AGENTIS

AMI Data for Smarter Programs and Evaluations

Agentis: A Saas technology platform for energy efficiency, cost-of-service reduction, and digital customer experience

www.agentisenergy.com

About Agentis

Transform energy data into customer actions

Understand – Experts in non-residential energy consumers

11 years of experience
9 utilities successfully deployed
2.5M end-users

Create - Technology that end-users love

Saas Energy Analytics
Trends, Alerts, Suggestions
Utility and Customer Facing

Convert – Improve the customer journey

Increase program participation
Explain rates, costs, and trends
Promote Behaviors and Products

Customer Engagement Portal

Serving more than 2.5 Million non-residential customers with over 100 Million data points per year

- Configure displays for different types of businesses (i.e. small business vs large commercial), and different rate types

- Tailor EE program recommendations and behavioral tips based on customer type, size, and usage

- Help the customer understand insights, don't just show data

- While elevating relationships between customers and customer-facing teams

- Two years of verified behavioral savings

How Agentis Measures Savings Today

- Challenges with Evaluation

- Behavioral Savings

- Program Uplift

Evaluation Challenges in the Non-Residential Market

Customer Segmentation

Multi-account locations
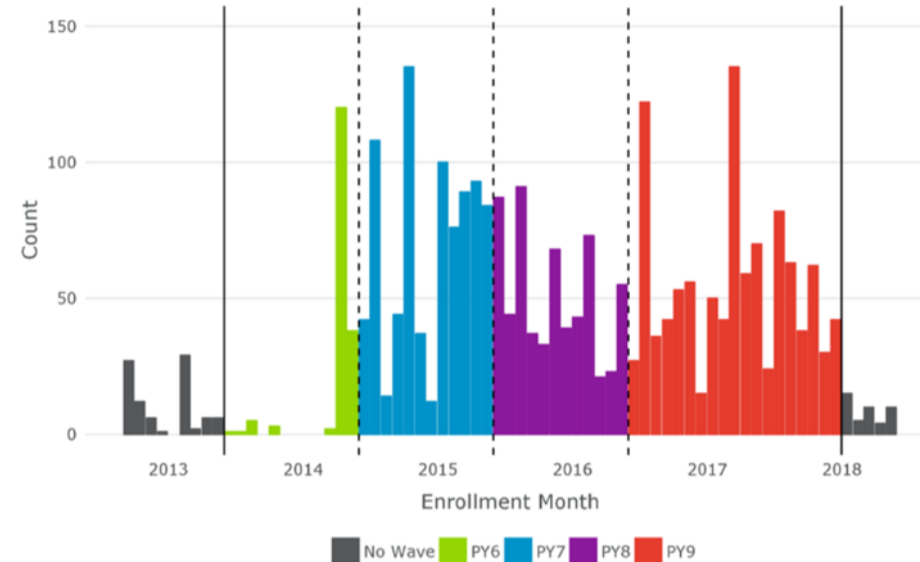
Economics

Persistence of Savings

Behavioral Savings Measurement

A quasi-experimental approach

Why not an RCT?

- Opt-in program - treatment accounts are inherently self-selected

- Cannot control when or how often the site is accessed

- Marketed to all accounts - no screening for participants

Figure 2-1. Enrollment History of Customers in BEA Program, by Month

Behavioral Savings Measurement

A quasi-experimental approach

Regression with Pre-Program Matching (RPPM)

