



REV Demonstration Project:
Connected Homes Platform

2019 Q4 Quarterly Progress Report & Project Closeout
Report

Dated: January 31, 2020

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1.0 EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) submits this 4th quarterly report of 2019 on the progress of the Connected Homes Platform REV Demonstration Project (“Project”) it is implementing as part of the Reforming the Energy Vision (“REV”) proceeding, as required by the *Order Adopting Regulatory Policy Framework and Implementation Plan*, issued by the New York State Public Service Commission (“Commission”) on February 26, 2015.¹

This 4th quarterly report of 2019 serves as the Project Closeout Report on the Connected Homes Platform REV Demonstration Project and documents the outcomes of the Con Edison Marketplace component.² The Con Edison Marketplace has met the REV goals, including empowering customers to make more informed energy choices, developing new partnerships, unlocking new revenue streams, and achieving energy savings targets set for the Project. As a result of this success, the Con Edison Marketplace has transitioned to an ongoing program within the energy efficiency portfolio beginning January 1, 2020.

1.1 PROGRAM ACHIEVEMENTS

On July 1, 2015, Con Edison submitted the Project for approval by Department of Public Service Staff (“DPS Staff”). On January 8, 2016, DPS Staff approved the Project. Con Edison filed an implementation plan for the Project with the Commission on January 29, 2016. The Project launched in Q2 2016 to approximately 275,000 customers in Con Edison’s Brooklyn and Westchester territories. Customers have access to detailed energy insights online and have received targeted offers in their Home Energy Reports and High Usage Alerts for solar panels, Wi-Fi thermostats, Sealed home services, and the Con Edison Marketplace, as eligible.

In early 2017, the Project successfully upgraded to the second version of the Con Edison Marketplace (Marketplace 2.0), the second version of the printed Home Energy Reports (HER 2.0) and launched the second round of targeted offerings for Sealed home services, Wi-Fi thermostats, and Marketplace.

In Q2 2017, the Project team developed new modules for the SunPower and Sealed campaigns creatives, expanded marketing efforts and added two new revenue streams on the Marketplace: third-party advertising and cost-per-click referrals.

In Q3 2017, the Project team conducted successful marketing and sweepstakes campaigns resulting in significant sales of energy efficient items and revenue generation. The team also launched a new solar experience within the Marketplace designed to increase customer engagement and create a new lead generation revenue stream. Negotiations with a new distributed energy resource (“DER”) partner,

¹Case 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Adopting Regulatory Policy Framework and Implementation Plan (issued February 26, 2015).

² The Home Energy Report component of the Project was transitioned to program status within the energy efficiency portfolio in 2018.

Mitsubishi Electric, were also finalized in the quarter, resulting in a new targeted campaign for heat pumps.

In Q4 2017, the Project team wrapped up the 2017 targeted offer campaigns for Sealed home services, smart thermostats, Marketplace products and Mitsubishi electric heat pumps. In addition, the team's optimization of Marketplace digital engagement campaigns resulted in a 25 percent increase in energy efficient product sales (lighting and thermostats), combined with a 9 percent increase in revenue. These transactions also resulted in a greater than 50 percent increase in lifetime electricity saved quarter-over-quarter. The team also successfully began testing email campaigns to promote the new solar program, resulting in 15 contracts executed.

In Q1 2018, the Project team expanded and optimized email and digital engagement marketing programs for lighting, thermostats, and the solar program. Despite being a normally quiet quarter for e-commerce activity, these efforts led to revenues in Q1 2018 that were comparable to the very successful Q4 2017, and a 10x year-over-year increase for the quarter. The first solar program installations were also completed in Q1 2018, and the team executed its first sponsored email campaigns, establishing a new source of revenue.

In Q2 2018, Con Edison filed an amendment to the Connected Homes REV demonstration project implementation plan on May 14, 2018. The main revisions to the plan include: promote Home Energy Reports to a full program within the Energy Efficiency Program portfolio; expand the Marketplace capabilities and extend the project timeframe through December 2019; and test two customer-centered concepts that will further customer engagement with the Con Edison Marketplace. The Marketplace team also implemented an expansion of the Solar experience to include Community Solar, providing renters and multi-family homes with options to participate.

In Q3 2018, the Project team sent the first wave of email promotions for Community Solar and ran a large LED lighting promotion. Lead generation activities for Sealed and rooftop solar have been a continued focus. The team also launched a landing page for the Brooklyn Queens Demand Response (BQDM) program to drive adoption and registration of smart thermostats. In addition, the team began the test trials for the two customer-centered concepts, Connected Homes App and Bright Futures, that will further customer engagement with the Con Edison Marketplace.

In Q4 2018, the project team launched the Checkout application to customers, replacing the e-commerce Storefront on the Con Edison Marketplace. By partnering with online retailer lightbulbs.com, Checkout enables a better customer experience and helps to solidify Con Edison's role as a trusted advisor and market animator. The project team also launched Contractor on the Con Edison Marketplace in December 2018, to facilitate connections between interested customers and vetted installation contractors. In addition, the team finalized the test trials for the two customer-centered concepts: Connected Homes App and Bright Futures. Project description and results were included as an appendix in the Q4 2018 report.

In Q1 2019, the project team ran a successful LED lighting promotion on Checkout for President's Day Weekend. The team also launched smart power strips as a new rebated category on Checkout. The team continued to expand media campaigns for thermostats and lighting to reach new audiences and minimize email list fatigue, as well as to optimize paid search and display campaigns. Following the launch of Contractor at the end of Q4 2018, Con Edison and the team collaborated on a press release to promote customer awareness of the Marketplace and the opportunity for customers to match with pre-screened local contractors for appliance installation.³

In Q2 2019, the project team launched a new approach for customer satisfaction surveying. The team also ran a smart thermostat promotion on Checkout for Earth Day. Following the Earth Day sale, the team updated the email template to more closely align with e-commerce best practices and leveraged this new template for the Father's Day promotion on Checkout.

In Q3 2019, the team ran several e-commerce promotions, including a thermostat sale around Independence Day and a lighting sale during the month of August.

In Q4 2019, the Project team started to integrate and transition to the Con Edison Energy Efficiency and Demand Management ("EEDM") group, in preparation for the conclusion of the REV Demonstration project. In addition, Q4 2019 featured several e-commerce promotions, including a series of thermostat sales around Black Friday and the holidays.

1.2 CYBERSECURITY AND PERSONALLY-IDENTIFIABLE INFORMATION PROTECTION

Consistent with Commission policy related to cybersecurity and the protection of personally-identifiable information ("PII"), each partner agreement executed for the implementation of the Project includes specific protections related to cybersecurity and PII. This protection is critical in encouraging customers to sign up with new and innovative services offered by utilities.

1.3 ACCOUNTING PROCEDURE ESTABLISHED

On February 16, 2016, in Case 15-E-0229, Con Edison filed an accounting procedure for the accounting and recovery of all REV demonstration project costs.⁴ This accounting procedure establishes a standardized framework that governs how the Company categorizes and allocates the costs of the REV demonstration projects and

³ <https://www.coned.com/en/about-con-edison/media/news/20190313/con-edison-and-homeadvisor-play-matchmaker-for-consumers-and-energy-efficiency-contractors>

⁴ Case 15-E-0299, *Petition of Consolidated Edison Company of New York, Inc. for Implementation of Projects and Programs that Support Reforming the Energy Vision*, General Accounting Procedure.

facilitates analyzing each project to determine the overall financial benefits of the program to customers.

1.4 COSTS, BENEFITS, AND OPERATIONAL SAVINGS

Budget information for all of the Company's REV demonstration projects is being filed confidentially with the Commission, concurrently with the filing of this document. All costs filed are incremental costs needed to implement the projects. To date, no tax credits or grants have been available to reduce the net costs of the projects, but Con Edison will take advantage of such offsetting benefits when they are available.

The Project costs were as planned and the Project increased non-revenue generating benefits, exceeding targets for customer engagement and energy savings. The Project facilitated revenue generation from sponsorship, advertising and increased revenue contribution of Marketplace e-commerce sales.

The Project exceeded digital engagement, email conversion, and DER sales goals, and fell slightly short of revenue goals. Results against milestones and goals are presented in section 2.4.4.

1.5 CONNECTED HOMES PLATFORM

The Project provided residential customers of Con Edison's service territory a set of tools designed to proactively connect the customers with cost-effective energy efficiency products and services and distributed generation offerings that are most relevant to them. The Project was designed to remove barriers to residential adoption of DERs and animate the DER market by using customer usage data and advanced data analytics to match customer needs with vetted DER products. Con Edison's partner in the Project, Enervee, administered marketing campaigns promoting a set of products and services to participating customers to demonstrate and evaluate the proof of concept.

This is the final Quarterly Progress Report and will serve as the Project Closeout Report for the Connected Homes Demonstration Project. Given the success of the Project, the online Marketplace platform will be part of Con Edison's Energy Efficiency Residential Programs as of 2020.

2.0 CONNECTED HOMES – QUARTERLY PROGRESS

2.1 DEMONSTRATION HIGHLIGHTS

2.1.1 Since Previous Quarter – Major Tasks Completion

- The Project team conducted a series of smart thermostat promotions for Sensi, Nest and Ecobee, including promotions for Black Friday and the holidays, e-commerce sales exceeded the previous year by more than 1,500 thermostats.
- The Project team tested a new sale format for lighting by offering a limited number of items, a steeply discounted bulb and promoting it over several weeks. This format, combined with an increased rebate budget for the program made Q4 2019 the strongest quarter for sales to date with over 157,000 LEDs sold.

2.2 ACTIVITIES OVERVIEW

An independent impact assessment of the Con Edison Marketplace covering the period from the July 2016 launch through the end of 2018 was completed by Opinion Dynamics in October 2019 and is included as Appendix C to this report. The study was designed to address multiple objectives, including estimating energy savings derived from product sales, assessing the role that Marketplace might be playing in affecting customer satisfaction and engagement and understand how energy savings and costs associated with Marketplace are partitioned across different programs. The initial version of the assessment (mentioned in the Q2 2019 report) was revised in Q3 and Q4 2019, as documented in Appendix C.

Conducted successful promotions for both smart thermostats and lighting, significantly outselling 2018. This was possible due to an increased allocation of rebate funds to the Marketplace program, which allowed the Project team to explore new sales tactics as well as additional products.

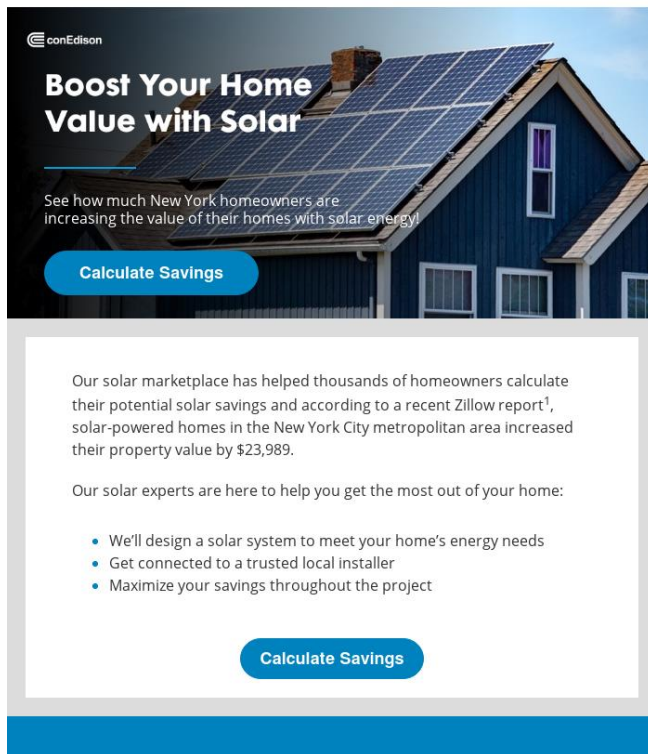
Marketplace Marketing Initiatives

Solar Email Campaigns

The Project team continued to promote the rooftop and community solar programs in Q4 2019. Since deployment, the community solar program has collected 1,966 leads and 180 completed contracts. In addition to reductions in energy savings and greenhouse gas emissions reductions, these solar campaigns also provide lead generation revenue for the Project. The Project team continued with solar promotions through the end of 2019.

The Project team also continued promoting rooftop solar accessibility, driving a total of 3,089 leads and 281 sold solar projects to date.

New Yorkers are boosting their home values by an average of \$23,989



The screenshot shows a Con Edison website banner. At the top left is the Con Edison logo. The main headline reads 'Boost Your Home Value with Solar'. Below this, a sub-headline states: 'See how much New York homeowners are increasing the value of their homes with solar energy!'. A blue button with the text 'Calculate Savings' is positioned below the sub-headline. The background of the banner is a photograph of a blue house with solar panels installed on its roof. Below the banner, there is a white box containing text: 'Our solar marketplace has helped thousands of homeowners calculate their potential solar savings and according to a recent Zillow report¹, solar-powered homes in the New York City metropolitan area increased their property value by \$23,989.' This is followed by another line of text: 'Our solar experts are here to help you get the most out of your home:'. Below this text is a bulleted list:

- We'll design a solar system to meet your home's energy needs
- Get connected to a trusted local installer
- Maximize your savings throughout the project

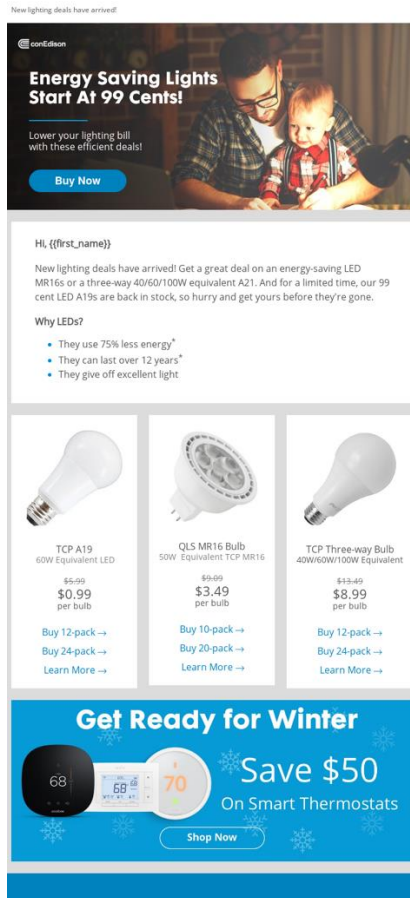
 At the bottom of this white box is another blue button with the text 'Calculate Savings'.

Energy Efficiency Day 2019

For Energy Efficiency Day, the team conducted a thermostat flash sale for Nest and Sensi products. This flash sale, combined with a shift in media to focus on thermostat sales, resulted in 840 thermostats sold—a record for the month of October for the program.

October Lighting Promotion

During the month of October 2019 the Project team executed a two-part email promotion for LED lighting, which moved more than 48,000 units.



October lighting promotion email

November / December Lighting Promotion

Beginning in mid-November 2019, the Project team produced a three-part sale that built excitement over a limited number of LED lights available for a special price. Each email would count down the amount remaining--and show the progress on the number of lights sold. This resulted in reaching the goal of selling more than 100,000 units during the promotion period.

Don't miss out on this special holiday deal from Con Edison

**100,000 LEDs
49 Days
\$0.89**

We've partnered to bring you our best LED bulb deal ever.

[Get Your Bulbs Now](#)

GE Lighting

Happy Holidays, {{first_name}}!

We've worked with our partners to bring in 100,000 energy-saving LED lights at the lowest price we've ever offered: **only \$0.89 cents each**. So, brighten up your holiday dinners and save energy with this great deal, exclusively from Con Edison for Con Edison customers.

Hurry though. We only have 100,000 left at this price, so get yours before they're gone!

All the best,
Con Edison Marketplace

 GE® A19 60 Watt Equivalent LED \$6.59 \$0.89 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More	 Greenline® Candelabra 50W Equivalent LED \$6.59 \$1.99 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More	 TCP® BR30 Bulb 60W Equivalent LED \$6.59 \$1.49 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More
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Don't miss out on this special holiday deal from Con Edison

**Only \$0.89
69,469 LEDs
42 Days Left**

Was \$6.59, now just \$0.89 for this premium energy-saving GE® LED bulb.

[Get Your Bulbs Now](#)

GE Energy

Hello again, {{first_name}}!

Last week we shared our goal of replacing 100,000 in-efficient light bulbs with energy-saving LEDs by offering you our best deal ever of just **\$0.89 each**. We're happy to share this update:

- 30,531 bulbs replaced with energy-saving LEDs so far!
- 69,496 left at this price**, so get yours before they're gone!

All the best,
Con Edison Marketplace

 GE® A19 60 Watt Equivalent LED \$6.59 \$0.89 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More	 Greenline® Candelabra 50W Equivalent LED \$6.59 \$1.99 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More	 TCP® BR30 Bulb 60W Equivalent LED \$6.59 \$1.49 per bulb Buy 8-pack Buy 12-pack Buy 24-pack Learn More
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Don't miss out on this special holiday deal from Con Edison

**35,508 LEDs Left,
Only 21 Days,
Just \$0.89 Each**

Only 21 days left to hit our goal of replacing 100,000 lightbulbs.

[Get Your Bulbs Now](#)

GE Lighting

Hello again, {{first_name}}!

We are getting close to reaching our goal of replacing 100,000 in-efficient lightbulbs with energy-saving LEDs. But the end of the year—and end of the sale—is coming fast!

Save energy and claim your premium GE® LED bulbs for a special price of just \$0.89 each. That's 87% off the regular price of \$6.99!

- 64,492 bulbs replaced with energy-saving LEDs so far!
- 35,508 left**, so get yours before they're gone!

