percentage of gross square footage)	59%	31%	62%
Average number of buildings electrifying each year (2020-2050)	18,700	10,700	19,800
Number of buildings electrifying by 2050	607,000	340,000	642,000
Percentage of buildings adopting at least Tier 1 energy efficiency upgrades by 2050	87%	88%	92%
Average number of buildings implementing only Tier 1 energy efficiency upgrades each year (2020-2050)	11,700	16,200	10,500
Average number of buildings implementing Tier 1 + more significant energy efficiency upgrades each year (2020-2050)	27,500	27,400	28,900
Number of buildings implementing energy efficiency measures by 2050	909,000	910,000	958,000

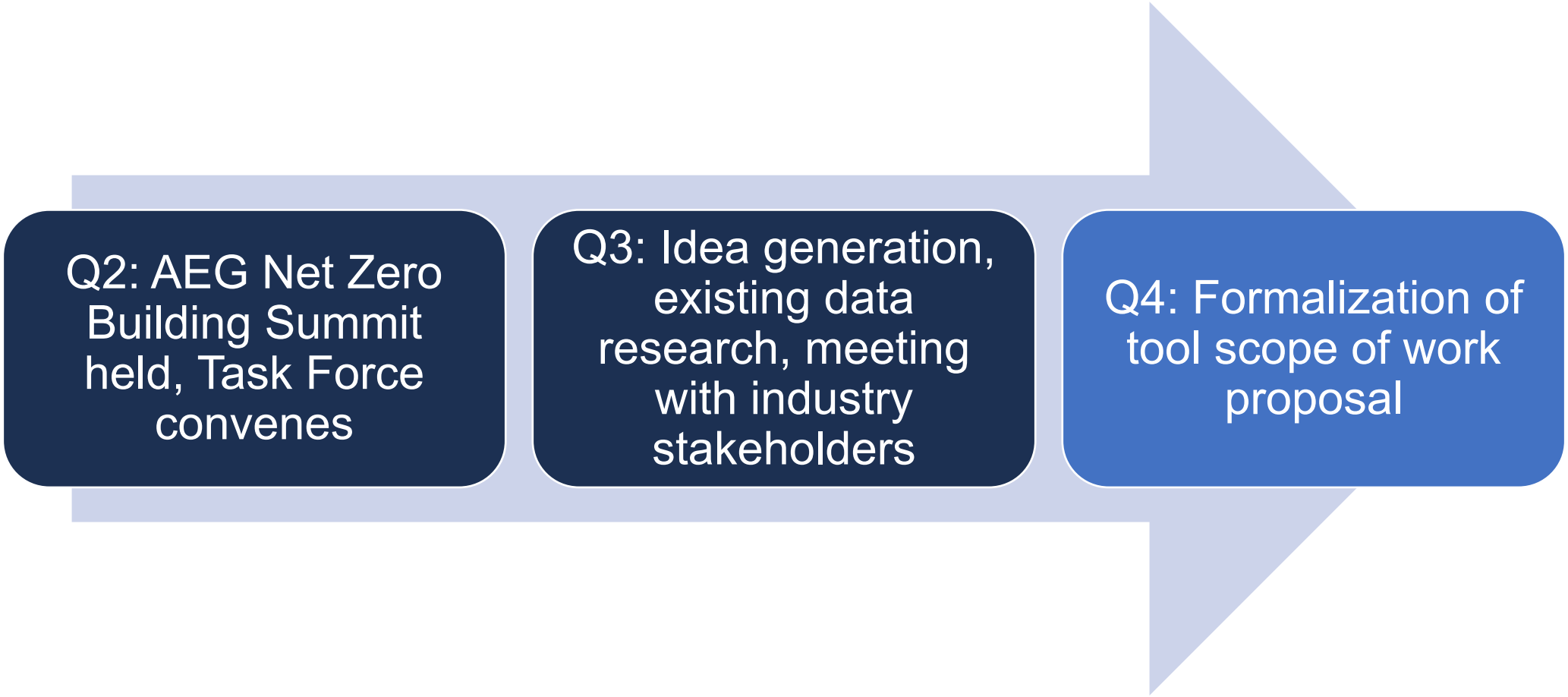
Source: NYC Carbon Neutral Roadmap Report (2021)

Objective Overview

Improved market intelligence to identify buildings with the highest potential for heat pump integration – especially looking at Class B and C office, as well as buildings in disadvantaged communities

12-month proposed solution: create a weighted database merging existing sources (CBL, NYCA, ConEd load map, DAC health map) to enable analytics re: heat pump readiness

