

Real-Time Results, Real-Time Strategy

Creating a Process for Continuous, Data-Driven Feedback on a Residential Energy Efficiency Program in New York State

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Background

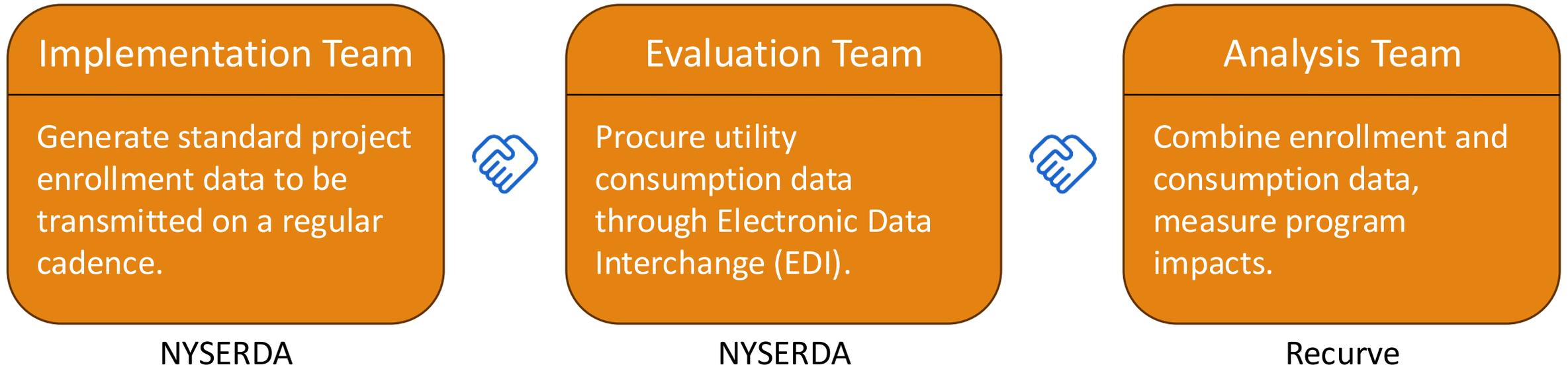
- New York is facing ambitious statewide electrification targets, such as Governor Hochul's plan to achieve "2 Million Climate-Ready Homes by 2030." Informed program planning and robust implementation are needed to reach these targets.
- NYSERDA designed an analysis to gauge the potential of real-time program measurement, with three main areas of focus:
 1. Define the stakeholders and data required to enable effective program analysis
 2. Assess whether analysis insights can inform modifications to program strategy
 3. Compare results from the analysis to a formal retrospective impact evaluation