- Matched treatment accounts with a non-treatment accounts with similar pre-participation average daily usage
- Outliers removed
- Regression model used average per day, per participant savings
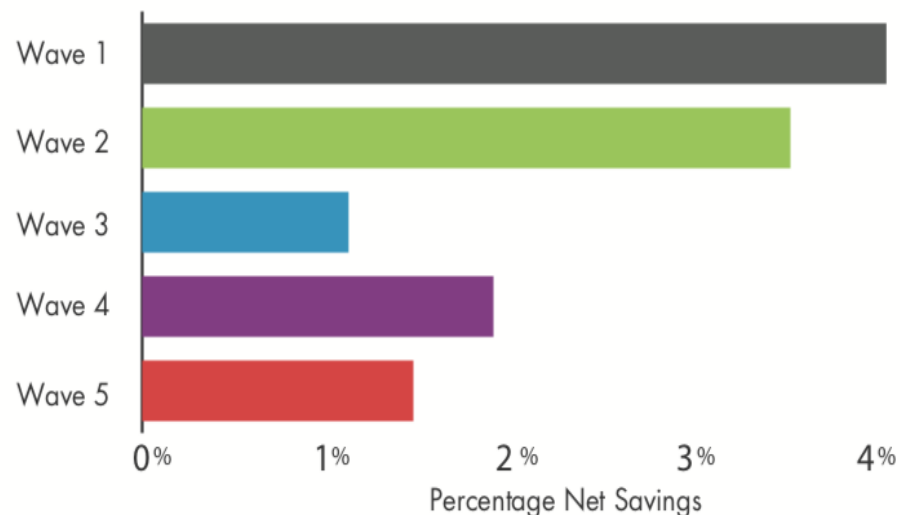
Behavioral Savings Measurement

- Agentis performs a conservative quarterly analysis ahead of the formal evaluation to:
  - Estimate savings
  - Determine when savings approached statistical significance, about 1000 active accounts

- Agentis quarterly analysis was used for the Guidehouse (Navigant) report Ex Ante savings.

Comparison with Previous Analyses
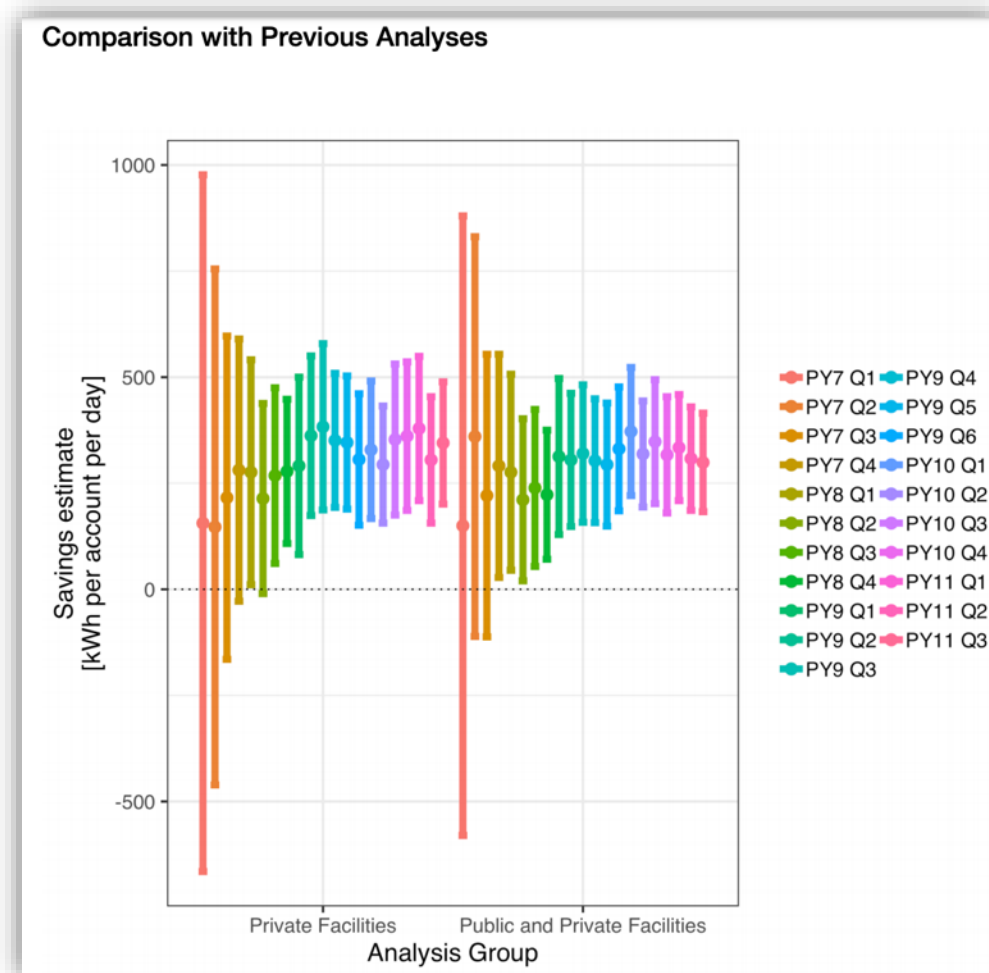
Savings Measurement