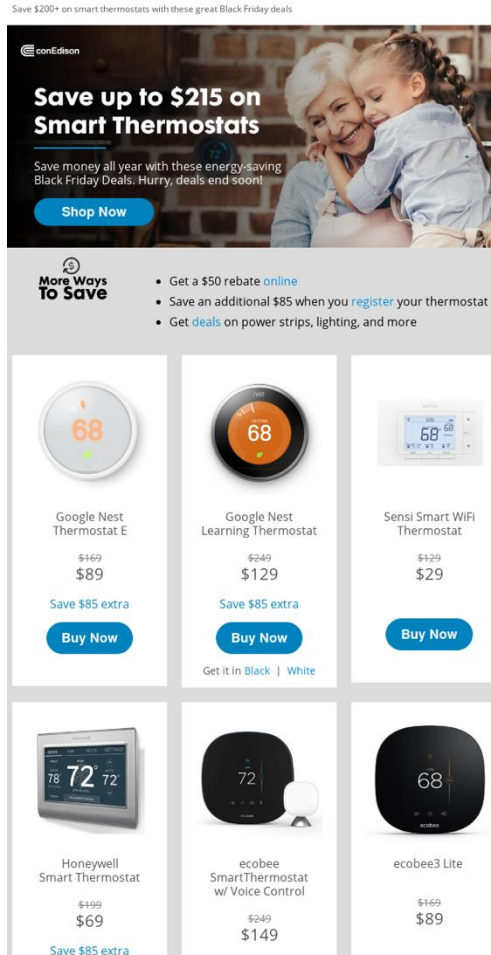
All the best,
Con Edison Marketplace

 GE® A19 60 Watt Equivalent LED \$6.59 \$0.89 per bulb Buy 8-pack Buy 12-pack Buy 24-pack	 Greenline® Candelabra 50W Equivalent LED \$6.59 \$1.99 per bulb Buy 8-pack Buy 12-pack Buy 24-pack	 TCP® BR30 Bulb 60W Equivalent LED \$6.59 \$1.49 per bulb Buy 8-pack Buy 12-pack Buy 24-pack
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Black Friday Promotion

During the Black Friday 2019 holiday, the Project team marketed smart thermostat manufacturer sales promotions. The promotion resulted in the sale of more than 1,300 smart thermostat units.

Save \$200+ on smart thermostats with these great Black Friday deals



Save up to \$215 on Smart Thermostats

Save money all year with these energy-saving Black Friday Deals: Hurry, deals end soon!

[Shop Now](#)

More Ways To Save

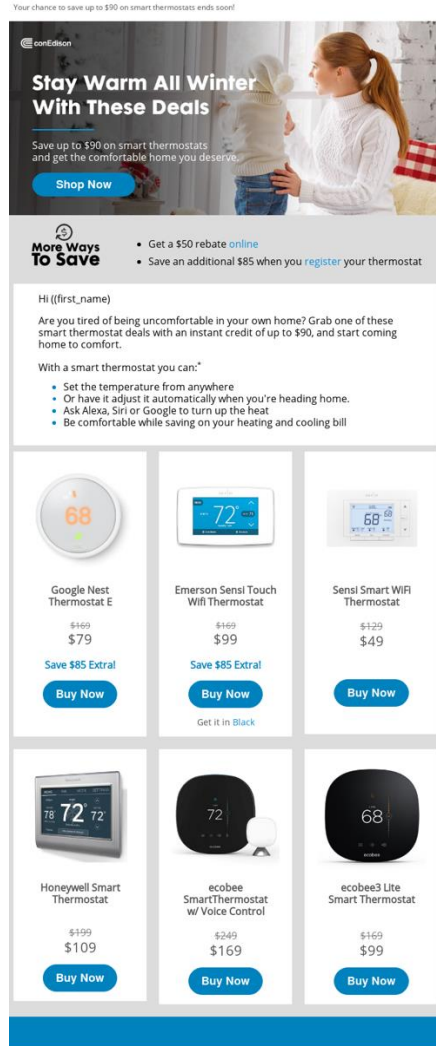
- Get a \$50 rebate [online](#)
- Save an additional \$85 when you [register](#) your thermostat
- Get [deals](#) on power strips, lighting, and more

 Google Nest Thermostat E \$169 \$89 Save \$85 extra Buy Now	 Google Nest Learning Thermostat \$249 \$129 Save \$85 extra Buy Now Get it in Black White	 Sensi Smart WiFi Thermostat \$129 \$29 Buy Now
 Honeywell Smart Thermostat \$199 \$69 Save \$85 extra	 ecobee SmartThermostat w/ Voice Control \$249 \$149	 ecobee3 Lite \$169 \$89

Black Friday Email

December Holiday Promotion

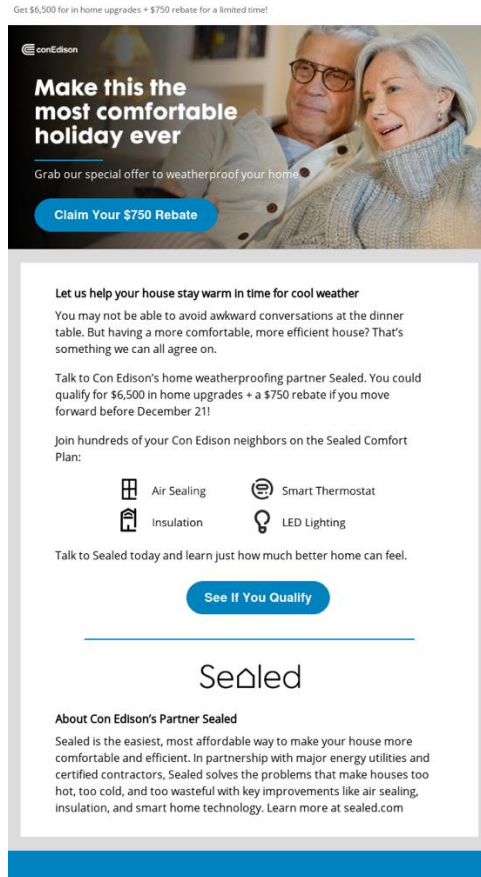
In December 2019 the Project team conducted thermostat promotions for Ecobee, Sensi, Nest, and Honeywell. The content for this promotional effort included a section on the benefits of smart thermostats and cross promoted the online rebate options. This resulted in the sale of 598 units.



Holiday Promotional Email

Sealed Email Promotion:

In Q4 2019, there were three different promotional campaigns that successfully produced 1,067 leads for our partner Sealed.



December Sealed Email

2.2.1 Key Metrics

For detailed Project results to date, see Appendix A: List of Metrics and Results.

Con Edison Marketplace E-Commerce Sales:

In Q4 2019, the Project team recorded 161,138 e-commerce orders consisting of 157,658 light bulbs, 3,473 thermostats and 5 power strips.

Digital Customer Engagement:

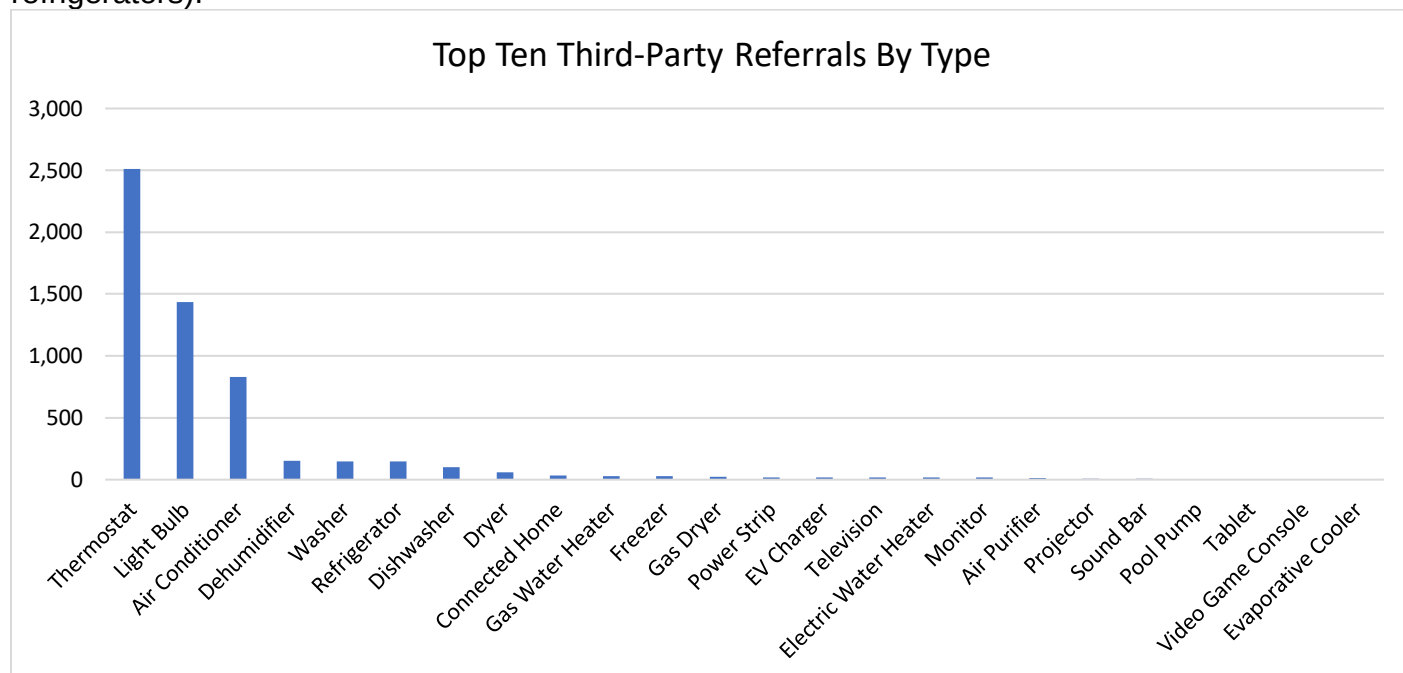
In Q4 2019, Con Edison's Marketplace attracted 264,222 unique visitors and 426,948 sessions, resulting in 906,082 corresponding page views.

The Con Edison Marketplace was also effective at raising awareness of other Con Edison programs and tracking actions taken by visitors. Since its inception in 2016 through the end of Q4 2019, a total of 20,094 Con Edison Marketplace visitors have clicked through on Con Edison's large appliance rebate offers, and a total of approximately 43,902 smart thermostat shoppers on Con Edison's Marketplace sought out information on the Smart Thermostat program. The Smart Thermostat program is a Con Edison demand response program, which offers participants an additional rebate

and allows Con Edison to make brief adjustments to thermostat settings during high demand periods.

DER Market Activation:

During Q4 2019, Con Edison Marketplace customers were directed to third-party appliance retail websites approximately 15,133 times. The most popular Con Edison Marketplace category researched was thermostats. Some products, such as LED lighting and smart thermostats peak around special promotions (such as the Black Friday sale), and air conditioners also tend to be more popular in the summer, whereas other products do not seem to show seasonal popularity trends (such as dishwashers and refrigerators).



Energy Savings:

Estimated energy savings associated with the Con Edison Marketplace e-commerce sales in Q4 2019 were 130,989 MWh and 1,372,140 Therms on a lifetime energy savings basis.

Greenhouse Gas Emissions Reductions:

The lifetime energy savings associated with Con Edison Marketplace e-commerce sales in Q4 2019 are estimated to reduce 155,075,895 pounds of carbon dioxide, 2,881.8 pounds of methane and 262 pounds of nitrous oxide emissions. Cumulatively, Marketplace e-commerce sales are expected to reduce greenhouse gas emissions by 387,554,804 CO₂e over the lifetime energy savings of the products.

2.2.2 Next Phase Forecast

In 2020, the Project team plans to continue focusing its efforts on channels that maximize energy savings while generating revenue.

Planned 2020 activities for Con Edison Marketplace include:

Increased emphasis on driving e-commerce sales, particularly focused on maximizing thermostat and lighting units sold.

Work with the Energy Efficiency team to best integrate the Marketplace with the overall residential portfolio.

2.2.3 Checkpoints/Milestone Progress

The Checkpoints established for Phase 2 of the Project Extension in the *REV Demonstration Project Amendment to Implementation Plan – Connected Homes Platform* (May 14, 2018) supersede the prior checkpoints and are listed in the following table. The Project Extension period ran from 1 August 2018 through 31 December 2019, and the Midpoint was set at March 31, 2019.

Checkpoint/Milestone	Timing*	Status
DER Sales: <i>Market Animation and Customer Choice</i>	Phase 2 Project Extension Midpoint / End	
Messaging Effectiveness: <i>Customer Motivation</i>	Phase 2 Project Extension Midpoint / End	
Digital Engagement: <i>Integrated Online Experience</i>	450,000 visits per 6-month period	
Revenue Realization	Phase 2 Project Extension Midpoint / End	
Customer-Centered Initiatives	Q4 2018	
Demand Side Management	Phase 2 Project Extension Midpoint / End	

*Detailed descriptions of the Phases can be found in Appendix B: Description of Phases.

Legend

 On Schedule	 Delayed w/out Major Impact		 Completed
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		Delayed or Stopped – Project Goals Impacted	
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2.2.4 Planned Activities

2.2.4.1 *DER Sales – Market Animation and Customer Choice*

Status: Blue

Expected target by Phase 2 of Project Extension End: 85,100 cumulative purchases

As of Q4 2019: DER sales were as expected in Q4 2019, totaling 298,578 cumulative purchases. Customer awareness and market animation were key goals of the Project, and the team focused throughout the Project term on aligning marketing efforts with DER sales goals.

2.2.4.2 *Messaging Effectiveness – Customer Motivation*

Status: Blue

Expected targets for Phase 2 of Project Extension End: Open rates reached 15 percent and click-through rates reached 3 percent.

As of Q4 2019: Open rates averaged 14.3%. and click-through rates averaged 4.61%. Open rates were just below the expected target, whereas click-through rates exceeded the expected target. Open rates were below target because the Project team agreed to an aggressive email schedule, which leads to some email fatigue and a slight reduction in the percentage of customers that open each email.

2.2.4.3 *Digital Engagement – Integrated Online Experience*

Status: Blue

Expected Target for Phase 2 of Project Extension End⁵: 1,275,000 cumulative visits

As of Q4 2019: Digital engagement exceeded expectations, with cumulative visits exceeding the Project Extension goal of 1,275,000 cumulative visits. Customer traffic to the Marketplace was a critical measure of customer engagement, and the marketing strategy was designed to optimize Marketplace visits.

2.2.4.4 *Revenue Realization*

⁵ The target was formulated as 450,000 visits per 6-month period, which translates into 1,275,000 visits during the 17-month Phase 2 period of the Project Extension.

Status: Blue

Expected Target by Phase 2 of Project Extension End: \$650,000 (cumulative for the August 1, 2018 to December 31, 2019 period)

As of Q4 2019: Revenue realization did not meet expectations.

Total revenues for Q4 2019 (Phase 2 of Project Extension) were \$274,577 (\$615,307 cumulative for the August 1, 2018 to December 31, 2019 period), and did not achieve the revised revenue goal, which was more ambitious than the prior goal. Vendor agreements resulted in less revenue than expected, in particular the Project team saw lower than expected uptake on Solar and lower revenue from retailers than originally planned.

2.2.4.5 *Customer-Centered Initiatives*

Status: Blue

Expected Target by Q4 2018: Connected Homes App - 100 participants; Bright Futures – 10 businesses and 100 participants

As of Q4 2018: The Connected Homes App and Bright Future projects were completed. There were 100 participants in the Connected Homes App, and 220 New Yorkers and 200 retailers engaged in the Bright Futures trials.

2.2.4.6 *Demand Side Management*

Status: Blue

Expected Target by Phase 2 of Project Extension End: 74,700 MWh of cumulative lifetime savings from products sold on the Marketplace.

As of Q4 2019: Sales of products in the Con Edison Marketplace translated to approximately 241,925 MWh of cumulative lifetime electricity savings, exceeding the expected target by 167,225 MWh.

2.2.5 Changes to Project Design

No changes are planned.

2.3 WORK PLAN & BUDGET REVIEW

2.3.1 Phase Progress

The Project team successfully worked through Phase 0 (Project Development) and Phase 1 (Project Launch), Phase 2 (Demonstration Implementation) and Phase 3 (Project Optimization).

Phase 0 consisted of submitting the Implementation Plan and completing partner negotiations.

Phase 1 consisted of all the activities required to launch the Project: data acquisition, program design and configuration, implementation of the web/Marketplace and call center tools, quality assurance testing and go-live, as well as initial customer community outreach efforts.

Phase 2 (Demonstration Implementation) tasks focused on overall maintenance and reporting for the Project. In lieu of the Request for Information (“RFI”) process included in the Phase 3 Work Plan tasks, Con Edison supported NYSEERDA’s development of the REV Connect online platform. This platform allows DER developers to read about and express interest in becoming involved with New York’s demonstration projects.

Phase 3 of the Project began during Q4 of 2017 as Con Edison collected data and evaluated results and lessons learned from various Project efforts. A full description of the major Project phases is set forth in Appendix B: Description of Phases.

2.3.1.1 Updated Work Plan

The timeline below details Phases 2 and 3 of the Project’s extension from August 2018 to December 2019, per the amended Implementation Plan.