Task Force Timeline



Tool Proposal

- An open-access, easy-to-use interactive online platform that provides basic heat pump readiness information to stakeholders such as:
    - City officials
    - AEC firms and HVAC contractors
    - Building owners and Condo/Co-Op boards
    - NYSERDA, NYC Accelerator, Utilities, etc.
    - General Public

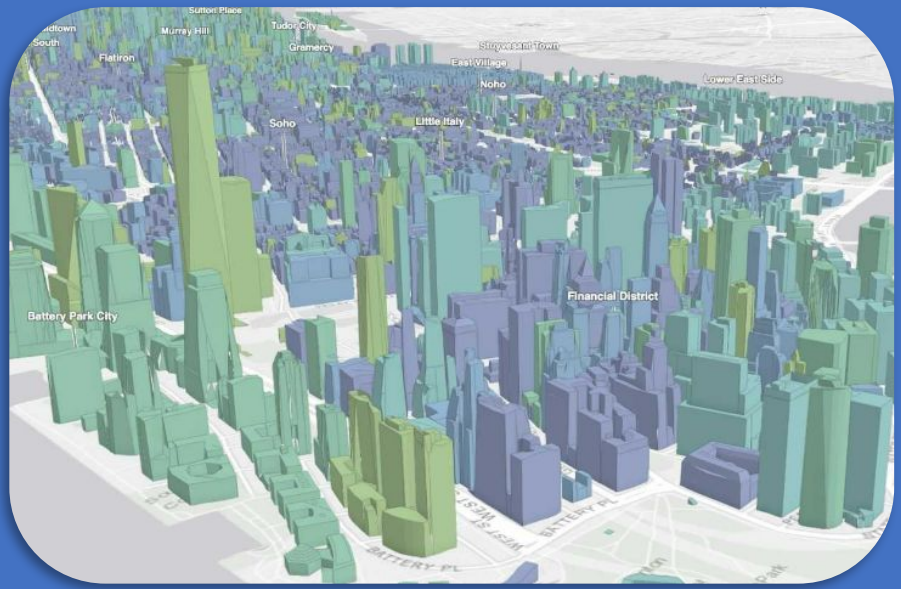
Tool Inputs

- Two input screen options for user

Address search

Advanced Input

Neighborhood Selection w/ GIS Map

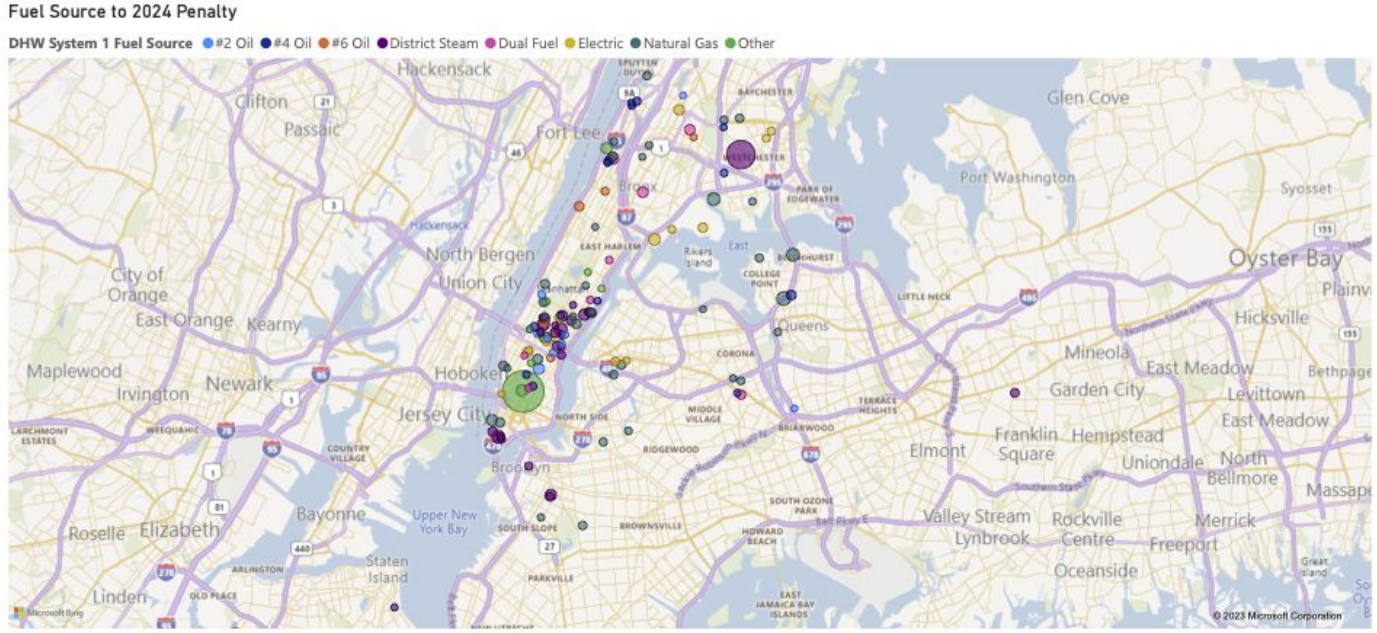


Data Sources

- Initial data alignment efforts:
  - Local Law 84 Database – DOB (including layered Local Law 97 calculations)
  - Local Law 87 Energy Audit Data
  - NYC Clean Heat Historical Dataset
  - NYC Clean Air Tracking System (CATS) Permits
- Potential to add new ones/add “advanced” inputs to the tool
  - NYSERDA RTEM data
  - Additional DOB/City data
  - Disadvantaged communities layer
  - Additional utility data (ConEdison, National Grid)
  - Google solar API for roof mapping?

