Incentive focus for Residential Homes and Energy Efficiency strategies

José L.

What are we looking for?

- What type of household and energy efficiency projects should incentives be invested on?
- What are the highest cost, electricity and gas savings, based on:
  - Year home built.
  - Size of home.
  - Number of units.
  - Energy efficiency measure type.

Process

- Data cleaning and preprocessing in Excel.
- Split main table into three sub-tables: ProjectLocation, Energy and Finance. Create tables and importe data.
- Query data to find energy savings by: household size type, built period and measure type
- Visualize results.
- Make recommendations.

Data Set : NYS Residential Homes Energy Efficiency Projects

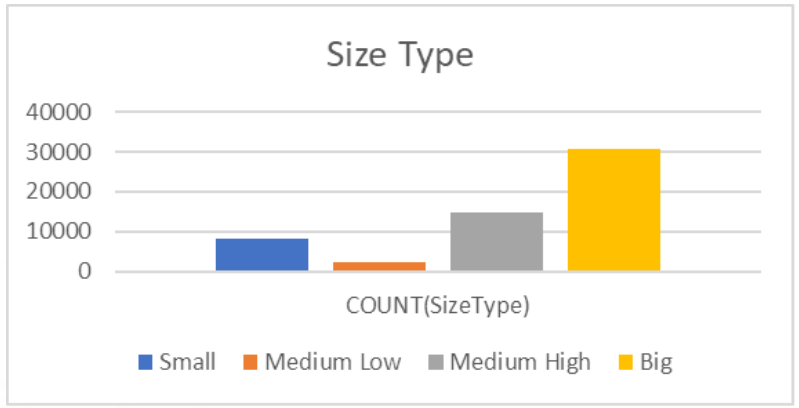
- @ Kaggle.
- New York State Energy Research and Development Authority (NYSERDA)

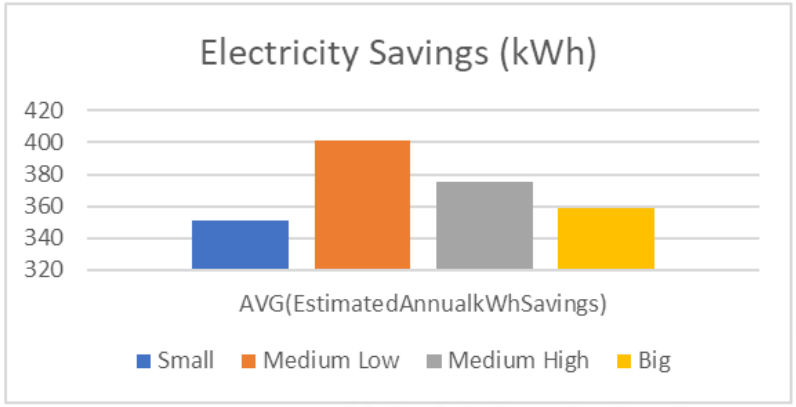
Data cleaning and preprocessing in Excel

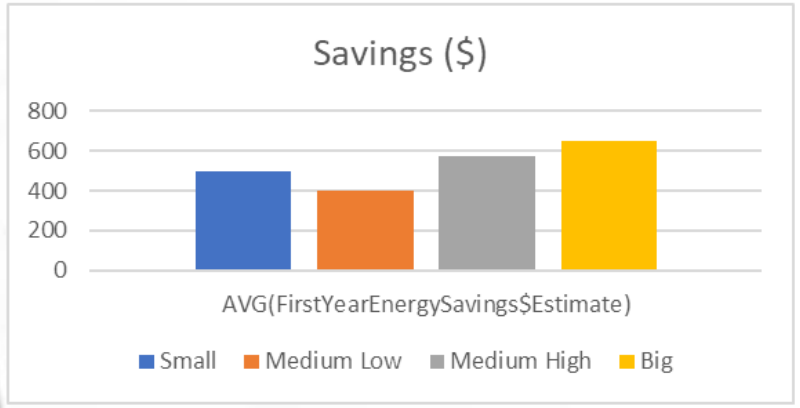
- Date format convert, from dd-mm-yyyy to yyyy-mm-dd.
- Insert boolean values (0 for N and 1 for Y).
- Fill empty cells with 0.
- Delete bug information (, in cells).