Demonstration Project - Connected Homes Platform				2018		2019			
Activity No.	Activity Description	Status	Lead	Q3	Q4	Q1	Q2	Q3	Q4
1.0	Phase 2 - Demonstration Implementation								
1.1	Project Management	COMPLETED	Con Edison						
1.1.1	Track program metrics	COMPLETED	Con Edison/Enverve						
1.1.1.1	Track digital and outbound engagement metrics	COMPLETED	Enverve						
1.1.1.2	Track energy efficiency savings	COMPLETED	Enverve						
1.1.1.3	Report on DER sales and other revenue channels	COMPLETED	Enverve						
1.1.1.4	Report on Marketplace Net Promoter Score	COMPLETED	Enverve						
1.1.2	Reporting	COMPLETED	Con Edison/Enverve						
1.1.2.1	Deliver Quarterly Reports	COMPLETED	Con Edison/Enverve						
1.2	Delivery	COMPLETED	Enverve						
1.2.1	Maintain, Expand Categories/Incentives & Optimize Marketplace	COMPLETED	Enverve						
1.2.2	Community Solar	COMPLETED	Enverve						
1.2.3	Bundles products & services such as EV Chargers & insurance/warranties	COMPLETED	Enverve						
1.2.4	Expand sponsorship opportunities across all marketing activities	COMPLETED	Enverve						
1.2.5	Integrate contractor home services	COMPLETED	Enverve						
1.3	Ongoing Customer & Community Outreach	COMPLETED	Con Edison						
1.4	REV CONNECT PLATFORM - DER Online Resource	COMPLETED	Con Edison/NYSERDA						
1.5	Customer-Centered Applications: Meco & Bright Futures	COMPLETED	Con Edison/Deloitte						
2.0	Phase 3 - Project Optimization								
2.1	Evaluate project rollout	COMPLETED	Con Edison/Enverve						
2.3	Optimize Program	COMPLETED	Con Edison/Enverve						
2.4	Refine Program Design	COMPLETED	Con Edison/Enverve						
2.4.1	Refine DER Categories and Pricing	COMPLETED	Con Edison/Enverve						
2.4.2	Optimize Revenue/Benefit Opportunity	COMPLETED	Con Edison/Enverve						
In Progress Task									
Not Started Task									
Completed Task									

2.3.1.2 Updated Budget

As set forth in Section 1.3 budget information is being filed confidentially with the Commission.

2.4 CONCLUSION

2.4.1 Lessons Learned

In 2019 there was an increase in total units sold through the Marketplace's e-commerce solution, "Checkout." In 2018 the Project team had a very limited rebate budget, which capped off sales for the year. This budget allocation was greatly increased in 2019, which allowed the Project team to explore new tactics and greatly increase sales.

The Project team has worked on updating the solar experience in Q4 2019 to streamline the appearance and process for customers. Going forward, all stakeholders should be brought into design discussions earlier, especially if changes involve Con Edison brand guidelines. The new solar experience became available to customers in Q4 2019.

The Project team tested new formats for lighting sales, including multi-part emails with a limited number of products. This resulted in the projected number of sales and appears to help maintain open rates. This may be a good format to continue exploring in 2020 and suggests the team will need to continue to come up with additional creative promotional tactics.

The addition of a new lower-cost thermostat boosted sales in the second half of 2019. This suggests the team will need to continue to try and refresh the product offerings and provide more options and price points to customers.

While email continues to be a very effective tool during manufacturer promotions, the Project team also increased sales outside of promotions with paid search and display campaigns, showing this is still a critical channel. We will continue to expand on this in 2020.

2.4.2 Recommendations

As the Marketplace is transitioning and integrating with the EEDM group, the goals have slightly shifted relative to the REV Demonstration Project. The following are recommendations for the energy efficiency portfolio.

- Update customer files to improve digital marketing targeting efforts, and increase email traffic.

- Leverage retargeting to drive sales of energy-saving products, such as LEDs and smart thermostats, via paid media. In addition, use manufacturer promotions to accelerate sales.
- Try to find additional opportunities to assist the EEDM group with other residential program efforts in 2020, such as investigating low-income offerings on Checkout as well as exploring synergies with small commercial lighting and e-commerce.

2.4.3 Future of the Con Edison Marketplace

Given the success of the Project to increase adoption of energy efficiency products and services, generate new revenue streams, and increase customer engagement, Con Edison will continue the online Marketplace platform as part of the Energy Efficiency program portfolio.

The Energy Efficiency team at Con Edison will continue the partnership with Enervee during 2020 and will focus on online sales of efficient products and energy savings.

2.5 INCLUDED APPENDICES

Appendix A: List of Metrics and Results

Appendix B: Description of Phases

Appendix C: Online Marketplace Assessment (conducted by Opinion Dynamics)

Appendix A: List of Metrics and Results

Checkpoint	Category	Metric	Definition	Reporting Cadence	Results for Q4 2019
DER Sales: Market Animation and Customer Choice & Digital Engagement: Integrated Online Experience	Leads and Acquisitions	Qualified solar leads generated	Number of qualified leads from Marketplace	Cumulative	Rooftop: 3,089 leads Community: 1,966 leads
		Solar sales reported	Number of solar systems sold	Cumulative	Rooftop: 281 contracts sold Community: 180 contracts sold
		Solar installations	Number of solar systems installed/community solar service initiated	Cumulative	Rooftop: 133 installations Community: 0 implementations
Revenue Realization	Total Revenue	Total revenue to Con Edison	Revenue gained	Annually	Actual revenue through Q4 2019 is roughly 95 percent of the projected total Marketplace revenue through the Phase 2 Project Extension (December 2019)
Demand Side Management: Customer Co-Benefits	Energy / Demand / Benefits	Energy savings (Marketplace e-commerce sales)	Total kWh savings from product sales from the Marketplace e-commerce platform	Quarterly	Electric savings (MWh): 130,989 (lifetime) Gas savings (Therms): 1,372,140 (lifetime)
		Reduction in greenhouse gas emissions	Greenhouse gas emissions reduction from product sales from Marketplace e-commerce platform	Quarterly	155,075,895 lbs. CO ₂ ; 2,881.8 lbs. CH ₄ ; 262 lbs. N ₂ O.

Appendix B: Description of Phases

Phase	0. Project Development	1. Project Launch	2. Demonstration Implementation	3. Project Optimization
Milestone (Stage Gate to Next Phase)	Negotiations Complete • Partner contracts signed • DPS approval	Successful Platform Build: • Attract vendors in key categories • Successful data transfer	Platform Utilization: • Click through rates • Qualified leads • Contact center volume • Vendor retention • Customer satisfaction	Revenue Realization: • Revenue per source • Customer satisfaction • Vendor retention
Key Elements	• Platform provider contracted • DER providers signed-on	• Develop platform • End-to-end testing • Contact center training • Program go-live	Evaluate response of specific audiences to • DER combinations • Channels • Messages	• Leverage more granular customer data • Optimize profit by refining <u>categories, pricing, and</u> testing new business models • Optimize for energy efficiency gains • Evaluate response from the two test applications: <u>Meco</u> & Bright Futures
DER Categories	N/A	N/A	• Solar systems • Home audits • Smart thermostats, LEDs, smart power strips • HVAC systems • Appliances • Smart Home products	• Expanded DER products and services • New DER partnership
Status	Completed	Completed	Ongoing	Started

Connected Homes REV Demo Project

The **Connected Homes** demonstration project was designed to increase adoption of DERs and drive new revenue streams. The project initially included Home Energy Reports (HERs) with advertisement for DER promotions and an online **Marketplace**. The main focus became the online Marketplace, where residential customers can shop for energy efficient appliances, electronics, lighting, smart thermostats, solar services, and more. The project also completed two customer-centered trials: a) a small business badging project; and b) an app-based energy management tool.

Project Inception: January 2016
Project Launch: June 2016
Project End Date: December 2019
Budget: \$19.2M
Q4 2019 Spend: \$152,699
Cumulative Spend: \$17.22 M

Phase 0: Development
Completed

Phase I: Launch
Completed

Phase II: Implementation
Ongoing

Phase III: Optimization
Ongoing

Lessons Learned: Customers

- Energy savings from HERs were materialized but engagement to 3rd parties proved insignificant
- Marketplace marketing campaigns drive engagement, sales, and energy savings
- Variety of products and services in the Marketplace is well received and desirable

Lessons Learned: Market Partner

- Market partners have interest in working with Con Edison to promote their products and/or services
- Market partners are somewhat reluctant to pay or share revenue unless there is considerable customer engagement
- Market partners are interested in deep customer segmentation for proper targeting

Lessons Learned: Utility

- Marketplace drives customer engagement and customer satisfaction
- It's an effective platform to generate energy savings that can be claimed towards energy efficiency goals
- New revenue streams are achievable but not to the expected level
- Customers want Con Edison to offer customized products and services

Application of Lessons Learned: Con Edison Marketplace makes energy efficiency visible for most products in the market, empowering customers to make better choices. This is done by ranking products on its energy efficiency score and then engaging customers to understand how this translates to their energy savings. With the right mix of products, services, and partnerships, it is possible to generate moderate revenue to help reduce costs. The platform drives engagement, increases customer satisfaction, and contributes to the overall energy savings goals.

Issues Identified: Revenue generation to the point of "break-even" is challenging. Economies of scale and market competition are difficult to overcome.

Solutions Identified: Continuous coordination between market partners and internal teams were key to alignment, improved outcomes, and revenue realization.

Recent Milestones: a) Improved e-commerce sales with new email tactics; and b) Conducted successful smart thermostat promotions for Black Friday and the winter holiday.

Upcoming Milestones: The Marketplace will transition from a REV Demonstration Project to an Energy Efficiency program at the end of 2019. This marks the end of a successful REV Demonstration Project.

Memorandum

Con Edison Online Marketplace Assessment

To: Cristina Coltro, Con Edison
From: Todd Malinick, Director, Opinion Dynamics
Date: November 7, 2019
Re: Revised Online Marketplace Assessment Report

This memo summarizes revisions that have been made to the Online Marketplace Assessment report dated July 3, 2019. Overall, the research team has corrected a number of errors, refined some methods, and added additional material for clarity. The revisions include (page number and table references point to the new revised report dated October 28, 2019):

- **Sample frame and response rates updated - all sections:** An error was found in the way survey respondents were counted and coded in the data. This mainly affected the final sample sizes for each of the source types (see p. 12, Table 6, Column F), but also had implications for the Net-to-Gross Ratios (NTGRs) calculated throughout the study.
- **Thermostats - revised savings values, affects Online Product Sales and Non-Downstream Product Sales:** In the original report, two measures were reported for thermostats in the Online Product Sales chapter: (1) Wi-Fi thermostats and (2) learning thermostats. Also, in the Non-Downstream section of the report, only one measure was used, relying on the savings values for the learning thermostats. However, the Wi-Fi and learning thermostats use different energy savings values. Wi-Fi thermostats use TRM deemed savings while the learning thermostats use engineering equations with various variables (values of which we do not know) and assumptions. In the process of compiling the revisions, the team determined that the energy savings values to be used should be the Wi-Fi deemed savings values as they are clearer and provide a more conservative estimation of kWh savings. It should be noted that the measure used in this report also delivers therm savings.
- **Downstream Product Purchases - revised approach for estimating energy savings, pp.17-20:** In the old version of the report, we failed to account for the fact that we know exactly how many rebates exist, which results in a much simpler approach for estimating energy savings than was used in the old report. The approach taken in the new version of the report starts by taking the known number of rebates (Table 9, Column A) and multiplies by the proportion of survey respondents that recalled visiting Marketplace (Column B) to derive the number of rebated units associated with Marketplace visitors (or gross purchases) (Column C), which is then multiplied by the net-to-gross ratios to derive the estimated number of units influenced by Marketplace (or net purchases). All associated values in subsequent tables updated as well. A missing NTGR for electric water heaters was also updated.
- **Online Product Sales - updated sales counts, p.20-22:** At the time of these revisions, more up-to-date sales data had become available (the old data only went through the end of November 2018; new data goes through end of December 2018). These new values are incorporated into Table 14, as well as all subsequent

calculations. In addition, the above changes to sample frame and thermostat calculations also impacted the online product sales.

- **Non-Downstream Product Purchases - revised approach to estimating savings, updated Unique Active Shoppers; corrected purchases since visiting Marketplace, pp.22-30.** In the old report, savings calculations were based on applying product level purchase rates to product level unique active shoppers. However, after careful deliberation the research team decided this approach was not appropriate. Instead, product level purchase rates should be applied to overall unique active shopper counts (i.e., not at the product level) to ensure the population to which we apply purchase rates is consistent with the level at which we sampled respondents (i.e., all respondents were asked about all products in the survey). The determination of the purchase rates was also refined in the new report, where we acknowledge that (1) the three sample sources have different purchase rates, and (2) the three sample source groups are very different in terms of their representation in the overall population. As such, population-weighted purchase rates are used instead of straight averages (see p.25, Table 20, Column E as well as Appendix C). Finally, the counts of products were incorrectly presented for a few product categories; these have been corrected. All associated values in subsequent tables updated as well.
- **Total Gross and Net Savings To-Date -- all sections.** In the process of correcting other errors, the research team also discovered that savings to-date were not being computed correctly. In the old report, the tables titled savings to-date were calculated in a manner that actually presented aggregate savings as if all measures were only installed for one year -- effectively first-year savings. This did not take into consideration the fact that some purchases will have occurred way back in July 2016, and savings will have amassed over this entire time period, while other purchases will have been more recent, amassing less energy savings. Because we do not know when the purchases occurred, to more accurately reflect this range of time, the research team now takes the midpoint of the 30-month period covered by this evaluation (i.e., 15 months) and assumes all purchases took place at this 15-month time. This results in the need for an adjustment to accurately reflect total energy savings to-date, which consists of multiplying the first-year savings by 1.25 to derive total savings to-date (i.e., through the end of 2018). This has resulted in updates to the final tables in all of the sections of the report where energy savings are computed.
- **Lifetime Gross and Net Savings -- all sections.** The old version of the report did not include lifetime savings. The new version incorporates lifetime savings tables throughout the report.
- **Cost metrics updated, pp.37-38.** The presentation of separate cost metrics for gas and electric in the old report suggested that the total program expenses were allocated separately for electricity and gas. In this version of the report, cost metrics associated with electricity and gas are recalculated in a manner that more accurately reflects the costs. Now the research team starts by converting electricity and gas to MMBtu. These are then summed to derive total MMBtu savings. Next the research team computes the proportion of MMBtu that is associated with electricity savings as well as the proportion associated with gas savings. The total program expenses are then multiplied by the calculated proportions to estimate cost metrics for kWh and Therm savings. Appendix D was developed to show some of the detail associated with the cost estimation.
- **Total Gross and Net First-Year Savings -- all sections.** In the old version of the report first-year savings were erroneously calculated by multiplying "savings to-date" by $12/30 = 0.4$. First-year savings are now calculated directly, by multiplying purchases influenced by deemed annual per unit savings values.
- **Other updates.** Throughout the report text revisions have been made in association with the above revisions. Additional changes were made to provide additional clarity.



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Online Marketplace Assessment

Consolidated Edison Company of New York (Con Edison)

November 7, 2019



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Director

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1. Executive Summary

This report covers an assessment of the Consolidated Edison Company of New York (Con Edison) online Marketplace. Since July 2016, Con Edison has been offering residential customers their online Marketplace as a Reforming the Energy Vision (REV) Demo Project. By offering this site and steering customers towards more efficient products, Con Edison is aiming to amass energy savings while simultaneously improving customer satisfaction and engagement.

This project was designed to address multiple objectives including:

- Evaluating Con Edison’s Marketplace with a goal of estimating energy savings derived from associated product sales.
- Assessing the role that Marketplace might be playing in affecting customer satisfaction and engagement.
- Assessing energy savings and costs associated with Marketplace to understand how they are partitioned across different programs.

The research methods for this study involved web-based surveys with customers taken from several different data sources, including:

- Downstream rebate purchaser data
- Online Marketplace purchaser data
- Marketplace visitors that created a profile on the site
- Marketplace visitors that clicked through a Solar advertisement on the site
- Visitors that arrived at Marketplace from promotional emails

Overall, 2,607 customers took part in the survey.

The research team estimated four types of energy savings as part of this study:

1. Energy savings associated with product purchases that received downstream, post-purchase rebates from Con Edison (referred to as “Downstream” throughout the report). These are savings *already being claimed by the downstream programs* but represent lift to those programs from Marketplace.
2. Energy savings associated with online product purchases that received instant discounts (referred to as “Online Sales” throughout the report). These are *new savings* not yet claimed under any existing programs (but are claimed as Marketplace savings in Con Edison’s Scorecards).
3. Energy savings associated with product purchases attributable to the midstream Retail Products Platform program (referred to as “RPP” throughout the report).⁶ These are savings *already being claimed by the RPP Program* but represent lift to the RPP Program from Marketplace.

⁶ Several of the products offered on Marketplace are also part of the Retail Products Platform (RPP) Program, which is a midstream program that pays per unit incentives to retailers for each energy-efficient product sold in included product categories.

Executive Summary

4. Energy savings associated with more efficient purchases made as a result of Marketplace, without incentives, and which are not captured under any of the categories (referred to as “Marketplace” throughout the report). These are new savings not claimed by any existing programs.

Table 1, Table 2, and Table 3 present the final results of the analyses partitioned into the downstream, online sales, RPP, and Marketplace categories. Table 1 shows the first-year gross and net⁷ savings for all purchases made during the 30-month study period. Table 2 presents total gross and net savings achieved from July 2016 through December 2018. Table 3 shows lifetime gross and net savings that will be achieved for all product purchases made through December 2018. It is worth emphasizing that the downstream and RPP savings presented herein are *not* total program savings. Also, the Downstream and RPP savings are savings that are already being claimed by those downstream and mid-stream programs and, hence, only represent the lift to those programs that is coming from Marketplace. The savings associated with online sales and Marketplace in Table 1, Table 2, and Table 3 are new savings not yet claimed by any existing programs.