Comfort Home Program

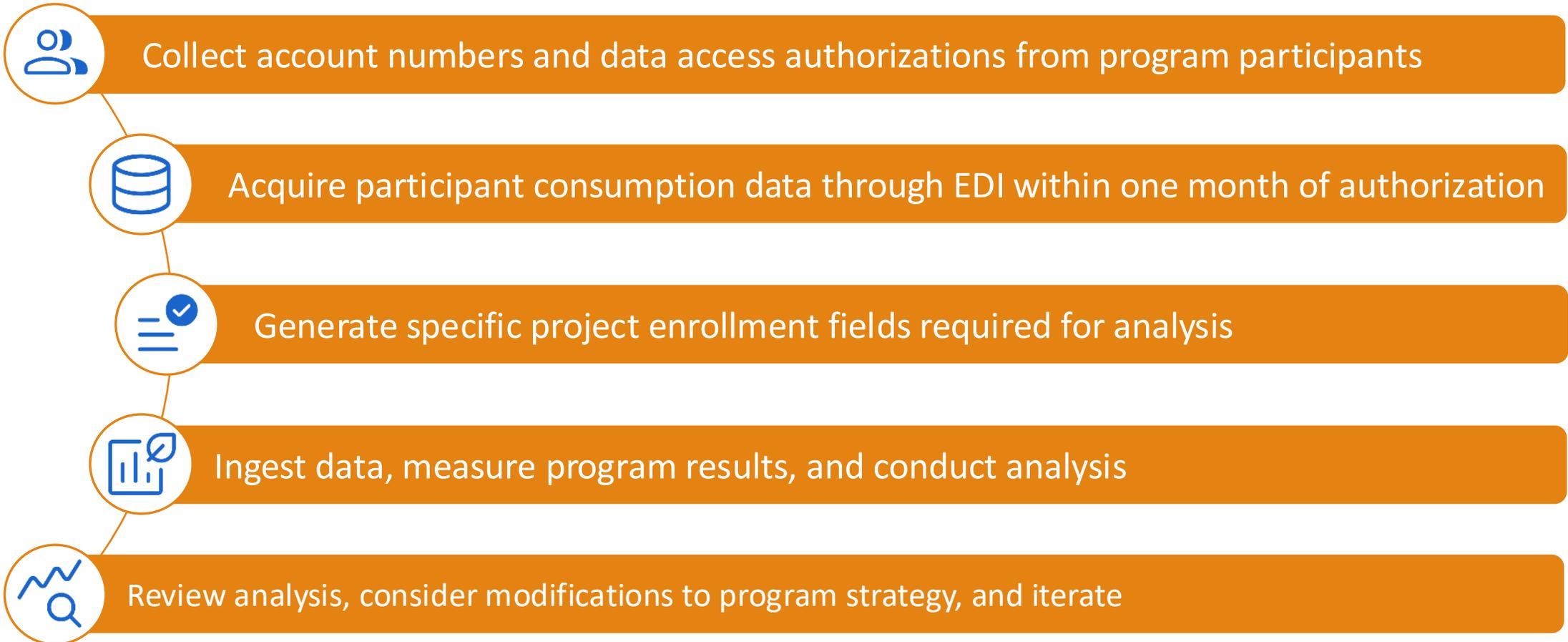
- Residential energy efficiency program offering a selection of whole-home retrofit packages to make homes "heat pump ready"
- NYSERDA selected its Comfort Home Program because it's designed to promote electrification



Teams and Data Responsibilities



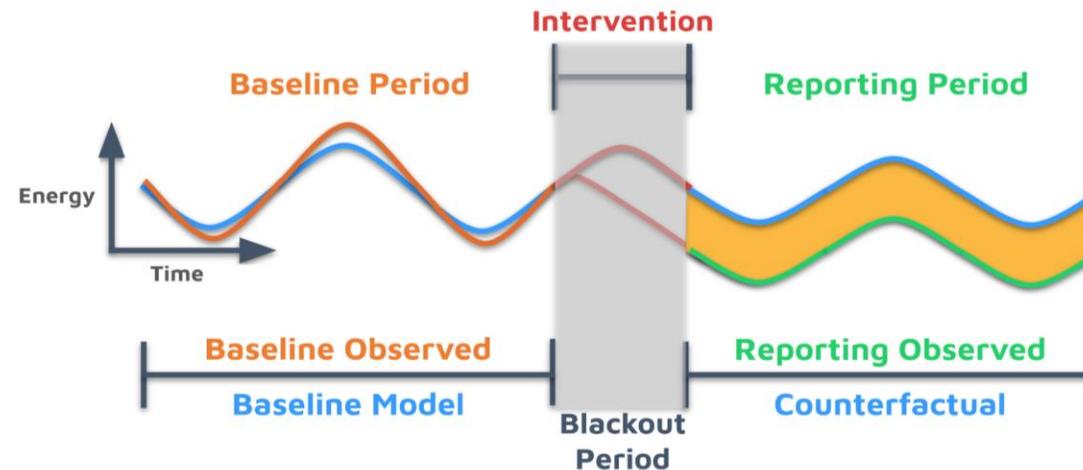
Analysis Approach



Measurement Methodology

Program measurement leveraged OpenEEMeter, a module of OpenDSM (opensdm.energy)

Energy usage patterns prior to intervention are used to generate a baseline model