Program Uplift

- Difference-in-difference (DID) approach were applicable

$$(PY9\ treatment\ group\ participation - prePY\ treatment\ group\ participation)$$
$$- (PY9\ control\ group\ participation - prePY\ control\ group\ participation)$$

- Post-Only Difference (POD) statistic used where programs were not available pre-participation

- Legacy Savings Adjustment was done to prevent double counted savings for measures with over one-year EUL

- ***Uplift savings removed from behavioral savings claimed***

AMI Data Opportunities

- Customer targeting

- Smart recommendations

- Proactive program feedback

Customer Targeting: Multi Account Analysis

- Analyzing shutdown, load profile, hot weather use, trends and more to help customers identify which locations are priorities for retrofits

Rank Locations by Average Shutdown Percentage

The top thirty locations of the 50% of Chicago Public Schools that use the most energy are ranked by how efficiently they shut down during off-hours. The shutdown analysis is the ratio of off-hour usage to on-hour usage. A higher percentage means the business is shutting down better during off-hours. This analysis measures hourly electric use based on identified "off hours" and compares it to identified "on hours". These identified "off" and "on" hours are estimated based on specific individual account use for the most recent complete bill period.
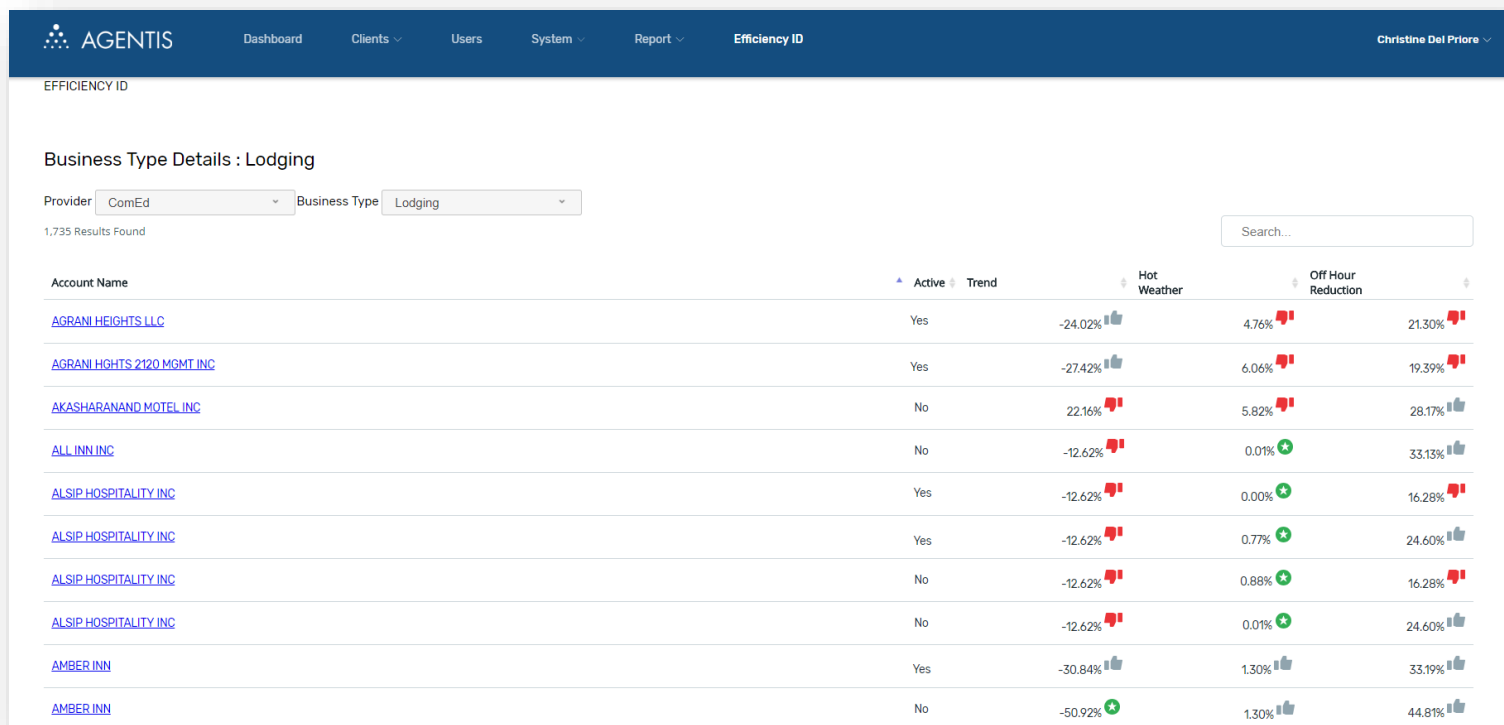
Accounts with poor shutdown ratios would be good candidates for any type of controls for lighting, thermostats, power strips, etc. Any recommendation that would help reduce their usage during times where the school is not operating.
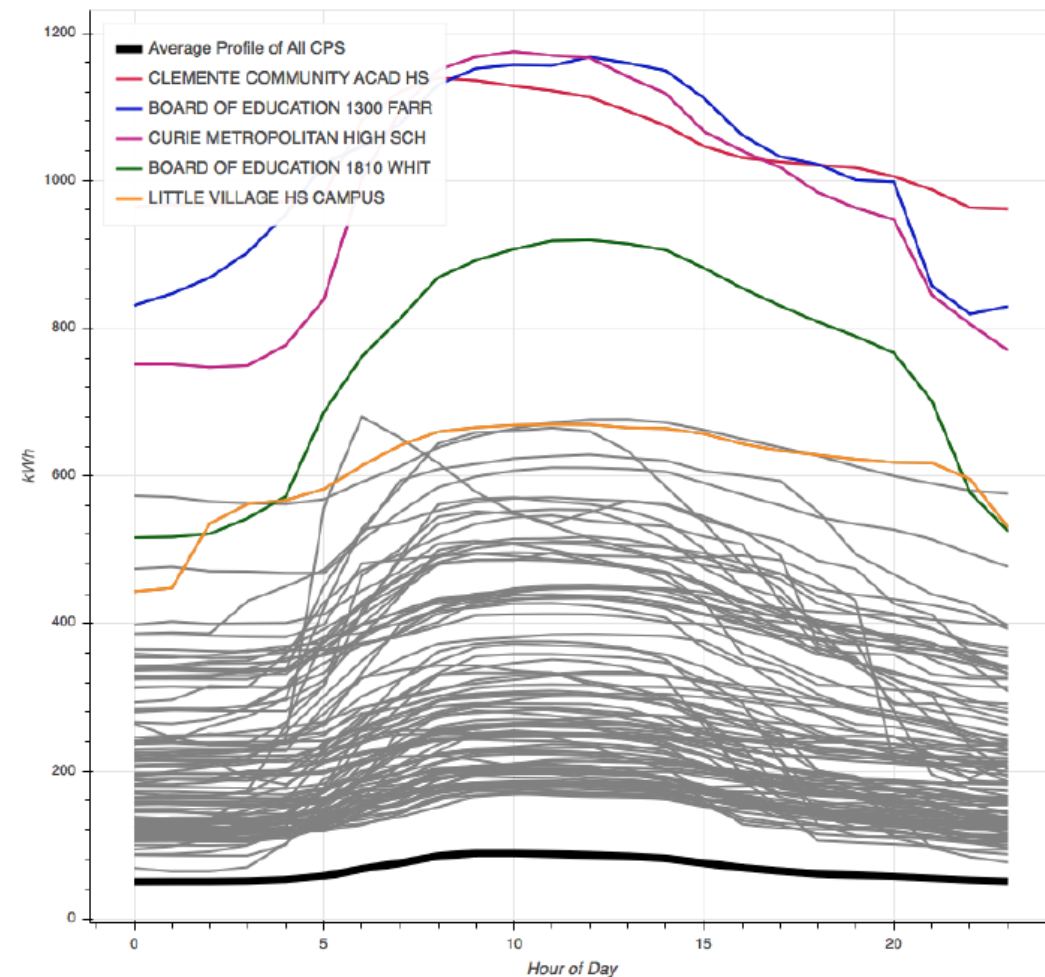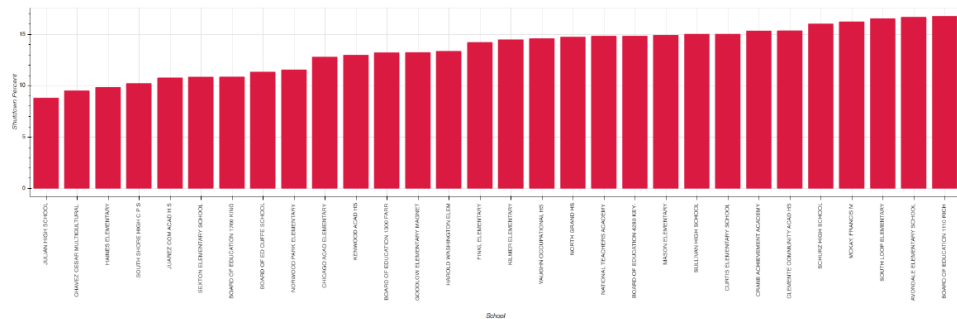
Customer Targeting: Portfolio-Wide Analytics