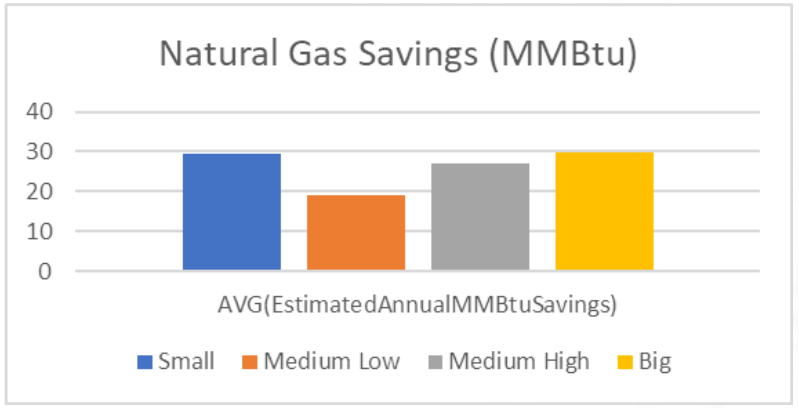
Results

Savings by household size type





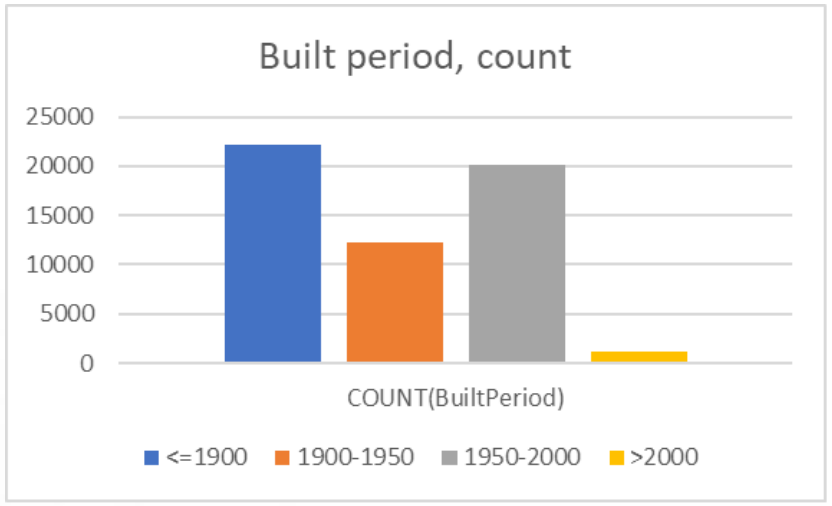


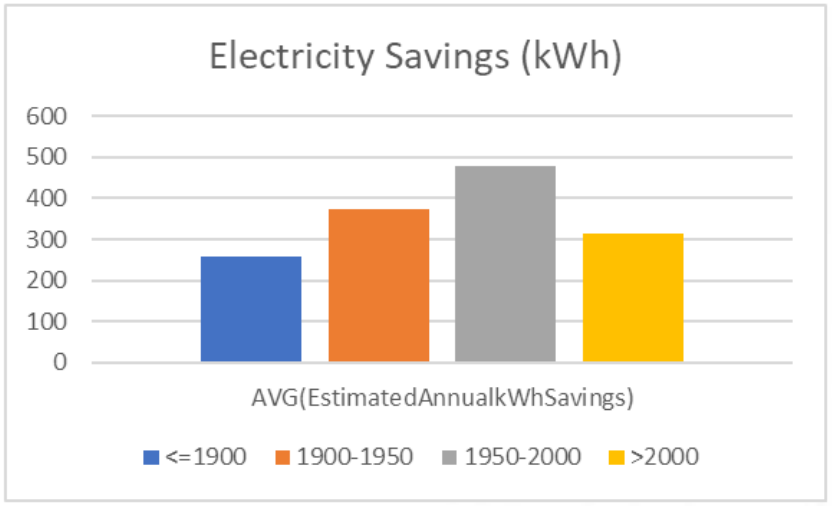