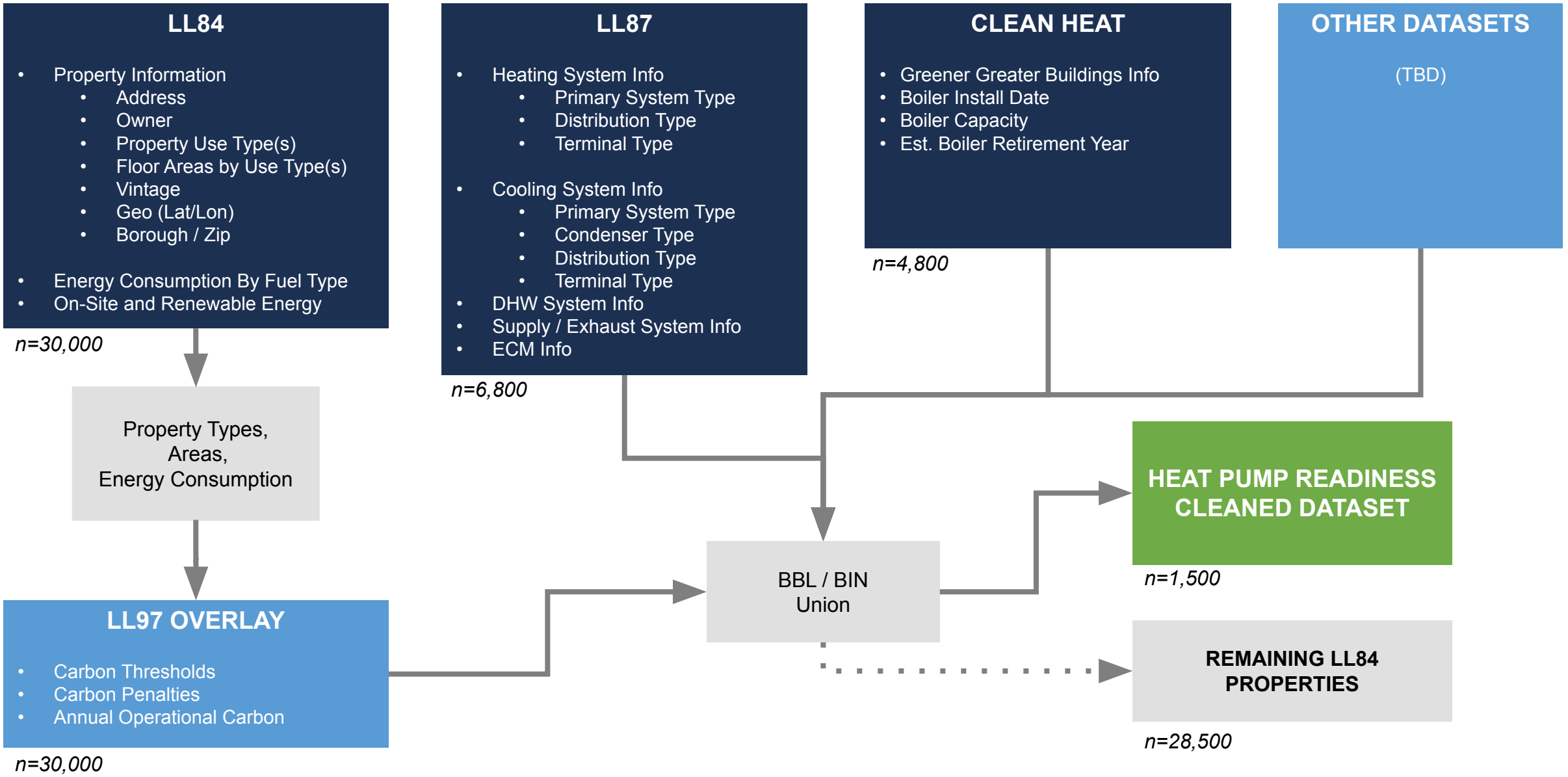
Data Exploration

- Qualify data
  - Assess quality
  - Look for the missing pieces
- Building assessment criteria
  - Evaluate key attributes
  - Quantify outcomes
- Feasibility and impact study
  - Test assumptions
  - Establish trends



BBL	Property Name	SQ_FT	Occupancy	LL97_Penalty2024	LL97_Penalty2030	Est. Boiler Retirement	Cooling System 1
1022370008	1 Seaman Avenue	75510	100	$111,500	$158,800	2035	Air Cooled
1020530001	Hillview Owners Corp.	233576	100	$210,000	$393,600	2032	Air Cooled
2036270040	Spigro: 820 Boynton Avenue	274723	100	$1,003,400	$1,183,800	2027	
1013240034	230 East 51st Street (The Pod Hotel)	73903	100	$101,800	$177,400	2025	Air Cooled