- Batch analysis on the utility portfolio of accounts, customers eligible for certain program, managed accounts.

- Identify if there is a market for a particular measure.

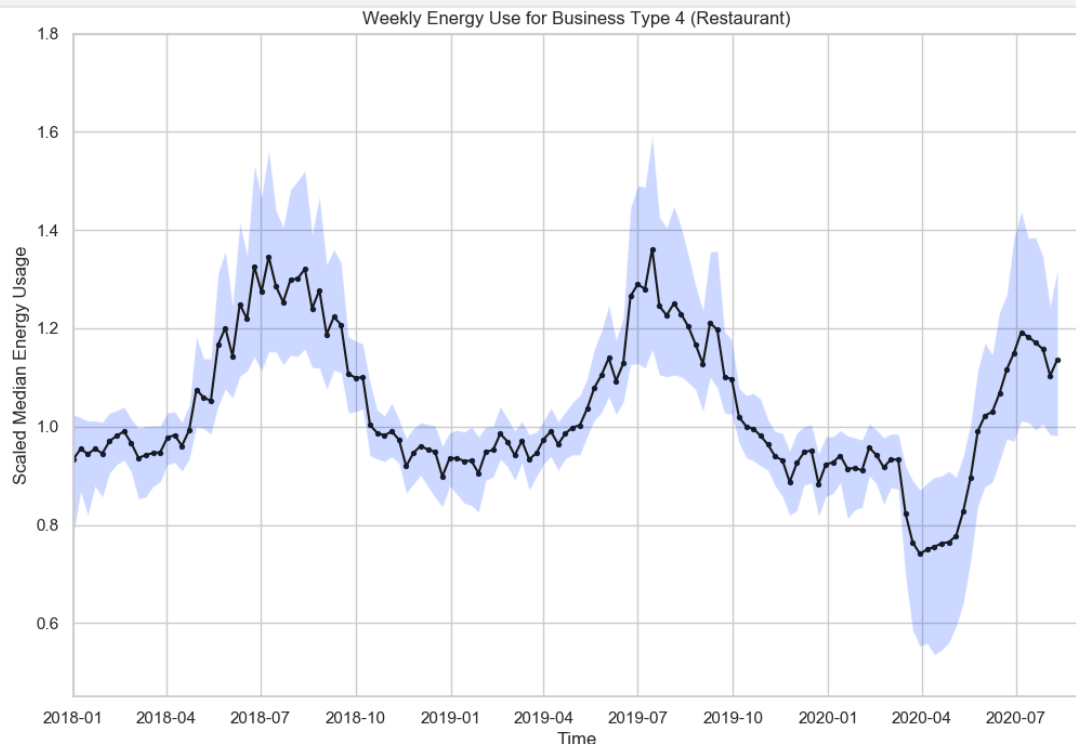- Identify accounts with the highest propensity to participate