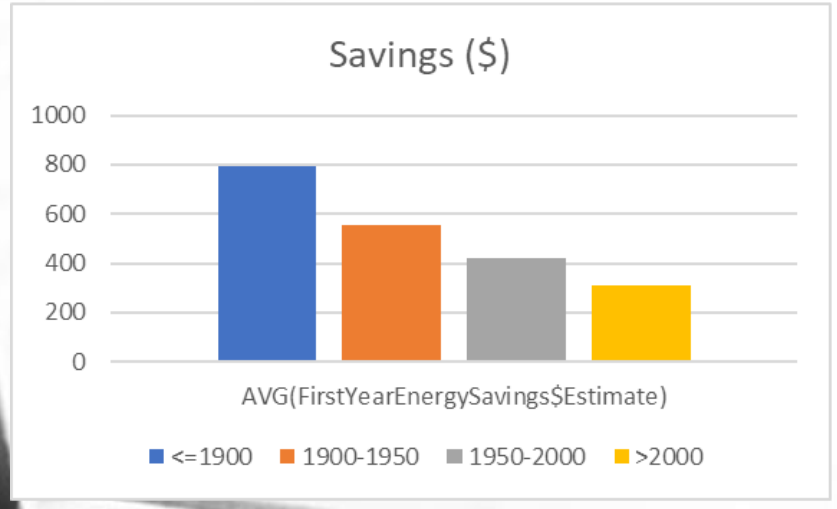
Take away

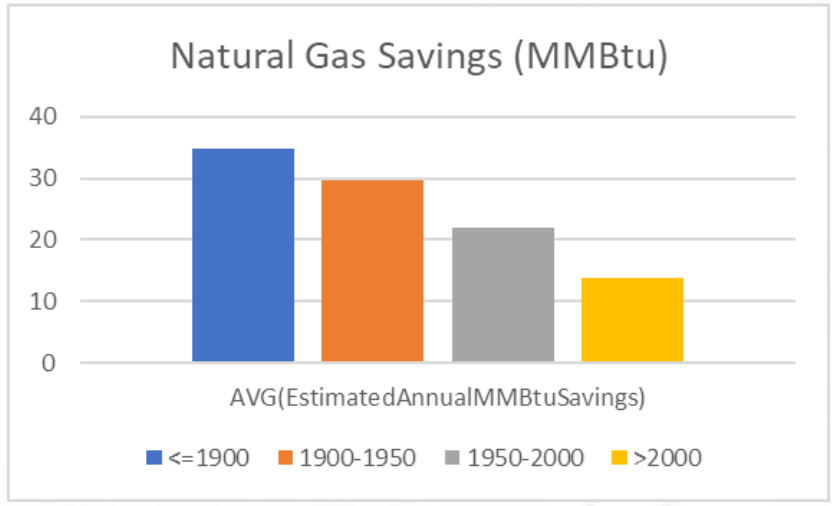
- 'Big' households account for the highest cost and Natural Gas savings.