4030850002	6445 Booth	69250	100	$116,200	$169,700	2023	Air Cooled

Dataset Flow and Integration



Heat Pump Readiness Dataset Attributes

Property Information

- Address
- Owner
- Primary se Type
- Floor Area
- # Stories
- Vintage
- Geo Data (Lat/Lon)
- Borough / Zip

Equipment Information

- Primary Heating System Type
- Primary Heating Distribution Type
- Primary Heating Terminal Type
- DHW System Type
- Boiler Information
  - Install Date
  - Total Capacity
  - Est. Retirement Year

Emissions Information

Emissions & Energy by Fuel Source:

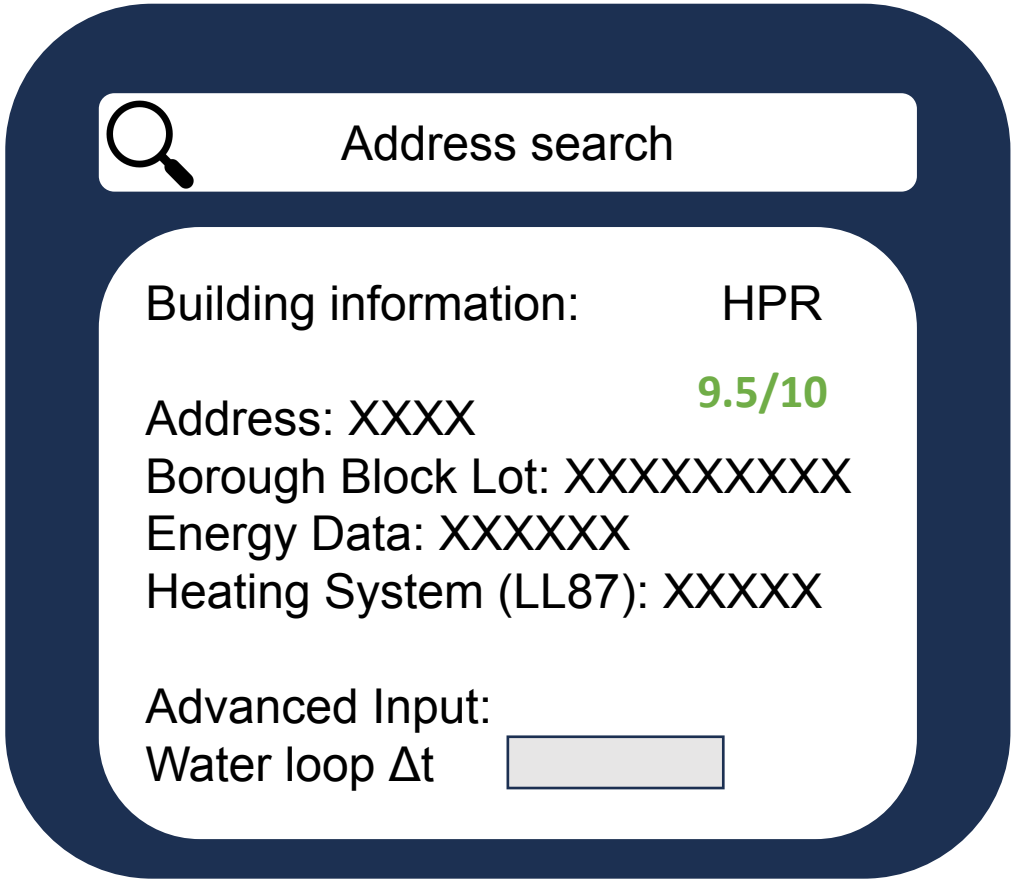
- Electricity (Grid)
- District Steam
- Fossil Fuel