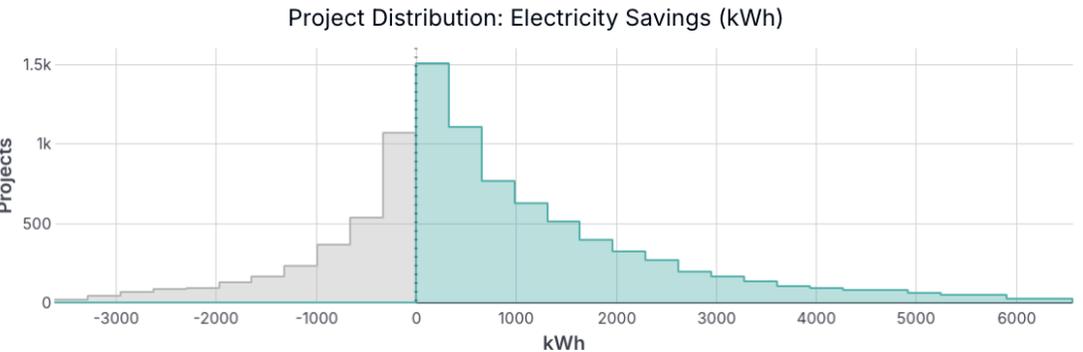
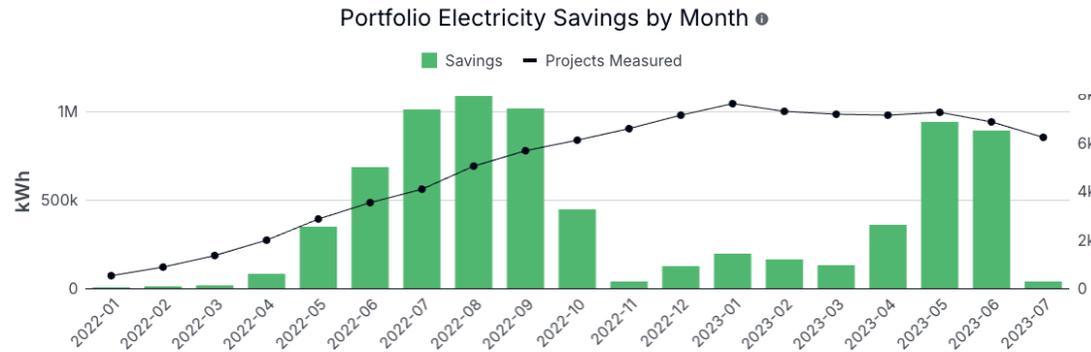


Model generates a counterfactual. The difference between counterfactual and real observed consumption is the load impact.

Model scans for correlations between energy consumption and weather

Analysis Tool

Review of measured results was completed using Recurve's FLEX Platform (anonymized)



Project Summary Export Table

| Project ID | Aggregator | Intervention Active Date | Program Name | Sector | Address | Project Maturity (Days) | Project Savings (kWh) | Project Counterfactual (kWh) | Project Percent Savings |
|---|-----------------------------|--------------------------|----------------|-------------|----------------|-------------------------|-----------------------|------------------------------|-------------------------|
| 1000963139945057962_2022-06-20_2022-06-21 | Jay's EZ Home Improvement | 2022-06-21 | Home Retrofit | Residential | 535 Gravy Lane | 376 | -991.38 | 17,091.85 | -5.8% |
| 1001401251972190321_2022-03-07_2022-03-08 | Jay's EZ Home Improvement | 2022-03-08 | Home Retrofit | Residential | 507 Gravy Lane | 481 | 2,861.21 | 9,808.20 | 29.2% |
| 1002817969042021382_2023-02-20_2023-02-21 | Jay's EZ Home Improvement | 2023-02-21 | Weatherization | Residential | 136 Gravy Lane | 131 | 398.96 | 2,764.19 | 14.4% |
| 1004134042398163000_2022-06-27_2022-06-28 | Jay's EZ Home Improvement | 2022-06-28 | Home Retrofit | Residential | 493 Gravy Lane | 369 | 2,693.13 | 16,246.52 | 16.6% |
| 1005222263785541343_2022-12-05_2022-12-06 | Climate Comfort Contractors | 2022-12-06 | Home Retrofit | Residential | 422 Gravy Lane | 208 | 554.74 | 2,126.47 | 26.1% |
| 1005549261972339063_2023-06-12_2023-06-13 | Climate Comfort Contractors | 2023-06-13 | Home Retrofit | Residential | 898 Gravy Lane | 19 | 41.15 | 1,089.56 | 3.8% |
| 1005551289449700473_2022-09-12_2022-09-13 | Climate Comfort Contractors | 2022-09-13 | Home Retrofit | Residential | 686 Gravy Lane | 292 | 3,771.98 | 8,186.77 | 46.1% |
| 1006215811985751288_2023-06-26_2023-06-27 | Climate Comfort Contractors | 2023-06-27 | Home Retrofit | Residential | 864 Cronut Ave | 5 | 31.43 | 159.88 | 19.7% |