Table 1. First-Year Gross and Net Savings by Program

Program	First-Year Gross Savings			First-Year Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	3.5	2,338	29,456	1.7	1,160	14,852
Online Sales	2.6	7,896	201,842	1.7	5,465	129,159
RPP	0.3	400	8,325	0.1	219	4,762
Marketplace	7.9	22,948	733,234	4.8	16,133	437,046
Total	14.3	33,582	972,856	8.4	22,977	585,818

Table 2. Total Gross and Net Savings July 2016 through December 2018

Program	Total Gross Savings Jul 2016-Dec 2018			Total Net Savings Jul 2016-Dec 2018		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	4.3	2,923	36,819	2.1	1,450	18,565
Online Sales	3.3	9,870	252,303	2.2	6,831	161,448
RPP	0.4	500	10,406	0.2	273	5,952
Marketplace	9.9	28,684	916,542	6.0	20,166	546,308
Total	17.9	41,977	1,216,070	10.5	28,720	732,273

Table 3. Lifetime Gross and Net Savings

Program	Lifetime Gross Savings			Lifetime Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	41.5	27,423	324,011	20.5	13,608	163,369
Online Sales	33.5	149,048	2,220,262	22.0	103,600	1,420,746
RPP	3.4	4,620	91,574	1.8	2,590	52,380
Marketplace	88.8	270,546	8,080,199	54.3	188,809	4,815,150
Total	167.3	451,637	10,716,046	98.5	308,607	6,451,645

⁷ The net savings reported herein represent purchases of products made after visiting the Marketplace website that customers indicated were attributable to the site. See report Section 3.6 Net-to-Gross Estimation as well as Appendix B for an explanation of how net savings were calculated.

Executive Summary

The key findings from this study include:

- With a residential account customer base of 2.9 million, the platform and related digital marketing drove 958,605 visits by unique active shoppers, resulting in an estimated 221,417 influenced purchases.
- The evaluation of the Con Edison online Marketplace over the time period July 2016 through December 2018 captured substantial energy savings.
 - The research team estimates **first-year gross** demand savings of 14.3 MW, 33,582 MWh of first-year gross electricity savings, and 972,856 therms of first-year gross gas savings. This translates to **first-year net** demand savings of 8.4 MW, 22,977 MWh of first-year net electricity savings, and 585,818 therms of first-year net gas savings.
 - The research team estimates **gross savings to-date** (covering the entire 30-month period covered by the study July 2016 through December 2018) of 17.9 MW of demand savings, 41,977 MWh of gross electricity savings to-date, and 1,216,070 therms of gross gas savings to-date. This translates to 10.5 MW of **net savings to-date**, 28,720 MWh of net electricity savings to-date, and 732,273 therms of net gas savings to date.
 - In terms of **gross lifetime** savings, product purchases through December 2018 will deliver an estimated 167.3 MW of gross demand savings, 451,637 MWh of gross electricity savings, and 10,716,046 of gross therm savings. This translates to 98.5 MW of **net lifetime** demand savings, 308,607 MWh of net lifetime electricity savings, and 6,451,645 therms of net lifetime gas savings.
- Total savings values are partitioned into four categories: (1) downstream, (2) online, (3) RPP, and (4) Marketplace.
 - Of the total net lifetime savings resulting from the Con Edison Marketplace offering, 60% of electricity savings, 75% of gas savings, and 53% of demand savings are associated with the last category of savings – savings originating from Marketplace that are not associated with any other program. It is worth emphasizing that unlike with the first three categories of savings, this was done without incentives. This result points to the potential to scale cost-effective energy savings by eliminating market and behavioral barriers that prevent private investment into efficient products. It is also worth noting that this impact was achieved, even though marketing budgets were primarily directed towards online purchases. Instant online point-of-sale discounts drove 165,571 product sales, accounting for 33% of electricity, 21% of natural gas and over 20% of total energy and demand reductions. Both the Marketplace and the online sales are new savings, not claimed by any other program.
 - The overall Marketplace offering also provided lift to existing downstream rebate and RPP programs. About 6% of total electricity savings, 3% of total gas savings and 25% of total demand savings are associated with the downstream rebates. About 1% of total electricity savings, 1% of total gas savings, and 2% of total demand savings are associated with the RPP Program. The savings associated with the downstream rebates and RPP are already being claimed by those programs and the numbers presented herein represent the lift to those programs originating from Marketplace.
- A comprehensive assessment should be conducted to determine the cost effectiveness of delivering energy savings through Marketplace. Though a comprehensive cost-effectiveness assessment was beyond the scope of this study, the research team computed several simplified cost metrics to serve as baseline values for later comparison. Overall, for electricity savings, Marketplace-related purchases from

Executive Summary

July 2016 through December 2018 have delivered 8.31 kWh per dollar spent in terms of *first-year net* electricity savings (or a cost of \$0.12 per kWh saved), which translates to 103.07 kWh per dollar spent in terms of *lifetime net* electricity savings (or a cost of \$0.01 per kWh saved). For gas savings, the Marketplace offering has delivered 0.28 therms per dollar spent in terms of *first-year net* gas savings (or a cost of \$3.53 per therm saved), which translates to 3.52 therms per dollar spent in terms of *lifetime net* gas savings (or a cost of \$0.28 per therm saved). However, it is important to note that these simple cost metrics leave out important considerations such as participant costs, the sharing of costs that deliver savings to other programs, and research and evaluation costs. Furthermore, the study did not calculate any benefit metrics. Many benefits arise from Marketplace such as the value of avoided energy use and non-energy benefits such as Greenhouse Gas reductions, increasing Con Edison's digitally connected audience, improving customer perceptions of Con Edison, and animating the manufacturers and retailers to achieve REV goals.

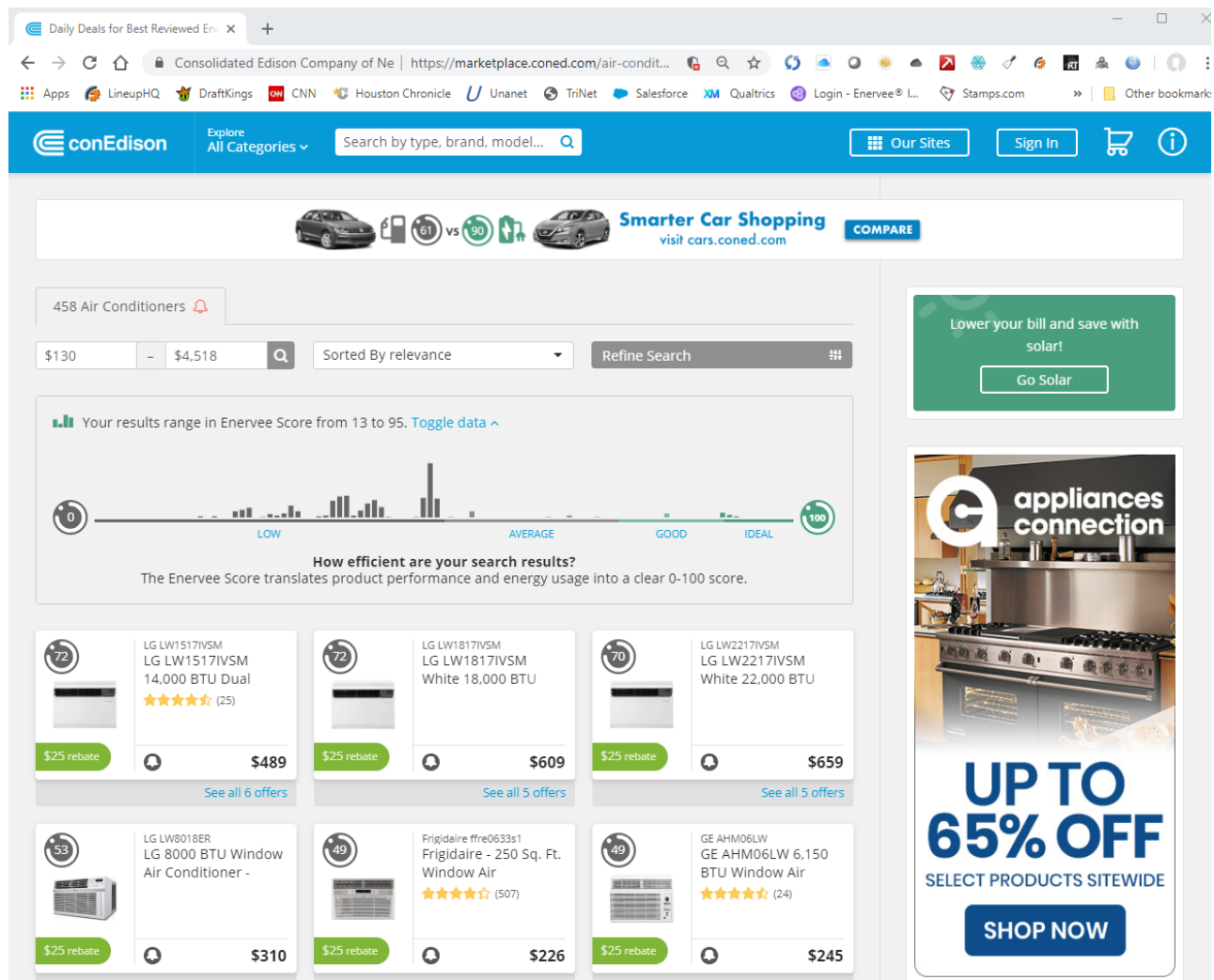
- The less tangible effects that Marketplace has on the Con Edison customer experience should not be overlooked. Almost two-thirds of respondents (62.9%) indicated that Marketplace was important in affecting their purchase decision (see Figure 10). The information they found most helpful was the Energy Score, availability of rebates, and estimated energy savings (see Figure 9), which previous research has shown is generally the information hardest for customers to find. So, it appears that Marketplace is having a positive effect by helping to fill existing information gaps.
- This study also showed that almost two-thirds of the website users reported being satisfied with the site (see Figure 11), and almost half of the respondents (49.1%) reported having a more favorable view of Con Edison after using the website (see Figure 13). Thus, while Marketplace is influencing purchase decisions and filling existing information gaps, customers also seem to appreciate Con Edison's effort in offering the site. Further, Marketplace is also providing other benefits valuable to customers including helping customers get quotes from local rooftop solar installers as well as the savings for going with community solar, helping customers get quotes from local installers for appliance installation services, and providing targeted offers from retailers and value-added service providers for Con Edison customers.

Introduction

2. Introduction

Since July 2016, the Con Edison has been offering residential customers their online Marketplace as a REV Demo Project. The online Marketplace platform, developed and implemented by Enervee, is meant to serve as a “kayak.com” and “Consumer Reports” for residential energy efficient home appliances and consumer electronics. The site can be visited at <https://marketplace.coned.com/>. A screenshot for room air conditioners is shown below in Figure 1.

Figure 1. Con Edison Marketplace Screenshot #1



Marketplace helps Con Edison customers conduct relevant research in real-time including the ability to compare images, specifications, reviews, tips for use, prices, and vendor locations. Several additional website features differentiate Marketplace from other sites on the Internet. First is the Enervee Score®, which shows how efficient a product is compared to all the other products currently for sale in the category. The closer to 100, the more efficient the product (see numbers in grey circles in Figure 1). A second feature is the CLEARCOST, which shows

Introduction

what a product may cost to purchase and run. CLEARCOST is determined by combining the lowest available purchase price for the product that day from retailers shown on Marketplace, with the energy costs of using the product over its typical lifetime, with the electricity rate specified, and the typical amount of usage. A third feature is the YOUSAVE feature, which shows you how much money you could save choosing one product over a less efficient product. The YOUSAVE estimate takes into consideration the number of years using the product, the amount of usage, and energy rate. Both CLEARCOST and YOUSAVE can be personalized by the user. A fourth feature of Marketplace is rebate support. Visitors can easily begin the Con Edison rebate application process from within the Marketplace website. A screenshot for a room air conditioner showing some of these features is shown below in Figure 2.

Figure 2. Con Edison Marketplace Screenshot #2

The screenshot displays the Con Edison Marketplace interface. At the top, there's a navigation bar with a 'Smarter Car Shopping' banner. The main content area features a product listing for an LG LW1517IVSM air conditioner. The product details include a cooling capacity of 14,000 BTU, window type, and 800 sq. ft. coverage. The price is listed as \$489. Below the product listing, there are three sections: 'average efficiency with an Enervee Score® of 72' and 'CLEARCOST of \$3,522 with a lifetime energy usage of \$3,033'; 'Higher price compared to similar air conditioners' and 'Price drop of \$12 since last week'; and '4.5 star rating' with '25 reviews from 1 retailer'. A green 'Claim Rebate' button is visible. To the right, a sidebar shows a 'Claim Your Rebate!' section with a \$25 rebate amount, valid from January 1, 2019, to December 31, 2019. Below this, there's a 'Most Efficient air conditioners' section featuring a Panasonic XE15SKUA with a 15,000 BTU 22.1 SEER rating and a price of \$1,849. A 'Get a \$25 rebate' section at the bottom prompts the user to enter their email for more information on how to claim the rebate.

The platform also includes a Checkout application that allows Con Edison to insert instant discounts into the online purchase process of partner retailers, overcoming the up-front purchase price barrier.

By offering this site and steering customers towards more efficient products, Con Edison is aiming to amass energy savings—but energy savings is not the only benefit to utilities who offer Marketplace. Over the past several years the utility-customer relationship has been changing; instead of the traditional relationship, customers are now expecting and demanding more from their utilities. Today, active customer engagement is becoming more of a focus for many utilities and offerings like Marketplace can play this role and help increase customer satisfaction.

Introduction

A scaled version of Con Edison's Marketplace first launched in July 2016 and the full-featured, fully-marketed version has been live since April 2017. At the time this study was conducted, the site contained 20 product categories (see Table 4).⁸

Table 4. Con Edison Marketplace Product List

Downstream	Online Sales		Non-Downstream
	Online Purchase with Instant Rebate	Not Rebated	
Dehumidifiers Dishwashers Clothes washers Air conditioners Electric water heaters	Light bulbs Thermostats	Power strips	Air purifiers Freezers Refrigerators Monitors Projectors Sound bars Tablets Televisions Clothes dryers Evaporative coolers Gas water heaters Pool pumps

- The **downstream** category refers to products that are currently rebated through Con Edison downstream programs. Visitors can view these product categories on the site and then can purchase the products elsewhere (e.g., in-store or other online resource). It is not possible to purchase these products directly through the website. As noted above, visitors can begin the rebate process through Marketplace, but this is not required.
- The **online sales** category refers to products that can be purchased directly on the Marketplace website. Two of these products include an instant rebate while one does not.
- The **non-downstream** category essentially refers to all of the remaining products on the website. These are products that visitors can view on the site and then purchase elsewhere (i.e., in-store or online resource). It is not possible to purchase these products directly through the website. The non-downstream category gets further broken down into RPP and Marketplace based on where the customer made the purchase.⁹

2.1 Study Objectives

This project is designed to address multiple objectives aimed at assessing energy savings and exploring the role Marketplace might be playing in engaging Con Edison customers. These objectives include:

⁸ The website also offers several products that were not included in this study including game consoles, connected home devices, electric vehicle chargers, and lighting dimmer switches.

⁹ Any purchases that a customer indicates took place from an RPP-eligible category and from an RPP-participating retailer's brick-and-mortar store get allocated to the RPP program; all other purchases get allocated to Marketplace.

Introduction

- Evaluating Con Edison's Marketplace with a goal of estimating energy savings derived from associated product sales.
- Assessing the role that Marketplace might be playing in affecting customer engagement.
- Assessing the energy savings and costs associated with Marketplace to understand how they are partitioned across different programs.

3. Methods

3.1 Research Design

Typically, with an energy efficiency program evaluation focused on market influence, the researcher needs to answer three main questions:

5. What specific energy-saving measures (i.e. product models) were purchased/installed?
6. How many measure units were purchased/installed?
7. How influential was the intervention in prompting the customers to make the purchase/installation decision they did?

Several additional issues need to be considered when evaluating Marketplace include:

- **Only some purchases are tracked.** At the time of this study, customers could purchase three of the products offered directly through the website (two with instant rebates¹⁰); five other products are rebated where customers can begin the application process through the Marketplace site.¹¹ For these products, program and/or website data tells us exactly what product was purchased and the research team has access to email addresses to conduct surveys to estimate the site's influence on customers' purchase decisions. The challenge is that there is no way of tracking purchases for the remaining products.¹² Marketplace changes the choice architecture (e.g., Enervee Score as a visual cue, CLEARCOST and YOUSAVE to support analytical decision making, etc.) and nudges customers towards more efficient retail purchases, but these purchases occur outside of Marketplace from other websites or from brick-and-mortar stores. As a result, an approach is needed to locate Marketplace visitors that are not rebate customers.
- **Not all purchases result in energy savings.** Because Marketplace provides information for all models available within the included product categories, there is no assurance that Marketplace only steers customers to efficient products—information besides the energy efficiency score may be leveraged by visitors resulting in inefficient purchases. While we know that any rebated or online purchase is inherently efficient simply because the record is part of the program data, we do not know this for non-downstream purchases. However, only efficient model sales contribute to energy savings. Thus, for the visitors that did not purchase online from Marketplace or submit a rebate, the efficiency level of the purchased products needs to be determined.

¹⁰ Instant rebates are now available on all Checkout categories, namely LED bulbs, smart thermostats and advanced power strips.

¹¹ Customers begin the application process by entering their email address. They are then sent an email that steers them to the Con Edison site to complete the application process.