Savings by built period





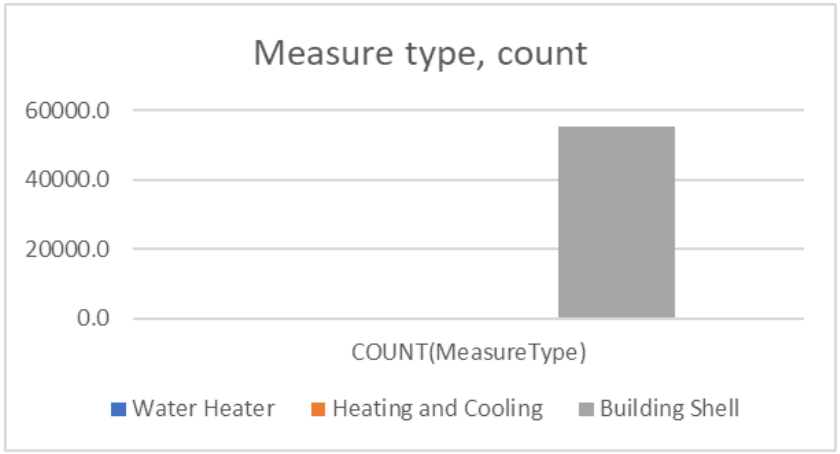


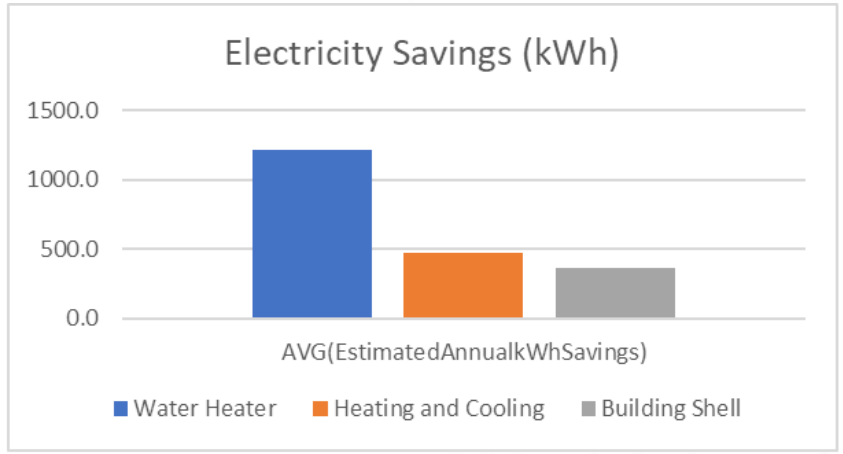


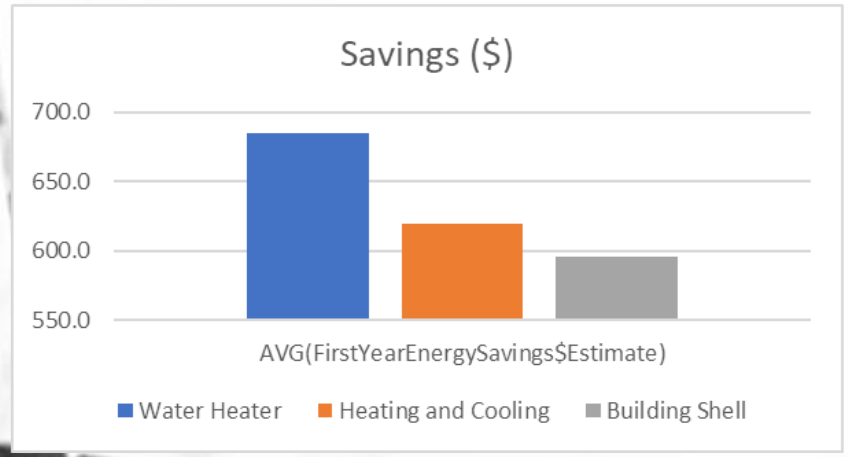
Take away

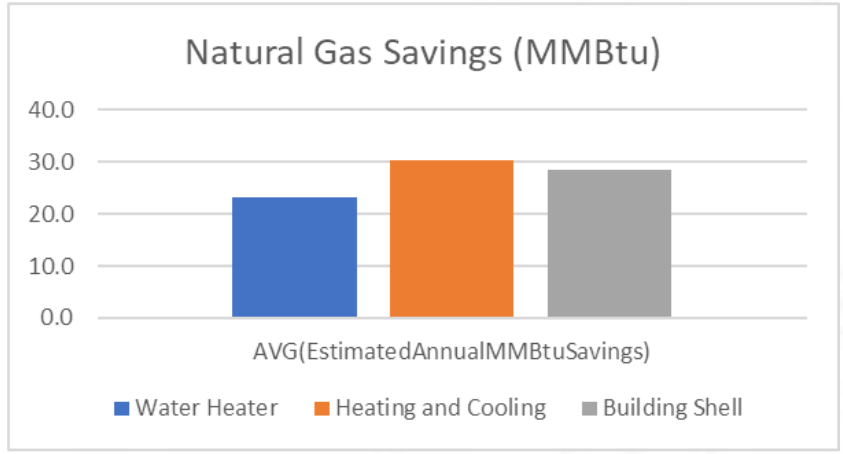
- Households built before 1900 represent the biggest cost and natural gas savings.

Savings by measure type









Take away

- Building shell upgrades represent the biggest cost and electricity savings.

Recommendation

- NYS investment should be prioritized for households larger than 2,000 sf, built before 1,900.
- Building shell should be the preferred upgrade.

To do next

- Convert electricity and gas savings to equivalent tons of CO2 to select investment based on GHG emissions. And run analysis again.
- Convert to savings per area, e.g. $/sf, kWh/sf, Mmbtu/sf. And run analysis again.