SUMMARY ^ 9,723 rows - 37 columns

Analysis Tool

Evaluation team assessed performance of individual projects (anonymized)

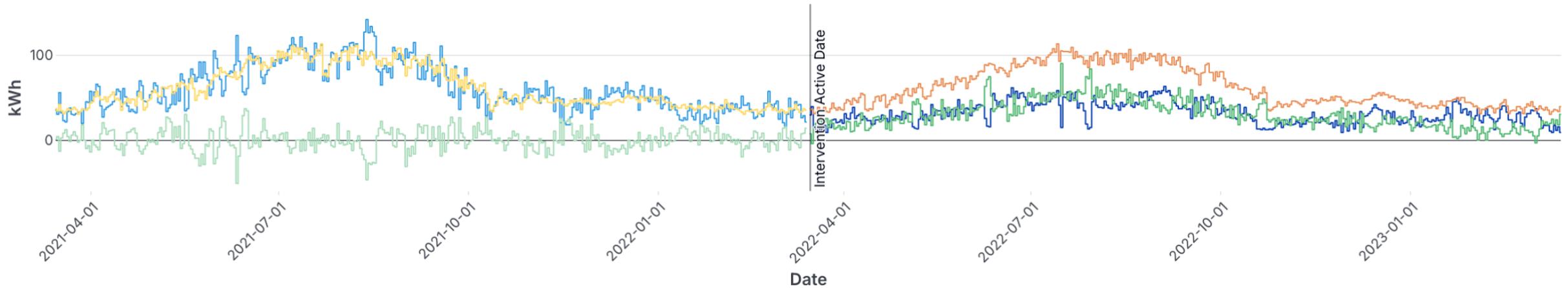
Aggregator
Jay's EZ Home Improvement

Intervention Active Date
2022-03-16

Measure Category
Building Shell

Project Electricity Breakdown [ⓘ]

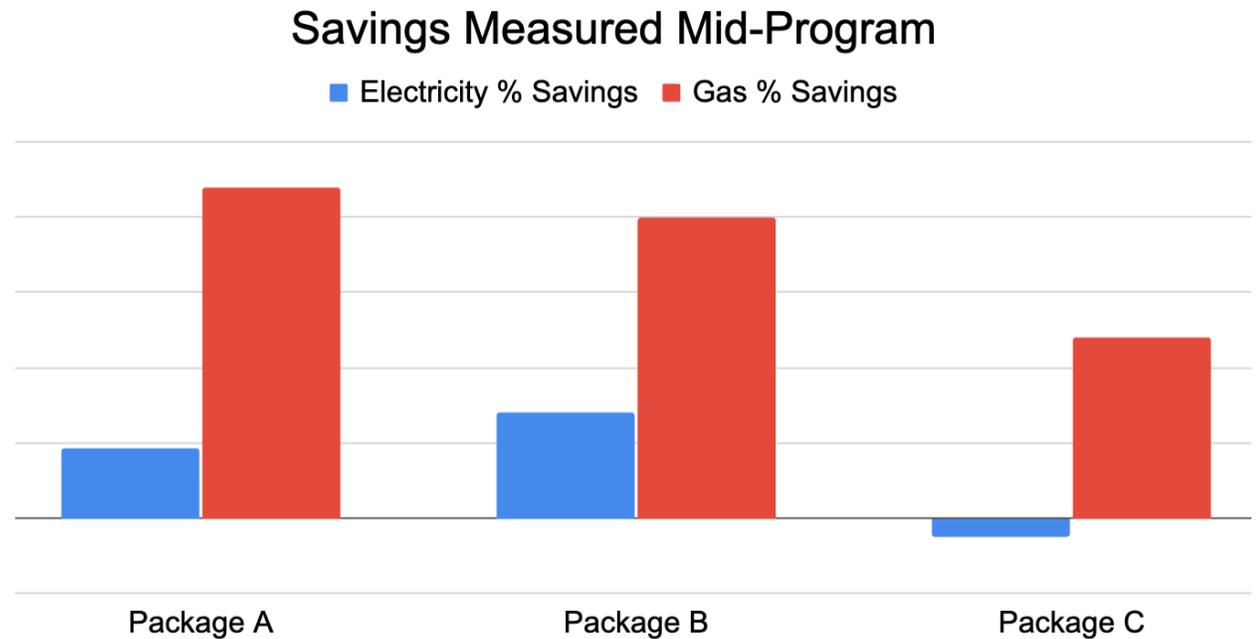
Baseline Observed Baseline Model Baseline Model Residual Reporting Observed Reporting Counterfactual Reporting Savings