¹² Though most products are not sold through the Marketplace website, Enervee has the ability to track some purchases. Marketplace presents (at least) daily updated retail prices for individual product models across all retailers. For retailers with which they have affiliate program relationships, Enervee has access to affiliate reporting, which, in some cases, includes information sufficient to identify product models purchased immediately following a Marketplace visit. When a Marketplace visitor clicks through to a retail offer at one of the participating retailers and makes a purchase via the retailer online shopping experience within a set period, without visiting any other website in between, the sale is recorded as an affiliate sale. However, while a purchase tied to Marketplace can be surmised with the affiliate data, the data still poses the challenge that the identity of the purchaser is not known (except in the few instances where the purchasing visitor is registered with Marketplace), and they cannot be located for subsequent research (i.e., attribution assessment).

- **Some purchases tied to Marketplace can also be tied to other Con Edison programs.** For downstream products, savings are already claimed by the individual downstream programs and the savings estimated through this study represent lift to these programs coming from the Marketplace website. For the midstream, RPP Program, things are more complicated. Some savings associated with RPP product categories where the purchase occurs from participating retailers' brick-and-mortar stores are being claimed by RPP and any savings associated with these products represent lift to RPP from Marketplace. Some sales occur directly through the Marketplace website and all the savings associated with these sales are claimable by Marketplace. Other savings associated with the sale of products from retailers not participating in RPP, or online sales from participating retailers, are also claimable by Marketplace. As a result, downstream, online, and non-downstream (some of which are RPP) product purchases need to be approached and assessed differently, and savings need to be partitioned across the different programs.
- **The benefits of Marketplace go beyond just the energy savings and related avoided costs.** While the benefits of Marketplace include the energy savings associated with energy-efficient products that visitors buy because of what they learned on Marketplace, Marketplace also drives rooftop solar installations, community solar subscriptions, purchases of EV chargers, visits to Con Edison Cars – and less tangible, yet vitally important benefits, such as improved customer engagement and increased customer satisfaction. All of these Marketplace benefits also need to be measured and incorporated into the assessment to truly understand the complete value that Marketplace might be delivering to Con Edison.

This research design for this study addresses these issues in order to estimate energy savings resulting from Marketplace. The proposed approach relies on web-based customer self-report surveys to collect information about efficient product purchases, influence of the site, and location of purchases. In addition, the survey also includes a battery of questions aimed at understanding the role that Marketplace might be playing in supporting customer engagement and improving customer satisfaction.

3.2 Sample Frame Development

The sample frame for this study was composed of several data sources containing contact information (i.e., email addresses) for potential Marketplace visitors. The files included (all covering the time period July 2016 through December 2018):

- Downstream rebate program data (source: Con Edison)
- Online Marketplace purchases (thermostats, power strips, and lighting) (source: Enervee)
- Marketplace visitors that created a profile on the site (source: Enervee)
- Marketplace visitors that clicked through a Solar advertisement on the site (source: Enervee)
- Visitors that arrived at Marketplace from promotional emails (source: Enervee)

Table 5 presents the composition of the sample frame after removing irrelevant records (i.e., out-of-date records, irrelevant products, etc.) and de-duplicating both within and across data sources. When de-duplicating within a file (i.e., an email address appears more than once

within a file), the most recent instance was retained;¹³ when de-duplicating across files (i.e., an email address appears in more than one file), the research team favored retaining the cases tied to particular product purchases; the result was the following prioritization: (1) rebate cases, (2) sales cases, (3) Enervee profiles, (4) solar cases, and (4) email click-throughs.

Table 5. Final Sample Frame Composition

Source	Original Number of Cases	Final Sample Frame Number of Cases
Rebate	88,868	48,825
Sales	19,503	13,950
Enervee Profiles	33,791	27,764
Enervee Solar	2,953	149
Email Click Through	213,789	181,016
Total	358,904	271,702

3.3 Survey Design

The research team developed a survey that begins by asking respondents if they recalled visiting the Marketplace website.¹⁴ The survey provided a detailed description of the website to help stimulate recall.¹⁵ Respondents that did not recall visiting the site were screened out.¹⁶ Those that did recall visiting were asked if they made purchases from any of the product categories after visiting the website. If they indicated they did, they were then asked a series of questions about their purchase decision, including how much Marketplace might have influenced it, and were also asked to verify the model number of the product they purchased. To minimize burden on respondents, they were only asked about up to three products selecting the products with the largest energy savings from the products they said they purchased.¹⁷

¹³ Note that the de-duplication process was used for the purposes of developing the sample frame so that no email address appeared in the final frame more than once. However, for the purposes of computing population sizes in terms of the number of rebated products (see Table 9 Column A; Table 14, Column A), all units were counted regardless of whether they were associated with matching email addresses or not.

¹⁴ The website first launched in July 2016. However, there was very little traffic to the site before Spring 2017 when marketing efforts were scaled up. The survey was conducted in the Spring of 2019, so some people were asked to respond about a site they visited three years in the past while the bulk were asked about a site they visited in the past two years. As such, it is possible that recall is not accurate for some respondents. In the future the research team recommends conducting surveys annually or even quarterly to help reduce the time between visiting the site and taking the survey.

¹⁵ The description was: “The Con Edison Marketplace is the website that provides information on different models of home appliances and consumer electronics. The information provided includes product specifications, prices, product energy use, reviews, and links to stores where you can purchase the products. Also, some products such as thermostats and light bulbs can be purchased directly from the site.”

¹⁶ The exception to this is with rebate customers, who were also asked, at the behest of Con Edison downstream rebate program staff, if they recalled submitting the rebate for the rebated product before terminating.

¹⁷ Of the total respondents, 35 indicated they had purchased more than three products. Thus, by not assessing all product purchases, the results presented herein are slightly conservative.

Methods

The research team treated downstream rebated product purchases differently from other purchases because the rebate program data tied customers to specific models,¹⁸ and all the models in the file had been verified as part of the rebate submission process. Also, since a comprehensive population file of the rebated purchases existed, the research team only needed to estimate the proportion of the total rebates attributable to Marketplace. As such, sampled customers that came from the rebate data were first asked if they recalled purchasing the specific rebated product they were tied to before being asked if they purchased any other products since visiting the website.¹⁹ Only respondents that recalled making the purchase associated with the rebate (for the rebate respondents) or made a purchase of any of the offered products (all respondents) continued the survey. The basic flow of the initial survey logic is shown in Figure 3. The survey instrument is provided in Appendix A.

Of the 2,607 respondents to the survey, 2,037 (78.1%) were screened out because they did not recall visiting the site.²⁰ An additional 48 (1.8%) were screened out because, even though they said they have been to the site, they did not indicate they made any purchases since visiting. A total of 522 (20.0%) respondents completed the remainder of the survey. Table 6 shows these results by data source.

¹⁸ End-use customers for the RPP program are not known because the incentives are paid to retailers. Consequently, end-user information is not typically collected and there are no databases for these programs telling us which customers purchased which products.

¹⁹ The research team needed to approach the survey this way because even though they already knew customers purchased the product (because the program data contained a processed rebate for the customer), if the customer did not recall the purchase, they would not be able to answer the other survey questions.

²⁰ Such a relatively large proportion of customers indicating they did not recall visiting Marketplace should not be surprising. First, a very large proportion of the potential respondent pool came from a list of customers that had been sent an email promotion steering them to Marketplace. They would appear in this list if they clicked through from the email, but they may have done nothing else and did not recall even doing so. Second, the time lag between when many people might have visited the site and they got surveyed could have been large (some may have visited in July 2016 but surveyed in 2019). Thus, many may simply not have recalled visiting the site.

Figure 3. Marketplace (MP) Survey Logic Flow

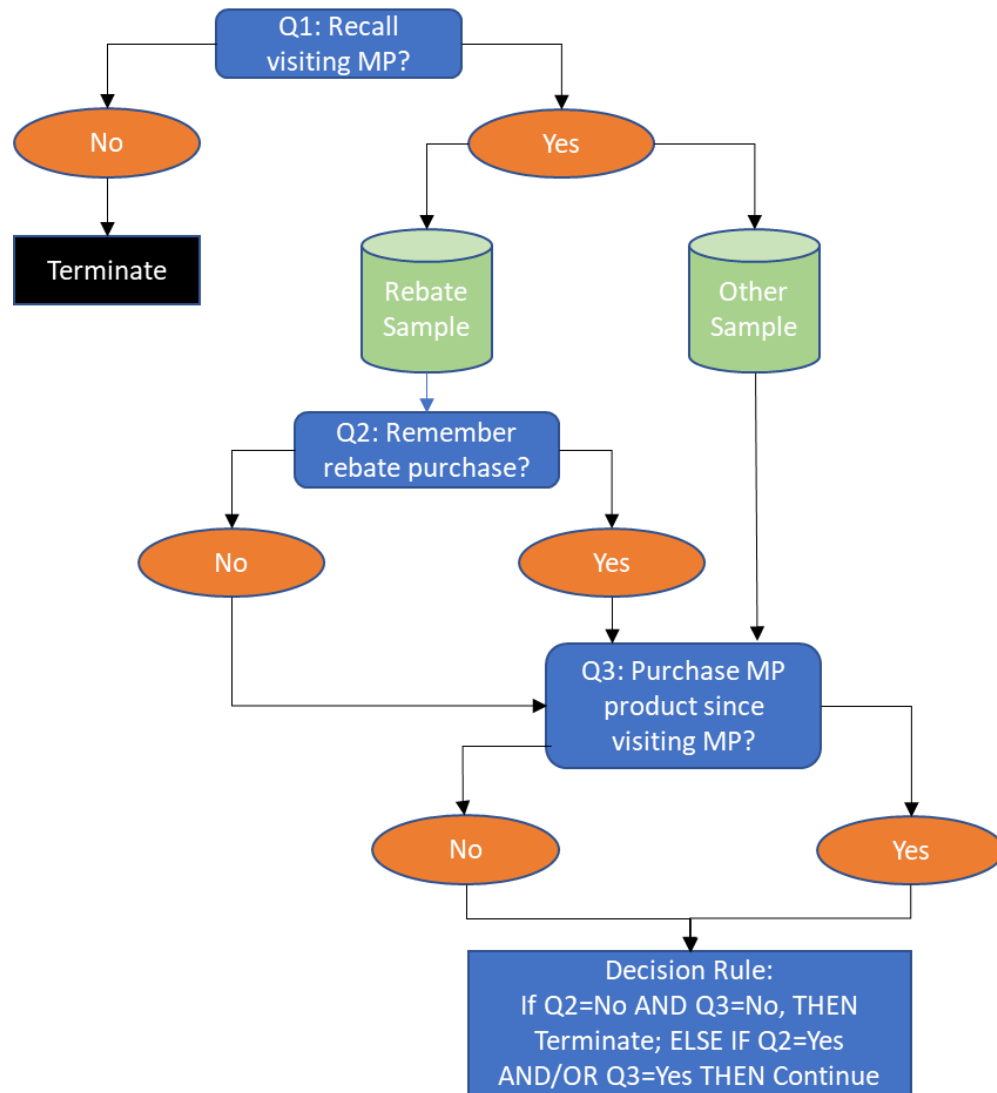


Table 6. Screened Out Respondents by Data Source

Source	Responded	Screened Out - No MP	% Screened Out - No MP	Screened Out - No Purchase	% Screened Out - No Purchase	Completed Survey	% Completed Survey
	A	B	C = B / A	D	E = D / A	F	G = F / A
Rebates	449	237	52.8%	18	4.0%	194	43.2%
Enervue	1,947	1,729	88.8%	4	0.2%	214	11.0%
Sales	211	71	33.6%	26	12.3%	114	54.0%
Total	2,607	2,037	78.1%	48	1.8%	522	20.0%

3.4 Survey Distribution and Response Rates

The research team programmed and distributed the survey using the Qualtrics survey software package. After thorough testing and validation, the survey was fielded March 22, 2019 through April 30, 2019. A final sample size based on confidence/precision was not a goal;²¹ instead, the sampling was constrained by an available incentive budget of \$6,000 (incentives were provided to respondents for completing the survey as well as providing information needed to verify the efficiency of product purchases).

After an initial soft launch to verify programming to ensure the programmed survey was functioning as expected, the team sent survey invites out in batches to manage the number of completes against the available budget. Each batch consisted of the initial email invite to the survey followed by three email reminders spaced roughly 3-5 days apart. Table 7 shows the number of respondents, and final response rates by data source. The highest response rate (computed as Responded/Sent Sample) was with the sales customers (3.8%; $n = 211$) and the lowest was with the Enervue customers (profiles, solar and email click-through) (2.4%; $n = 1,947$) and rebate group (2.4%, $n = 449$). The overall response rate across all sources was 2.4% ($n = 2,607$).²²

Table 7. Survey Distributions and Response Rates

Source	Total	Bad emails	Valid Sample	Sent Sample	Responded	Response Rate
Rebates	48,823	886	47,644	18,627	449	2.4%
Enervue ^a	208,929	1,019	206,357	82,441	1,947	2.4%
Sales	13,950	90	13,762	5,522	211	3.8%
Total	271,702	1,995	267,763	106,590	2,607	2.4%

^a The Enervue sample is comprised of the profile, solar and email click-through samples.

²¹ Ideally, sample sizes would be designed to attain certain levels of confidence/precision at the product category level as most analysis are conducted at that level. However, this is problematic as the incidence of website visitors making purchases of certain products is relatively sparse and attaining confidence/precision goals with the available sample would not be possible. Also, we have no idea of the actual population size.

²² It is worth noting that the sample sizes discussed above are the overall response rates, which includes all customers that answered the first question: *Do you recall visiting Con Edison's Marketplace?* Many customers screened out at this question as such, the sample sizes do not represent the total number of respondents answering the bulk of the survey; these numbers are smaller and shown in detail in the results section of this report.

²³ During the fielding of the survey the research team was alerted that the format of the email invites was steering many of the invites into spam. This was corrected during the survey, but after the fielding of the survey, the evaluation team also discovered a separate issue where most all emails to Gmail accounts were blocked. A very large proportion of the sample frame consisted of Gmail accounts thus resulting in a response rate that is deflated. These cases were kept in the response rate calculations because we do not know the full extent of the issue (as we typically do not with any email addresses used as part of a web survey), but it is certain that the actual response rate, less the rejected Gmail invites, would be notably larger.

3.5 Unit Energy Savings Values

To develop estimates of energy savings for this study the research team developed one unit energy savings (UES) value for each product category.^{24, 25} Many of the product categories are present in the New York Technical Reference Manual (TRM version 6, effective date January 2019), and TRM UES values are used when possible. Some products are not in the TRM but Con Edison Energy Efficiency staff were able to estimate per unit savings values based on the best available information. A few remaining products (monitors, projectors, soundbars, tablets, and televisions) are not contained in any relevant TRM and there was no other known source of savings values. To develop the UES values for these latter products, Enervee analyzed the distribution of annual energy consumption values for models with current online offers on February 7, 2019 within each product category—which reflects the choice set available to online shoppers. The estimated annual UES is the difference between the consumption of the model at the 90th percentile in terms of annual energy consumption and the 10th percentile model. This method offers a conservative savings estimate, because it adopts a new purchase baseline, although some fraction of purchases is made to replace existing consumer products that are still in service and would tend to consume more energy than the 90th percentile new product model. Demand savings were not readily available for all the products. Table 8 shows the demand, electricity, and gas savings values used for each product category for this study, also showing the savings sources.

²⁴ Measures often have different UES values based on factors such as product specifications (e.g., sizes, feature sets, etc.), building type of installation (single- or multi-family), or climate zone where the measure is installed. Attempting to obtain the level of detail needed to assign precise UES values was beyond the scope of this study, and a single UES value was developed and applied to all units within each product category.

²⁵ Note that some of the UES values might have changed over the July 2016 through December 2018 time frame. However, only a single UES was used for each product category to simplify analyses. The UES value used was based on the most current information available as of February 2019.

Methods

Table 8. Unit Energy Savings Values by Product Category

Product Category	kW/unit	kWh/unit	Therms/unit	Effective Useful Life	TRM Savings formula
Air purifiers	0.080	125.00	0.00	9	TRM ROR June 2017- Air Purifier
Clothes Washers	0.007	72.41	5.69	11	TRM v6 - Clothes Washer
Dehumidifiers	0.010	128.22	0.00	12	TRM v6 - Dehumidifier
Dishwashers	0.023	91.77	0.00	11	TRM ROR September 2018 - Dishwasher
Electric Clothes Dryers	0.002	22.50	0.00	14	TRM v6 - Clothes Dryer
Electric Water Heaters	0.170	3,554.12	0.00	11	TRM v6 - Heat Pump Water Heater (HPWH) - Air Source
Evaporative Coolers				15	N/A – no savings values determinable
Freezers	0.004	40.00	0.00	14	TRM v6 - Refrigerator & Freezer Replacement
Gas Water Heaters	0.000	0.00	83.48	11	TRM v6 - Storage Tank & Instantaneous Domestic Water Heater
Light bulbs (LEDs)	0.003	44.29	0.00	20	TRM v6 - Light Emitting Diode (LED), Compact Fluorescent Lamp (CFL) and Other Lighting
Monitors		66.93		4	Enervee
Pool Pumps	0.518	2,092.50	0.00	10	TRM ROR September 2018 - Pool Pump
Power Strips - Tier 1	0.000	57.50	0.00	8	TRM v6 - Advanced Power Strip
Projectors		340.69		4	Enervee
Refrigerators	0.004	40.00	0.00	14	TRM v6 - Refrigerator & Freezer Replacement
Room ACs	0.154	73.38	0.00	12	TRM v6 - Air Conditioner - Room (RAC)
Sound Bars	0.004	48.00	0.00	4	TRM v6.1 - Soundbar
Tablets		2.70		8	Enervee
Televisions		182.52		15	Enervee
Thermostats	0.230	104.00	21.50 ^b	11	TRM v6 - Thermostat- Wi-Fi (Communicating)
Gas Clothes Dryers	0.001	1.87	1.21	14	TRM ROR June 2017- Air Purifier

^a Though there are two separate measures for relevant thermostats -- Wi-Fi and Learning -- the values for the Wi-Fi thermostats are used in this report. The research team opted for this approach because the Wi-Fi thermostat savings are deemed, in contrast to the learning thermostats where energy savings calculations require several variables that are not available and assumptions that make a single set of savings values uncertain.