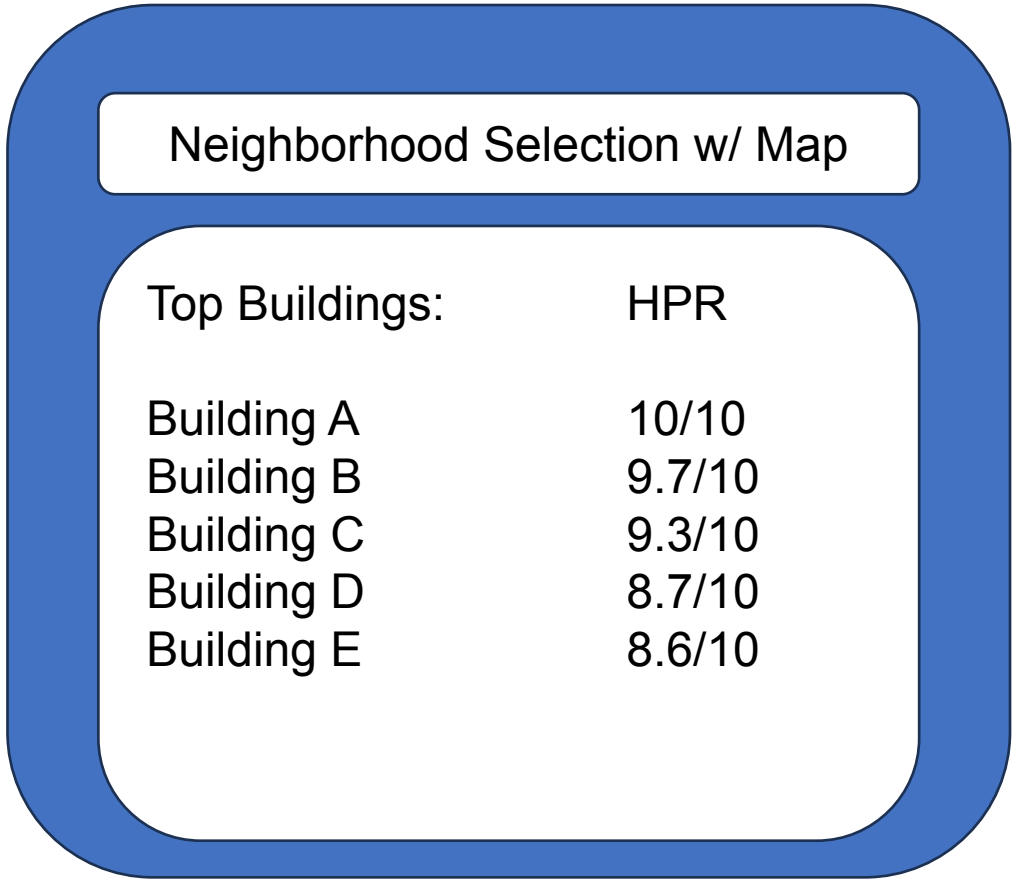
Generating “Heat Pump Readiness” Score

Possible Parameters:

- Heating Fuel Sources (fuel oil, NG, steam)
- Historic energy consumption/GHG emissions
- HVAC Equipment Information
  - Space/water heating equipment
  - Heat distribution system
  - System setpoints (advanced→ RTEM)
- Building size, building footprint
- Disadvantaged Community Location
- Roof space assessment (advanced → Google API)
- Electric capacity assessment (advanced → ConEdison)

Tool Outputs





HPR = Heat Pump Readiness

NYSERDA - Key Objectives & Funding Criteria

Group Discussion

- Would you be in support of a tool like this?
- What functionality is desired and how should be prioritized?
- What data should be part of the tool? What data sources are we missing?
- What data set parameters should be prioritized for the heat pump readiness score? What is the calculation weighting?