Outcomes

Focus 1: Can real-time measurement inform program strategy?

- NYSERDA monitored the performance of various measure packages relative to their associated incentives
- One underperforming package was identified. Incentives were adjusted accordingly



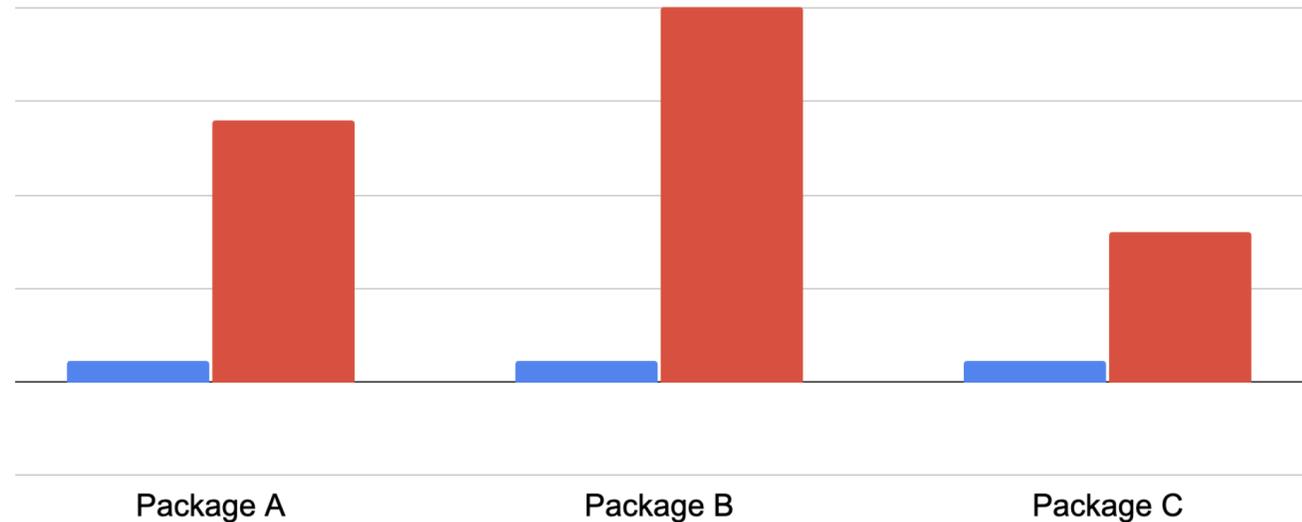
Outcomes

Focus 2: How does the measurement track compare to a formal evaluation?

Recommendation: Revisit the program's incentive structure to ensure incentives are aligned with the energy savings potential of measures. In particular, incremental incentives for installing windows in Package C may be misaligned with their savings potential."

Retrospective Evaluated Savings

■ Electric Cooling % Savings ■ Gas % Savings



Outcomes

Focus 3: What are the keys to success with real-time analysis?

- Early coordination between stakeholders to define goals for the analysis
- Roles and responsibilities that ensure accountability
- Constructing data pipelines that enable consistent and replicable results
- Applying consistent measurement methods on a recurring basis

Future Considerations



Replicate and improve the analysis on other energy efficiency programs helping New York reach its ambitious electrification targets



Apply analysis insights to target program participants based on forecasted impacts for different measure packages



Track contractor-level performance to determine how to best allocate additional training or support resources

Questions?

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