^b The TRM presents a therms savings value of 66 therms/unit for thermostats. The value of 21.5 is used herein to decrement the gas savings to account for the relative proportion of Con Edison customers that actually have gas heat.

3.6 Net-to-Gross Estimation

The survey included a brief net-to-gross (NTG) question battery, developed by the research team, that allowed estimation of product level NTG ratios (NTGRs). The individual product-level NTGRs are computed as shown in the following equation:

$$NTGR = 1 - \text{Free Ridership}$$

Methods

Free ridership, or the estimation of the proportion of customers who would have installed the energy efficient measures in the absence of the program, is estimated as the sum of two components. The first is *influence*, or the degree to which the Marketplace website influenced the customer to make the purchase they did. The second is *intention*, or what the customer intended to do in the absence of the program. An influence score and an intention score are summed to derive free ridership:

$$\text{Free Ridership} = \text{Influence} + \text{Intention}$$

Influence was measured by taking the maximum score of 12 items: a single item assessing the influence of the website overall; 11 items measuring the influence of various website features. The selected item then represents the most influential item. These questions are shown in Figure 4.

Figure 4. Assessing Influence

Q1. Overall, how important would you say the Marketplace website was in affecting your decision to purchase the [PRODUCT] you purchased?

1 – Not at all important
2
3
4
5 – Extremely important
98. Don't know

Q2. How much did each of the following Marketplace features help to facilitate your shopping experience?

[RANDOMIZE] Item	1 – Not at all helpful	2	3	4	5 – Extremely helpful
Energy efficiency (Energy Score)					
Retail price information					
Integrated instant rebate through the website					
Filter and sort functionality					
Price drop alerts					
Estimated global impact of running efficient equipment (EcoView)					
List of product features / specifications					

The maximum score is then assigned an influence score based on the following scoring rules:

- 1 → Influence Score = 50%
- 2 → Influence Score = 37.5%
- 3 → Influence Score = 25%
- 4 → Influence Score = 12.5%
- 5 → Influence Score = 0%

Methods

Intention was measured by taking responses to two questions aimed at assessing what the customer would have done if they had never visited Marketplace. These two questions are shown in Figure 5.

Figure 5. Assessing Intention

Q3. Thinking about the [Product] that you purchased... If you had NOT visited Con Edison's Marketplace, which of the following would you most likely have done?

1. Not purchased that particular [PRODUCT] model, but purchased another [PRODUCT] model
2. Not purchased any [PRODUCT] model
3. Purchased the same [PRODUCT], but delayed the purchase decision *by at least one year*
4. Purchased the same [PRODUCT] within the year
98. Don't know

[ASK IF Q3 = 1]

Q4. Would you have purchased a [PRODUCT] model that was ENERGY STAR® certified?

1. I am not aware of ENERGY STAR®
2. No
3. Yes
98. Don't know/Not sure

The intention score was computed according to the following rules:

If Q3 = 2 or 3 → Intention Score = 0%

If Q3 = 4 → Intention Score = 50%

If Q3 = 98 → Intention Score = 25%

If Q3 = 1 & Q4 = 1 → Intention Score = 0%

If Q3 = 1 & Q4 = 2 → Intention Score = 0%

If Q3 = 1 & Q4 = 3 → Intention Score = 50%

If Q3 = 1 & Q4 = 98 → Intention Score = 25%

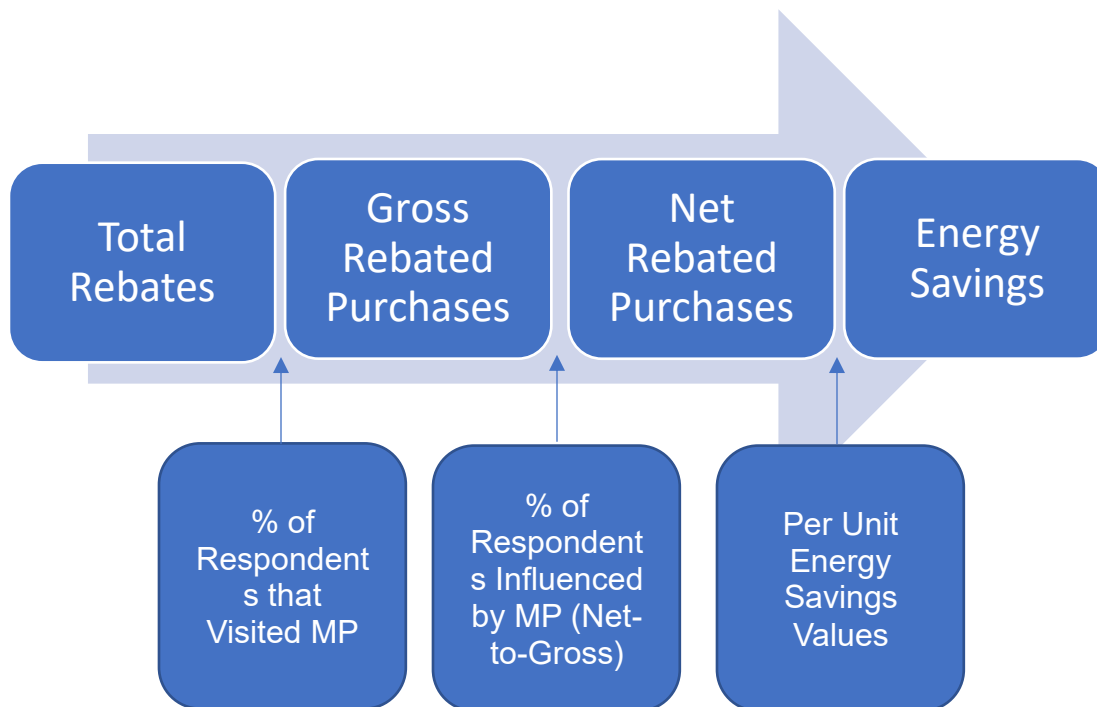
Two examples of net-to-gross scoring are provided in Appendix B.

4. Results

4.1 Downstream Product Purchases

As previously mentioned, downstream rebated product purchases, online product sales, and non-downstream products purchases are assessed differently. With downstream rebated products, the program data identified each measure rebated -- and quantity -- and because they were part of Con Edison's downstream program, are inherently energy efficient. As such, the only key parameters to estimate are: (1) the percent of respondents that recalled visiting Marketplace, and (2) the percent of these visitors that were influenced by Marketplace. These parameters, along with the UES values discussed in the last chapter, are then applied to population estimates of total rebates in order to compute energy savings. The general model for computing downstream energy savings is depicted in Figure 6.

Figure 6. Downstream Savings Estimation Model



As denoted in the model, the first step in estimating downstream energy savings involves taking the total number of units rebated for all relevant downstream programs during the study period from the Con Edison downstream rebate program data (Column A, Table 9). The total rebated units are then multiplied by the proportion of surveyed respondents that recalled visiting the Marketplace website (Column B = $(449 \text{ Responded} - 237 \text{ Screened Out No MP}) / 449 \text{ Responded} = 47.2\%$) to derive the number of rebated units associated with Marketplace visitors, or gross units purchased. The NTGRs (Column D) are then applied to the gross units

Results

purchased to derive the estimated number of units influenced by Marketplace, or the net units purchased (Column E).

Table 9. Estimated Gross Units Purchased, Net-to-Gross Ratios, and Net Units Purchased – Downstream

Product	Total Rebated Units (Population)	% of Respondents that Recalled Visiting MP	Rebated Units Associated with MP Visitors (Gross Units Purchased)	% Influenced by MP (NTGR)	Estimated Number of Units Influenced by MP (Net Units Purchased)
	A	B	C = A x B	D	E = C x D
Clothes Washers	6,993	47.2%	3,302	50.7%	1,673
Dehumidifiers	1,496		706	56.8%	401
Dishwashers	8,252		3,896	48.0%	1,871
Electric Water Heaters	29		14	49.6%	7
Gas Water Heaters	271		128	50.0%	64
Refrigerators	180		85	62.5%	53
Room AC	46,156		21,793	49.4%	10,759
Total	63,377		29,924		14,829

Table 10 presents the annual per unit energy savings for the downstream rebated products (values excerpted from Table 8).

Table 10. UES Values - Downstream

Product	Annual Per Unit UES		
	kW	kWh	Therms
	F	G	H
Clothes Washers	0.007	72.41	5.69
Dehumidifiers	0.010	128.22	0.00
Dishwashers	0.023	91.77	0.00
Electric Water Heaters	0.170	3554.12	0.00
Gas Water Heaters	0.000	0.00	83.48
Refrigerators	0.004	40.00	0.00
Room AC	0.154	73.38	0.00

In Table 11, the research team converts the gross (Column I) and net (Column M) units purchased from Table 9 into first-year gross and net energy savings by multiplying the gross and net units by the annual per unit energy savings values from Table 10.

Results

Table 11. First-Year Gross and Net Savings - Downstream

Product	Gross Units Purchased	First-Year Gross Savings			Net Units Purchased	First-Year Net Savings		
		MW	MWh	Therms		MW	MWh	Therms
	$I = C$	$J = F \times I / 1000$	$K = G \times I / 1000$	$L = H \times I$	$M = E$	$N = J \times M$	$O = K \times M$	$P = L \times M$
Clothes Washers	3,302	0.0	239	18,773	1,673	0.0	121	9,511
Dehumidifiers	706	0.0	91	0	401	0.0	51	0
Dishwashers	3,896	0.1	358	0	1,871	0.0	172	0
Electric Water Heaters	14	0.0	49	0	7	0.0	24	0
Gas Water Heaters	128	0.0	0	10,682	64	0.0	0	5,341
Refrigerators	85	0.0	3	0	53	0.0	2	0
Room AC	21,793	3.3	1,599	0	10,759	1.7	790	0
Total	29,924	3.5	2,338	29,456	14,829	1.7	1,160	14,852

Total net and gross energy savings achieved from July 2016 through December 2018 are shown in Table 12. It is important to note that the values in Table 11 do not take into account when purchases were made -- some will have occurred way back in July 2016 and will have accrued energy savings since then, while others will have occurred much more recently and accrued less savings. Table 11 represents one year of savings (i.e., first-year savings) for each rebated purchase influenced over the entire 30-month period. In order to come up with a consistent approach for estimating total savings accrued over the 30-month time period covered by the evaluation, the research team made the simplifying assumption that each purchase was made at the period midpoint (15 months). Thus, the total gross and net savings to-date in Table 12 are computed by taking each of the values from Table 11 and multiplying by 15/12 or 1.25.

Table 12. Total Gross and Net Savings July 2016 Through December 2018 - Downstream

Product	Total Gross Savings			Total Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
	$Q = J \times (15/12)$	$R = K \times (15/12)$	$S = L \times (15/12)$	$T = N \times (15/12)$	$U = O \times (15/12)$	$V = P \times (15/12)$
Clothes Washers	0.0	299	23,467	0.0	151	11,888
Dehumidifiers	0.0	113	0	0.0	64	0
Dishwashers	0.1	447	0	0.1	215	0
Electric Water Heaters	0.0	61	0	0.0	30	0
Gas Water Heaters	0.0	0	13,353	0.0	0	6,676
Refrigerators	0.0	4	0	0.0	3	0
Room AC	4.2	1,999	0	2.1	987	0
Total	4.3	2,923	36,819	2.1	1,450	18,565

Table 13 presents the lifetime gross and net savings, derived by multiplying the first-year savings from Table 11 by the effective useful life for each product (Column W).

Results

Table 13. Lifetime Gross and Net Savings - Downstream

Product	Effective Useful Life	Lifetime Gross Savings			Lifetime Net Savings		
		MW	MWh	Therms	MW	MWh	Therms
	W	X = J x W	Y = K x W	Z = L x W	AA = N x W	AB = O x W	AC = P x W
Clothes Washers	11	0.3	2,630	206,508	0.1	1,332	104,617
Dehumidifiers	12	0.1	1,087	0	0.0	618	0
Dishwashers	11	1.0	3,933	0	0.5	1,889	0
Electric Water Heaters	11	0.0	535	0	0.0	265	0
Gas Water Heaters	11	0.0	0	117,503	0.0	0	58,752
Refrigerators	14	0.0	48	0	0.0	30	0
Room AC	12	40.2	19,191	0	19.8	9,474	0
Total		41.5	27,423	324,011	20.5	13,608	163,369

Note that the savings values presented in this section are savings that are already being claimed by the downstream rebate programs, and, as such, represent Marketplace lift to these other Con Edison programs.

4.2 Online Product Sales

Estimating the energy savings associated with online product sales is straightforward. With online product sales the program data identifies each measure and we do not need to determine what proportion of the sample made an efficient purchase because each online purchase is inherently efficient. As such, the complete listing of online sales represents gross unit sales and the only key parameter we need to estimate to derive net rebated purchases is the measure level NTGRs. We then apply the UES values in order to derive gross and net savings. The general model for computing online product sales energy savings is depicted in Figure 7.

Figure 7. Online Product Sales Savings Estimation Model

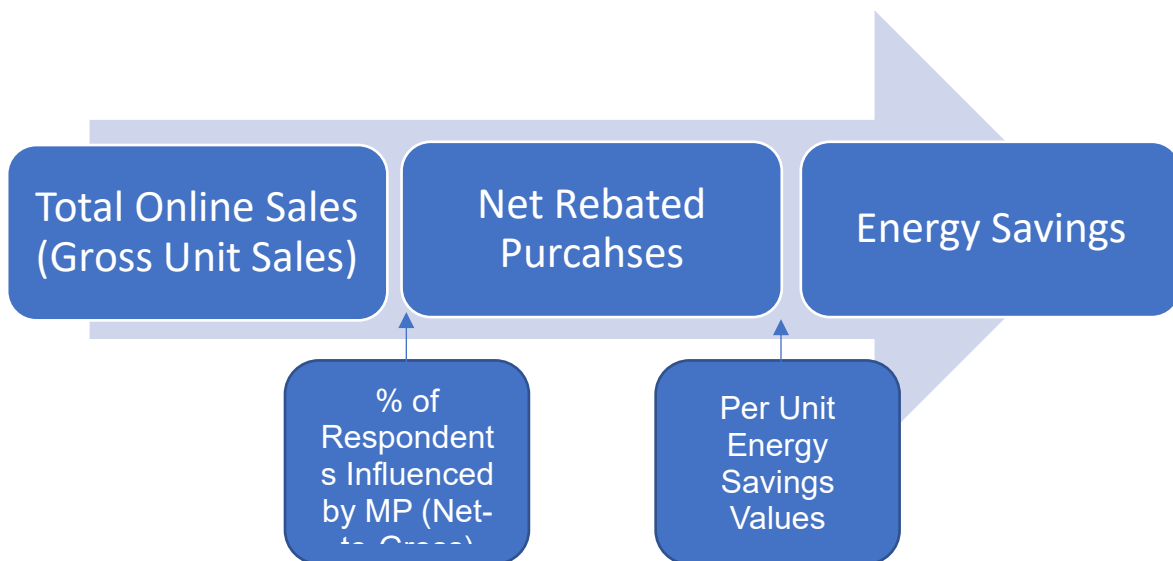


Table 14 shows the total online sales, or the gross units sold (Column A), as well as the NTGRs (Column B) computed as discussed earlier in this report. The NTGRs are applied to the gross units purchased to drive the estimated number of units influenced by Marketplace (Column C).

Table 14. Gross Units Purchased, Net-to-Gross Ratios, and Net Units Purchased – Online Purchases

Product	Total Online Purchases (Gross Units Purchased)	% Influenced by Marketplace (NTGR)	Estimated Number of Units Influenced by MP (Net Units Purchased)
	A	B	C = A x B
Lighting	156,070	69.9%	109,140
Power Strips	113	87.5%	99
Thermostats	9,388	64.0%	6,007
Total	165,571		115,246

Table 15 provides the annual UES values for the online product categories (extracted from Table 8).

Table 15. UES Values – Online Purchases

Product	Annual Per Unit UES		
	kW	kWh	Therms
	D	E	F
Lighting	0.003	44.29	0.00
Power Strips	0.000	57.50	0.00

Results

Product	Annual Per Unit UES		
	kW	kWh	Therms
	D	E	F
Thermostats	0.230	104.00	21.5

Table 16 shows the gross and net first-year savings. Column G is the same as Column A and shows the online purchases or the gross units purchased; Column H, I and J are the gross first-year demand, electricity and therm savings, respectively. Column K is the same as Column C and shows the net units purchased; Columns L, M, and N show the net first-year demand, electricity and therm savings.

Table 16. First-Year Gross and Net Savings – Online Purchases

Product	Gross Units Purchased	First-Year Gross Savings			Net Units Purchased	First-Year Net Savings		
		MW	MWh	Therms		MW	MWh	Therms
	G = A	$H = D \times G / 1000$	$I = E \times G / 1000$	$J = F \times G$	K = B	$L = H \times K$	$M = I \times K$	$N = J \times K$
Lighting	156,070	0.5	6,913	0	109,140	0.3	4,834	0
Power Strips	113	0.0	6	0	99	0.0	6	0
Thermostats	9,388	2.2	976	201,842	6,007	1.4	625	129,159
Total	165,571	2.6	7,896	201,842		1.7	5,465	129,159

As explained in Section 4.1, the research team needed to account for when the purchases were made in order to estimate savings since purchase and through the end of 2018. The values in Table 16 represent the savings that would have accrued if all purchases happened on January 1, 2018 (i.e., 1 year). Since purchase dates were not available, the research team used the simplifying assumption that each purchase was made at the midpoint of the 30-month time period – or 15 months – to estimate total gross and net savings to-date. Thus, Table 17 presents the total estimated gross and net savings that have accrued since July 2016, which are computed by taking the first-year savings values from Table 16 and multiplying them by 15/12 or 1.25.