Customer Targeting – COVID Impact Analysis

Weekly Energy Use for Business Type 4 (Restaurant)

Decreased energy use due to COVID-19
- Energy use decrease: Restaurants = -23%, Food Stores & Hospitals = -10%, Offices = -8%

- *Relatively small drop in Office energy use presents an opportunity for utility customer outreach programs*

Large groupings hide wide variation in energy use
- Groups that are severely affected by COVID-19 include confectionary stores, legal services, and technical services

- Groups that display little or no decreases in energy use include communications and specialty hospitals

Increased Platform Use was Observed for Office and Hospital groups
- Year-Over-Year pageview changes (April): Dashboard +46%, Electric usage report +37%, Demand heatmap +33%

Customer Targeting – COVID Impact Analysis

| Business Group Name	SIC Code	Sample Size	January through February			April through May		
			Baseline Min	Baseline Mean	Baseline Max	Covid Min	Covid Mean	Covid Max
All Food Stores	-	3456	-6.02	-3.86	-1.34	-12.22	-9.34	-7.05
Grocery Stores	5411	1888	-5.98	-3.77	-1.11	-11.23	-8.34	-6.33
Meat and Fish Markets	5421	101	-6.37	-4.07	-1.48	-13.64	-9.67	-6.15
Fruit and Vegetable Markets	5431	41	-4.83	-3.32	-2.55	-10.49	-5.58	-1.47
Candy, Nut, and Confectionery Stores	5441	60	-8.27	-6.53	-4.38	-38.63	-35.26	-32.52
Dairy Products Stores	5451	20	-8.78	-3.49	-0.92	-16.20	-13.04	-8.53
Retail Bakeries	5461	404	-4.41	-3.23	-2.51	-16.82	-14.21	-9.94
Miscellaneous Food Stores	5499	339	-8.12	-4.02	2.37	-11.80	-8.47	-5.04
Liquor Stores	5921	463	-7.67	-4.97	-2.28	-12.67	-10.34	-8.15
All Restaurants	-	4133	-5.05	-2.71	0.31	-26.69	-23.01	-20.34
Eating Places	5812	2190	-4.99	-3.10	-1.62	-25.47	-22.58	-20.35
Drinking Places	5813	1151	-10.28	-2.82	9.78	-29.00	-22.29	-16.18
All Hospitals	-	1624	-4.77	-2.92	-1.25	-12.82	-10.13	-7.63
General Medical and Surgical Hospitals	8062	1244	-5.61	-3.45	-0.94	-14.26	-10.66	-7.77
Psychiatric Hospitals	8063	22	-14.25	-7.11	8.91	-15.59	-8.59	-0.32
Specialty Hospitals, Except Psychiatric	8069	48	-3.36	-2.14	-0.97	-6.77	-3.83	-1.79