Table 17. Total Gross and Net Savings July 2016 Through December 2018 – Online Purchases

Product	Total Gross Savings			Total Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
	$O = H \times (15/12)$	$P = I \times (15/12)$	$Q = J \times (15/12)$	$R = L \times (15/12)$	$S = M \times (15/12)$	$T = N \times (15/12)$
Lighting	0.6	8,641	0	0.4	6,043	0
Power Strips	0.0	8	0	0.0	7	0
Thermostats	2.7	1,220	252,303	1.7	781	161,448
Total	3.3	9,870	252,303	2.2	6,831	161,448

Table 18 presents the lifetime savings for product sales to-date, derived by taking the first-year savings from Table 16 and multiplying by the effective useful life for each product (Column U).

Table 18. Lifetime Gross and Net Savings – Online Purchases

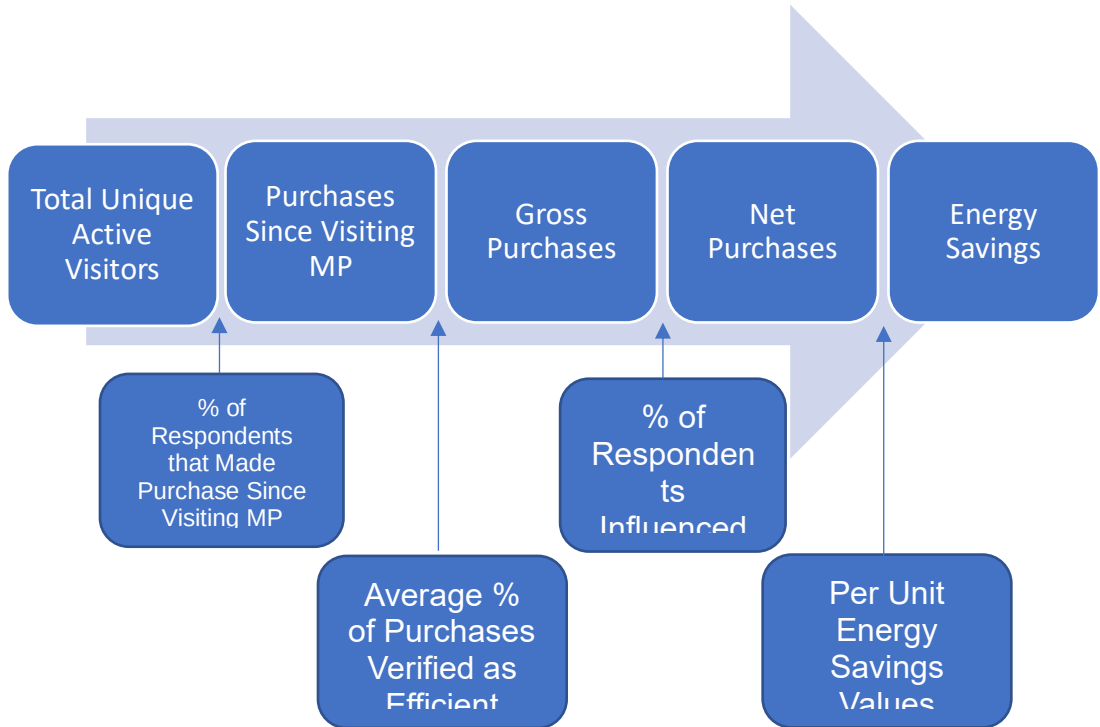
Product	Effective Useful Life	Lifetime Gross Savings			Lifetime Net Savings		
		MW	MWh	Therms	MW	MWh	Therms
	U	$V = H \times U$	$W = H \times U$	$X = H \times U$	$Y = H \times U$	$Z = H \times U$	$AA = H \times U$
Lighting	20	9.7	138,256	0	6.8	96,682	0
Power Strips	8	0.0	52	0	0.0	45	0
Thermostats	11	23.8	10,740	2,220,262	15.2	6,872	1,420,746
Total		33.5	149,048	2,220,262	22.0	103,600	1,420,746

4.3 Non-Downstream Product Sales (Marketplace and RPP)

As mentioned earlier, the approach used for estimating energy saving for non-downstream product purchases is different than the approaches used for estimating savings resulting from downstream-rebated product purchases or online purchases with instant discount. For non-downstream products, the research team needed to estimate (1) the proportion of respondents that made a purchase since visiting the site, (2) the determination of whether purchases were efficient purchases or not, and (3) the proportion of purchases influenced by the site. Once these three parameters were estimated, they were applied to total unique active shoppers²⁶ to derive gross and net purchases, which were then multiplied by per-unit UES values to derive gross and net savings. The basic process for estimating non-downstream energy savings is shown below in Figure 8.

²⁶ Unique active shoppers are defined in terms of online behaviors that suggest intent to purchase a product. For the purpose of this study, a unique active shopper is defined as a unique visitor to the Con Edison Marketplace who interacted with at least one category or product page within a category during the period in question. A unique active shopper can only show up once in the tally. Actions defining an active shopper include: (1) viewed, sorted or filtered product rankings, (2) clicked on Enervee Score histogram, (3) viewed a product page, (4) favorited a product, (5) saved a product search, (6) clicked to retail offer, (7) interacted with brick-and-mortar store locator, and/or (8) clicked to an incentive. Visits to multiple product categories are only counted as a single active shopper. Enervee developed estimates of unique active shoppers based on 2018 site traffic.

Figure 8. Non-Downstream Savings Estimation Model



The first step in estimating non-downstream savings involved estimating the proportion of purchases that were energy efficient. In the survey, respondents were offered an additional \$15 incentive if they were willing/able to provide a photo of the purchase receipt, if not, an additional \$10 incentive was offered if they were willing to provide a photo of the product nameplate, and if not, an additional \$5 incentive was offered if they hand-entered the model number. The research team then compared all provided model numbers to ENERGY STAR qualified product lists to determine which models were efficient. Table 19 shows the number of respondents that provided model number data for each product category (Column A), the number of these that were verified as efficient products (Column B) and Column C is the proportion deemed efficient. Because data was sparse for many products – and non-existent for some others because no model info was provided to verify – the research team did not use the product level estimates derived from this analysis moving forward. Instead, the overall total of 69.0% (sum of Column B divided by sum of Column A, or 98 divided by 142) was used for subsequent calculations (see Column G of).

Results

Table 19. Efficient Model Verification

Product	Provided Model Number	Verified as ES	Actual % Verified ES
	A	B	C = B / A
Air Purifier	3	1	33.3%
Clothes Washer	4	1	25.0%
Dehumidifier	1	0	0.0%
Dishwasher	4	3	75.0%
Electric Clothes Dryer	4	0	0.0%
Electric Water Heater	0	0	NA
Freezer	0	0	NA
Gas Clothes Dryer	0	0	NA
Gas Water Heater	0	0	NA
Light Bulb	50	36	72.0%
Monitor	0	0	NA
Pool Pump	0	0	NA
Projector	0	0	NA
Refrigerator	2	1	50.0%
Room AC	8	3	37.5%
Sound Bar	1	0	0.0%
Tablet	0	0	NA
Television	6	3	50.0%
Thermostat	59	50	84.7%
Total	142	98	69.0%

Column D of

shows the estimated number of unique active visitors to the site over the July 2016 through December 2018 time frame.^{27, 28} Column E is the estimated population-weighted purchase rate for each of the product categories (see Appendix C for an explanation of how the research team derived the weighted values). Column F is the product of Columns D and E and represents the estimated number of purchases since visiting Marketplace. However, only some of these purchases are efficient, and Column H is the number of purchases estimated to be efficient, or gross units, which is the product of Columns F and G. Column I is the proportion of purchases estimated to be influenced by Marketplace (or alternatively, the net-to-gross ratios) which are applied to Column H to derive Column J, or the estimated efficient purchases influenced by Marketplace

To ensure the values of the estimated efficient purchases influenced by Marketplace (i.e., net purchases) are reasonable, the research team compared the values to product level unique active shopper counts that were provided by Enervee (Column K). With this comparison, the estimated values in Column J should *not* be larger than the product level unique active

²⁷ Site visitation data was only available for 2018. To derive the unique active shopper counts for the July 2016 through December 2018 time period, the 2018 unique active shopper counts were multiplied by 2.5.

²⁸ Note that the total unique active shopper count was computed by excluding the number of shoppers that appear in the rebate and online categories.

Results

shopper counts. This comparison shows that the estimated values work out as expected except for four product categories (evaporative coolers, gas clothes dryers, pool pumps and power strips).²⁹ As a result, for these four product categories, the research team capped the estimated efficient purchases influenced by Marketplace with the unique active shopper count values in order to develop conservative estimates of net savings. However, the capping process had a negligible impact on estimated program savings: the uncapped first-year net demand is 5.3 MW, and it is 5.2 MW capped; the uncapped first-year net electricity savings is 17,692, and it is 17,216 capped; the uncapped first-year net gas savings is 461,694, and it is 461,260 capped.

The categories for which actual traffic far exceeded estimated non-downstream purchases influenced are categories that offered either downstream rebates (e.g., air conditioners, clothes washers, dishwashers, water heaters) or instant Checkout discounts (e.g., light bulbs, thermostats). These incentivized categories were promoted, so the traffic will include many people not necessarily in the market to buy, resulting in total traffic far exceeding influenced purchases.

Table 20. Estimating Gross and Net Units Purchased – Non-Downstream

Product	Unique Active Shoppers	Population-Weighted Average Purchase Rates	Estimated Purchases Since Visiting MP	Average % of Purchases Verified as Efficient	Estimated Efficient Purchases (Gross Units Purchased)	% Influenced by Marketplace (NTGR)	Estimated Efficient Purchases Influenced by MP	Product Level Unique Active Shoppers	Estimated Efficient Purchases Influenced by MP (Net Units Purchased)
	D	E	F = D x E	G = Mean(C)	H = F x G	I	J = H x I	K	L = K if J>K; else J
Air Purifier	926,945	0.70%	6,507	69.0%	4,491	52.8%	2,370	3,303	2,370
Clothes Washer		0.92%	8,486		5,857	57.2%	3,350	36,440	3,350
Dehumidifier		0.58%	5,367		3,704	61.9%	2,294	6,047	2,294
Dishwasher		0.69%	6,435		4,441	50.3%	2,232	20,134	2,232
Electric Clothes Dryer		0.60%	5,590		3,858	58.6%	2,259	5,425	2,259
Electric Water Heater		0.54%	4,973		3,432	79.6%	2,730	6,213	2,730
Evaporative Cooler		0.25%	2,326		1,605	81.3%	1,304	315	315
Freezer		0.51%	4,699		3,243	69.6%	2,258	2,770	2,258
Gas Clothes Dryer		0.63%	5,839		4,030	58.6%	2,359	2,105	2,105
Gas Water Heater		0.49%	4,548		3,139	54.8%	1,720	23,113	1,720
Light Bulb		7.33%	67,902		46,862	62.0%	29,031	281,173	29,031

²⁹ It should be emphasized that this result should not necessarily be considered unexpected. All of the computations used in the development of gross and net units purchased are statistical estimations. As such, some estimations will inherently underestimate counts while some will overestimate counts.

Results

Product	Unique Active Shoppers	Population-Weighted Average Purchase Rates	Estimated Purchases Since Visiting MP	Average % of Purchases Verified as Efficient	Estimated Efficient Purchases (Gross Units Purchased)	% Influenced by Marketplace (NTGR)	Estimated Efficient Purchases Influenced by MP	Product Level Unique Active Shoppers	Estimated Efficient Purchases Influenced by MP (Net Units Purchased)
	D	E	F = D x E	G = Mean(C)	H = F x G	I	J = H x I	K	L = K if J>K; else J
Monitor		0.53%	4,869		3,360	66.7%	2,240	5,013	2,240
Pool Pump		0.10%	891		615	87.5%	538	423	423
Power Strip		1.16%	10,714		7,394	65.4%	4,834	1,869	1,869
Projector		0.14%	1,337		923	75.0%	692	2,060	692
Refrigerator		1.48%	13,755		9,493	59.7%	5,665	18,700	5,665
Room AC		1.84%	17,090		11,795	50.9%	6,007	99,834	6,007
Sound Bar		0.40%	3,735		2,578	39.6%	1,020	2,200	1,020
Tablet		0.59%	5,445		3,758	57.1%	2,147	7,398	2,147
Television		1.04%	9,652		6,661	60.9%	4,059	18,565	4,059
Thermostat		3.21%	29,744		20,527	62.7%	12,865	468,728	12,865
Total			219,905		151,765		91,977		87,652

Results

Table 21 shows the annual per unit energy savings values for the non-downstream products (excepted from Table 8).

Table 21. UES Values - Non-Downstream

Product	Annual Per Unit Savings		
	kW	kWh	Therms
	M	N	O
Air Purifier	0.080	125.000	0.000
Clothes Washer	0.007	72.408	5.686
Dehumidifier	0.010	128.223	0.000
Dishwasher	0.023	91.767	0.000
Electric Clothes Dryer	0.002	22.500	0.000
Electric Water Heater	0.170	3554.120	0.000
Evaporative Cooler	0.000	0.000	0.000
Freezer	0.004	40.000	0.000
Gas Clothes Dryer	0.001	1.870	1.210
Gas Water Heater	0.000	0.000	83.483
Light Bulb	0.003	44.293	0.000
Monitor	0.000	66.930	0.000
Pool Pump	0.518	2092.500	0.000
Power Strip	0.000	57.500	0.000
Projector	0.000	340.690	0.000
Refrigerator	0.004	40.000	0.000
Room AC	0.154	73.383	0.000
Sound Bar	0.004	48.000	0.000
Tablet	0.000	2.700	0.000
Television	0.000	182.520	0.000
Thermostat	0.230	104.000	21.500

In Table 22 the research team converts the gross and net units purchased over the 30-month study period from

to first-year gross and net energy savings by multiplying the units by the annual per unit energy savings values in Table 21.

Results

Table 22. First-Year Gross and Net Savings – Non-Downstream

Product	Gross Units Purchased	First-Year Gross Savings			Net Units Purchased	First-Year Net Savings		
		MW	MWh	Therms		MW	MWh	Therms
	$P = H$	$Q = (M \times P) / 1000$	$R = (N \times P) / 1000$	$S = O \times P$	$T = L$	$U = (M \times T) / 1000$	$V = (N \times T) / 1000$	$W = O \times T$
Air Purifier	4,491	0.4	561	0	2,370	0.2	296	0
Clothes Washer	5,857	0.0	424	33,299	3,350	0.0	243	19,047
Dehumidifier	3,704	0.0	475	0	2,294	0.0	294	0
Dishwasher	4,441	0.1	408	0	2,232	0.1	205	0
Electric Clothes Dryer	3,858	0.0	87	0	2,259	0.0	51	0
Electric Water Heater	3,432	0.6	12,199	0	2,730	0.5	9,704	0
Evaporative Cooler	1,605	0.0	0	0	315	0.0	0	0
Freezer	3,243	0.0	130	0	2,258	0.0	90	0
Gas Clothes Dryer	4,030	0.0	8	4,876	2,105	0.0	4	2,547
Gas Water Heater	3,139	0.0	0	262,042	1,720	0.0	0	143,625
Light Bulb	46,862	0.1	2,076	0	29,031	0.1	1,286	0
Monitor	3,360	0.0	225	0	2,240	0.0	150	0
Pool Pump	615	0.3	1,287	0	423	0.2	885	0
Power Strip	7,394	0.0	425	0	1,869	0.0	107	0
Projector	923	0.0	314	0	692	0.0	236	0
Refrigerator	9,493	0.0	380	0	5,665	0.0	227	0
Room AC	11,795	1.8	866	0	6,007	0.9	441	0
Sound Bar	2,578	0.0	124	0	1,020	0.0	49	0
Tablet	3,758	0.0	10	0	2,147	0.0	6	0
Television	6,661	0.0	1,216	0	4,059	0.0	741	0
Thermostat	20,527	4.7	2,135	441,341	12,865	3.0	1,338	276,588
TOTAL	151,765	8.2	23,348	741,559	87,652	5.0	16,352	441,808

As explained in Section 4.1, the research team needed to account for when the purchases were made in order to estimate savings through the end of 2018. The values in Table 22 represent the savings that would have accrued if all purchases happened on January 1, 2018 (i.e., 1 year). Since purchase dates were not available, the research team used the simplifying assumption that each purchase was made at the midpoint of the 30-month time period – or 15 months – to estimate total gross and net savings to-date. Thus, Table 23 represents the total estimated gross and net savings that have accrued since July 2016, which are computed by taking the first-year savings values from Table 22 and multiplying them by 15/12 or 1.25.