Bars and Restaurants are impacted to the same degree

General Hospitals show a drop in energy use while Specialty Hospitals are largely unaffected

Smart Recommendations: Savings Predictions

- Agentis machine learning models predict usage based on the individual usage patterns, business type, seasonality, weather, operational hours

- These models could detect a retrofit and predict savings
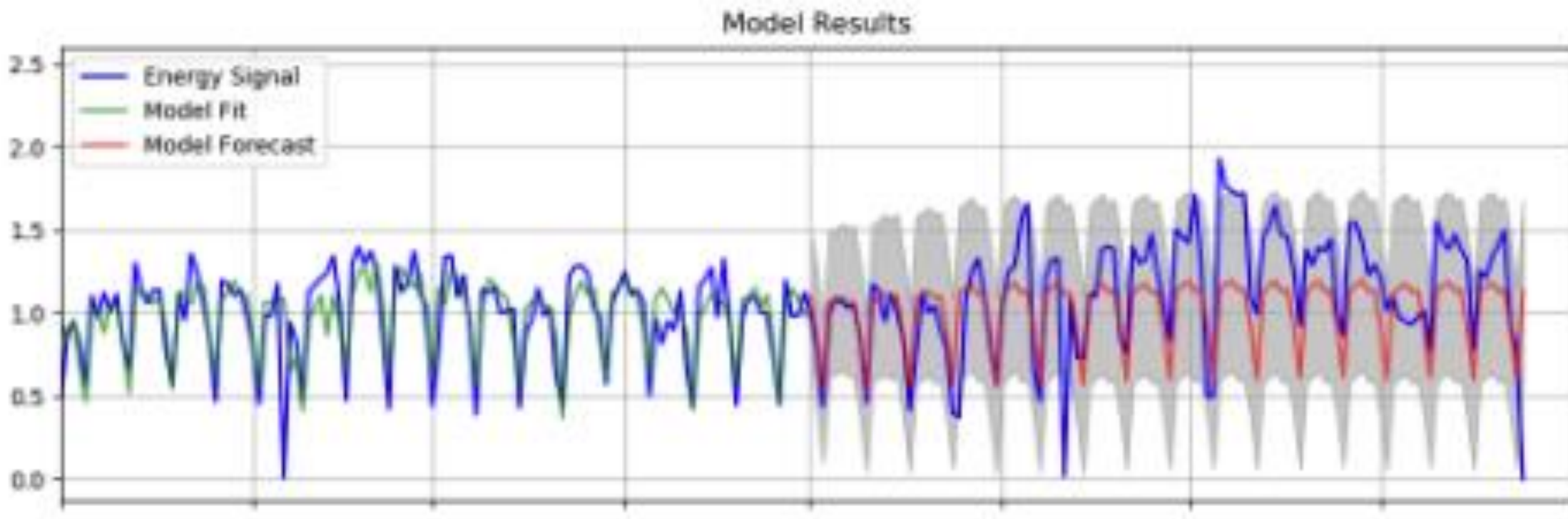
Smart Recommendations: The Amazon Approach

- Use AMI and program data to predict identify high impact measures for similar businesses

- "Recommended Items other customers often buy again"

- "Related to items you've viewed"

- "Frequently bought together"

Program Feedback: Measure and Promote Savings

Alert Settings

Monthly Trend Email
This email shows if your usage for the bill period increased, decreased, or stayed the same compared to the same period last year.
EMAIL / SMS

High Usage Alert – Day of the Week
We will send an email if your usage was more than 20% higher than usual for a day of the week. For example, "Your usage was 30% higher than the average Tuesday."
EMAIL / SMS

High Usage Alert – Bill Period
We will send an email if your usage for a bill period is more than 10% higher than the rolling average of the last year.
EMAIL / SMS

Holiday Alert
We will send a reminder to shut down properly for major holidays to reduce usage while your business is closed.
EMAIL / SMS

Program Year 1: 4.11%

Program Year 2: 3.58%

**Program Year 3: 1.14%**

Program Year 4: 1.94%

Program Year 5: 1.43%

- Notify the customer when the ROI is met

- Notify the program implementor and evaluator when savings are met or exceeded

- Overcome issues with operational changes

- Increase in service rates

- Analyze persistence of savings

Program Feedback: Measure and Promote Savings

- Analyze measure and program effectiveness

  - Evaluate accuracy of deemed and calculated savings.
  - Retargeting
  - Parallel review of custom projects

Results for Energy Filtered Data Model (lower 10% and upper 20% removed)
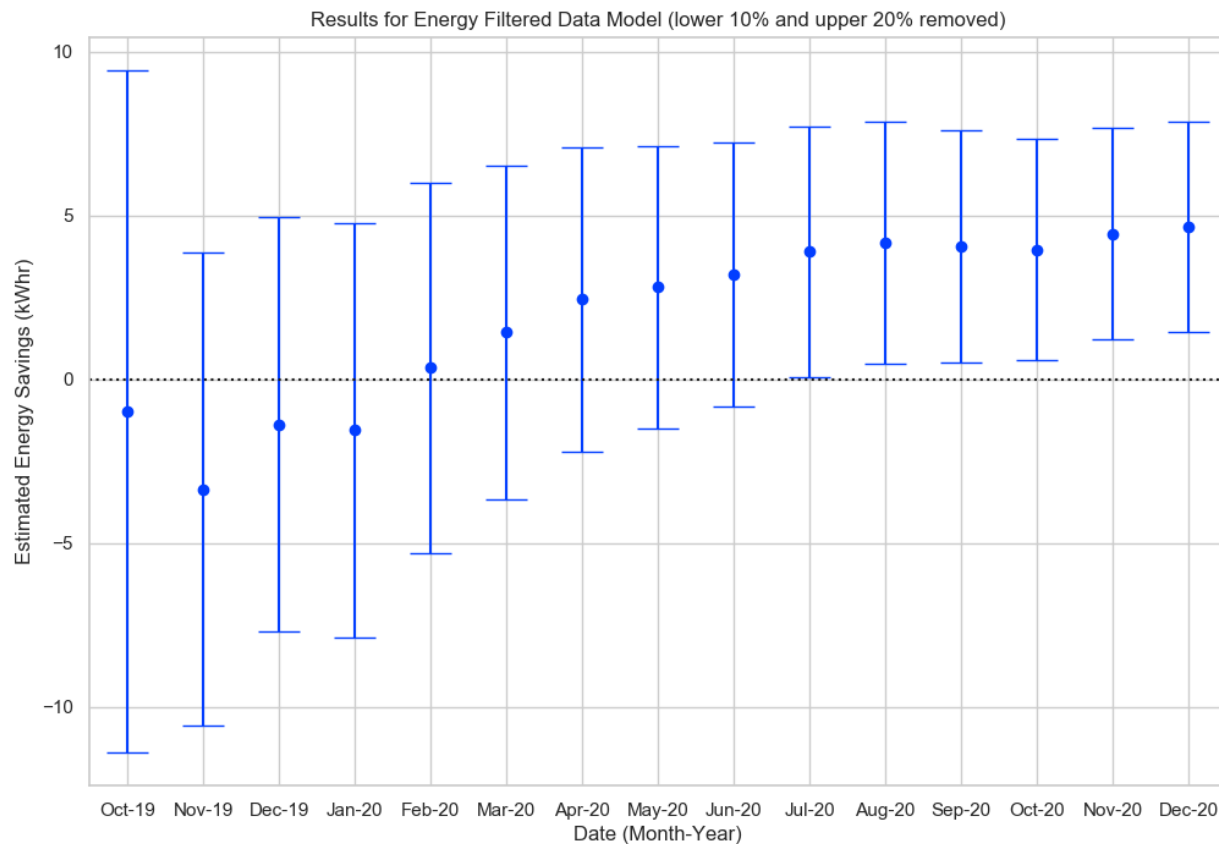
Thank You!

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