Results

Table 23. Total Gross and Net Savings July 2016 Through December 2018– Non-Downstream

Product	Total Gross Savings			Total Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
	X = Q x (15/12)	Y = R x (15/12)	Z = S x (15/12)	AA = U x (15/12)	AB = V x (15/12)	AC = W x (15/12)
Air Purifier	0.4	702	0	0.2	370	0
Clothes Washer	0.1	530	41,624	0.0	303	23,809
Dehumidifier	0.0	594	0	0.0	368	0
Dishwasher	0.1	509	0	0.1	256	0
Electric Clothes Dryer	0.0	109	0	0.0	64	0
Electric Water Heater	0.7	15,249	0	0.6	12,131	0
Evaporative Cooler	0.0	0	0	0.0	0	0
Freezer	0.0	162	0	0.0	113	0
Gas Clothes Dryer	0.0	9	6,095	0.0	5	3,184
Gas Water Heater	0.0	0	327,553	0.0	0	179,532
Light Bulb	0.2	2,595	0	0.1	1,607	0
Monitor	0.0	281	0	0.0	187	0
Pool Pump	0.4	1,609	0	0.3	1,106	0
Power Strip	0.0	531	0	0.0	134	0
Projector	0.0	393	0	0.0	295	0
Refrigerator	0.0	475	0	0.0	283	0
Room AC	2.3	1,082	0	1.2	551	0
Sound Bar	0.0	155	0	0.0	61	0
Tablet	0.0	13	0	0.0	7	0
Television	0.0	1,520	0	0.0	926	0
Thermostat	5.9	2,669	551,676	3.7	1,672	345,736
TOTAL	10.2	29,185	926,948	6.2	20,440	552,260

Finally, Table 24 shows lifetime savings for all non-downstream product sales through December 2018 derived by multiplying the first-year savings from Table 22 by the effective useful life for each product (Column AD).

Table 24. Lifetime Gross and Net Savings – Non-Downstream

Product	Effective Useful Life	Lifetime Gross Savings					Lifetime Net Savings
	AD	MW	MWh	Therms	MW	MWh	Therms
		AE = Q x AD	AF = R x AD	AG = S x AD	AH = U x AD	AI = V x AD	AJ = W x AD
Air Purifier	9	3.2	5,052	0	1.7	2,666	0
Clothes Washer	11	0.5	4,665	366,294	0.3	2,668	209,520
Dehumidifier	12	0.4	5,699	0	0.3	3,530	0
Dishwasher	11	1.1	4,483	0	0.6	2,253	0
Electric Clothes Dryer	14	0.1	1,215	0	0.1	712	0
Electric Water Heater	11	6.4	134,191	0	5.1	106,749	0
Evaporative Cooler	15	0.0	0	0	0.0	0	0
Freezer	14	0.2	1,816	0	0.1	1,265	0
Gas Clothes Dryer	14	0.1	105	68,262	0.0	55	35,659
Gas Water Heater	11	0.0	0	2,882,464	0.0	0	1,579,879
Light Bulb	20	2.9	41,513	0	1.8	25,717	0
Monitor	4	0.0	900	0	0.0	600	0
Pool Pump	10	3.2	12,869	0	2.2	8,846	0
Power Strip	8	0.0	3,401	0	0.0	860	0
Projector	4	0.0	1,257	0	0.0	943	0
Refrigerator	14	0.5	5,316	0	0.3	3,173	0
Room AC	12	21.7	10,386	0	11.1	5,290	0
Sound Bar	4	0.0	495	0	0.0	196	0
Tablet	8	0.0	81	0	0.0	46	0
Television	15	0.0	18,238	0	0.0	11,114	0
Thermostat	11	51.9	23,483	4,854,751	32.5	14,717	3,042,473
TOTAL		92.3	275,166	8,171,772	56.0	191,399	4,867,530

5. Partitioning Savings by Program

The research team used the following rules to partition savings:

- The savings associated with the downstream-rebated product purchases from the downstream chapter of this report are assigned to the downstream programs.
- The savings that are associated with the downstream-rebated product purchases that appear in the non-downstream chapter of this report are assigned to Marketplace. These represent rebate-eligible purchases where the customer never submitted a rebate.
- The savings associated with online purchases are assigned to the online sales category.
- The savings associated with the product categories offered on the Marketplace website that are not associated with any other program—monitors, projectors, tablets, TVs, pool pumps, and evaporative coolers—are assigned to Marketplace.
- The savings associated with the products offered on the Marketplace website tied to the RPP products—air cleaners, clothes dryers, clothes washers, freezers, soundbars, refrigerators, and room air conditioners—that are also tied to participating retailers are assigned to the RPP programs
- The savings associated with the eight products offered on the Marketplace website tied to RPP—air cleaners, clothes dryers, clothes washers, freezers, light bulbs, soundbars, refrigerators, and room air conditioners—that are *not* tied to participating retailers are assigned to Marketplace.

In order to partition all the savings, the research team first, estimated the proportion of purchases that were made at RPP-participating retailers' brick-and-mortar stores. In the survey, respondents were asked to indicate where they purchased the products they did, and Table 25 shows the distribution of responses for the seven product categories where the purchase location matters. Column A shows the number of respondents that provided a purchase location and Column B shows how many of the responses were from an RPP participating retailer. Column C shows the proportions of purchases that get assigned to the RPP program; Column D shows the proportions that are assigned to Marketplace.

Table 25. Estimating RPP and Marketplace Proportions for Relevant Product Categories

Product	Provided Purchase Location	RPP	% RPP	% MP
	A	B	C = B / A	D = 1 - C
Air Purifiers	8	0	0.0%	100.0%
Clothes Dryers	13	4	30.8%	69.2%
Clothes Washers	28	7	25.0%	75.0%
Freezers	6	1	16.7%	83.3%
Refrigerators	24	5	20.8%	79.2%
Room ACs	131	19	14.5%	85.5%
Sound Bars	3	1	33.3%	66.7%

Second, the research team took these proportions and divided the savings associated with these seven product categories from the non-downstream section accordingly. Table 26, 27

Partitioning Savings by Program

and 28 summarize the total aggregate savings by program; Table 26 shows the first-year gross and net savings across the four delivery channels, Table 27 shows the total gross and net savings achieved from July 2016 through December 2018, and Table 28 presents the lifetime savings associated with all product purchases to-date.

Table 26. First-Year Gross and Net Savings by Program

Program	First-Year Gross Savings			First-Year Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	3.5	2,338	29,456	1.7	1,160	14,852
Online Sales	2.6	7,896	201,842	1.7	5,465	129,159
RPP	0.3	400	8,325	0.1	219	4,762
Marketplace	7.9	22,948	733,234	4.8	16,133	437,046
Total	14.3	33,582	972,856	8.4	22,977	585,818

Table 27. Total Gross and Net Savings by Program July 2016 Through December 2018

Program	Total Gross Savings To-Date			Total Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	4.3	2,923	36,819	2.1	1,450	18,565
Online Sales	3.3	9,870	252,303	2.2	6,831	161,448
RPP	0.4	500	10,406	0.2	273	5,952
Marketplace	9.9	28,684	916,542	6.0	20,166	546,308
Total	17.9	41,977	1,216,070	10.5	28,720	732,273

Table 28. Lifetime Gross and Net Savings by Program

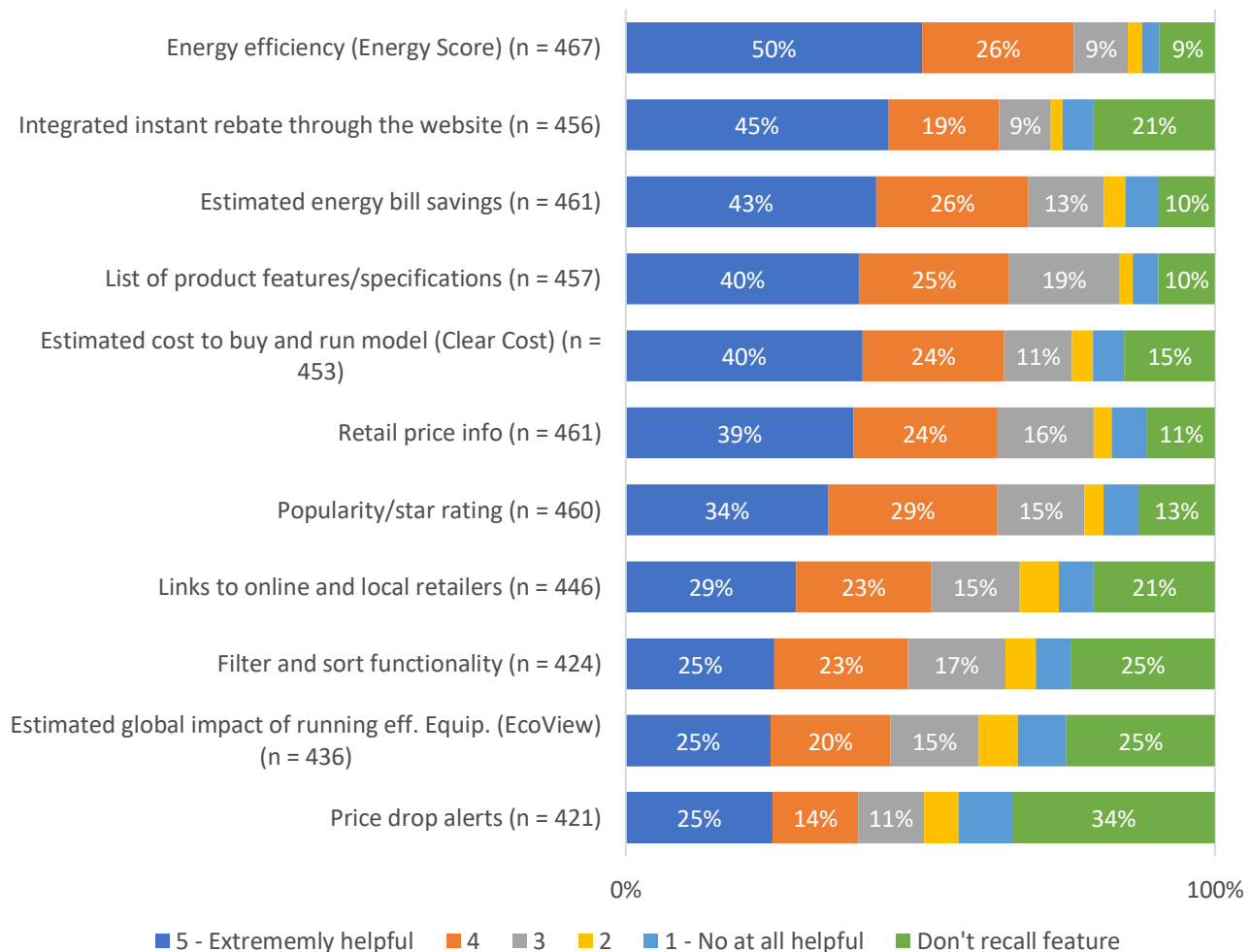
Program	Lifetime Gross Savings			Lifetime Net Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	41.5	27,423	324,011	20.5	13,608	163,369
Online Sales	33.5	149,048	2,220,262	22.0	103,600	1,420,746
RPP	3.4	4,620	91,574	1.8	2,590	52,380
Marketplace	88.8	270,546	8,080,199	54.3	188,809	4,815,150
Total	167.3	451,637	10,716,046	98.5	308,607	6,451,645

6. Additional Questions

6.1 Helpfulness of Marketplace Features

The survey presented respondents with a list of 11 features of the Marketplace website and asked them to rate each on a scale of 1 to 5, where 1 was “not at all helpful” and 5 was “extremely helpful.” An option was also included that allowed respondents to indicate if they did not recall the feature of the site. Figure 9 shows the results of this question revealing that the most helpful features were the Energy Score (76% rated 4 or 5), integrated instant rebate (64% rated 4 or 5), and estimated energy bill savings (69% rated 4 or 5) – all features unique to the Marketplace website.

Figure 9. Helpfulness of Marketplace Features



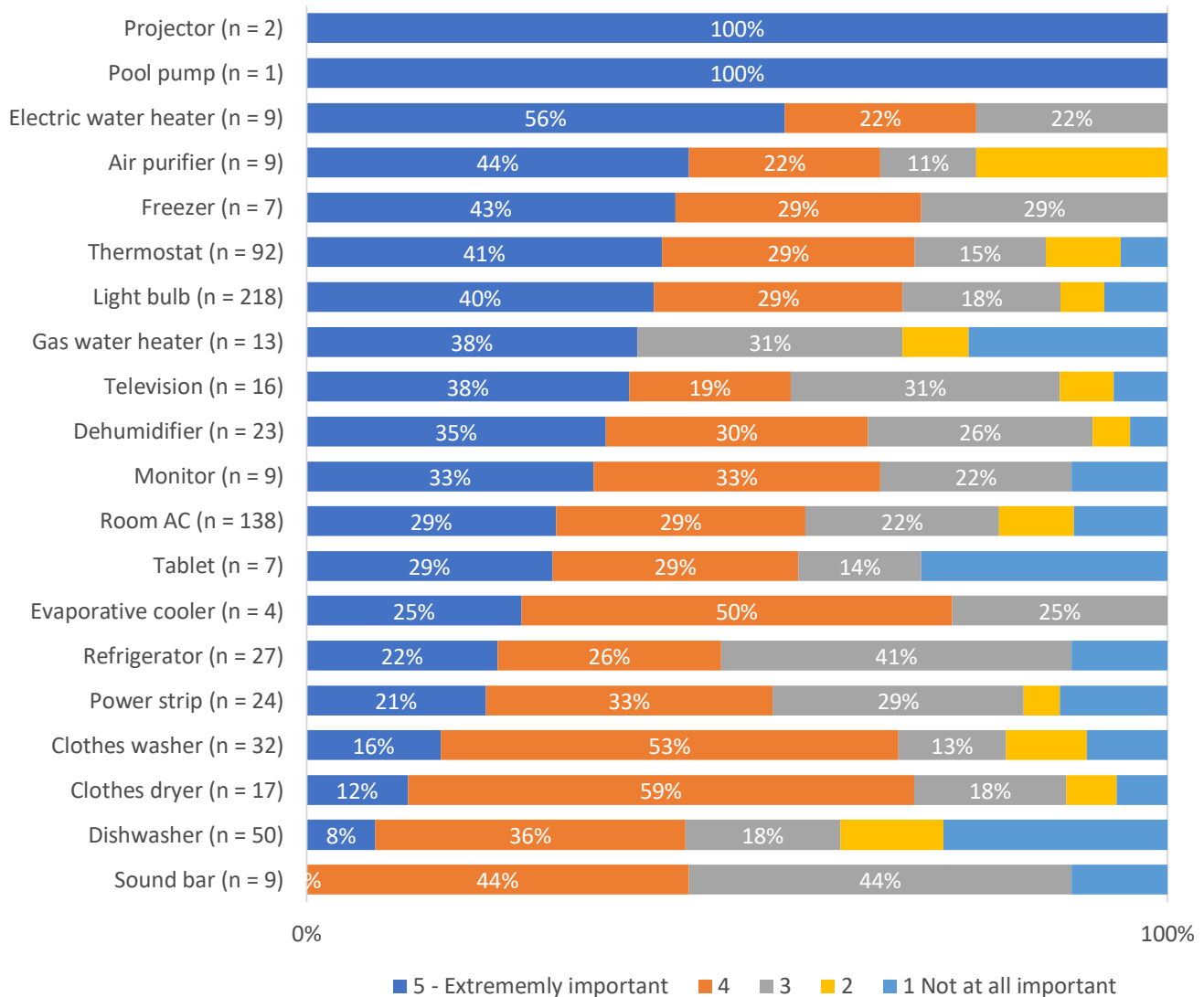
Q: How much did each of the following Con Edison Marketplace features help to facilitate your shopping experience?

Additional Questions

6.2 Importance of Site

Figure 10 shows how important respondents felt Marketplace was in affecting their purchase decisions. An overall average of 63% of respondents rated the influence of the site a 4 or 5 on a 5-point scale, where 1 meant “not at all influential” and 5 meant “extremely influential.”

Figure 10. Importance of Site in Affecting Purchase Decision



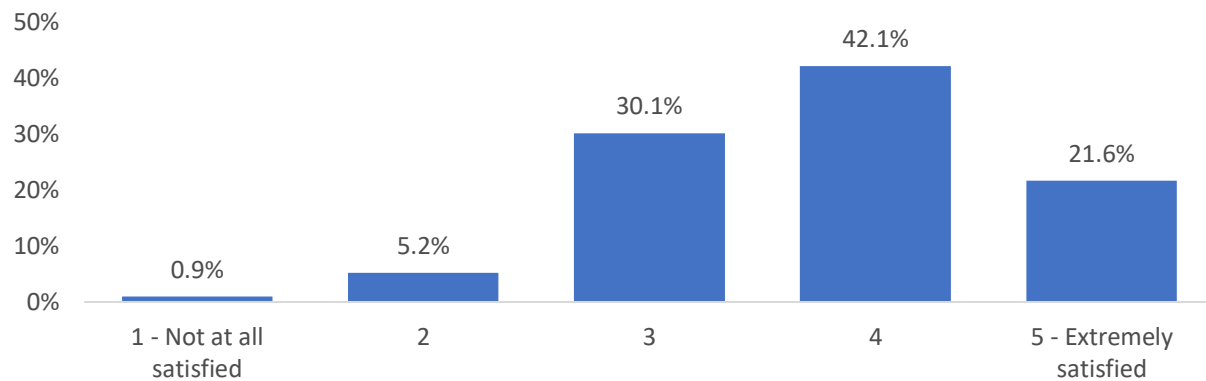
Q: Overall, how important would you say the Marketplace website was in affecting your decision to purchase the [PRODUCT] you purchased?

6.3 Satisfaction

The attainment of energy savings is only one goal associated with implementing Marketplace. In addition to energy savings, Con Edison expects to positively affect customer satisfaction by providing Marketplace to its customers. Overall, the results indicate that Marketplace is indeed positively affecting satisfaction.

Figure 11 shows the responses to a question asking website visitors how satisfied they were with the website overall. Marketplace visitors appear to value the site, with almost two-thirds (63.8%) rating their level of satisfaction a four or a five on a five-point scale. Less than one percent (0.9%) said they were not at all satisfied with the site.

Figure 11. Overall Website Satisfaction

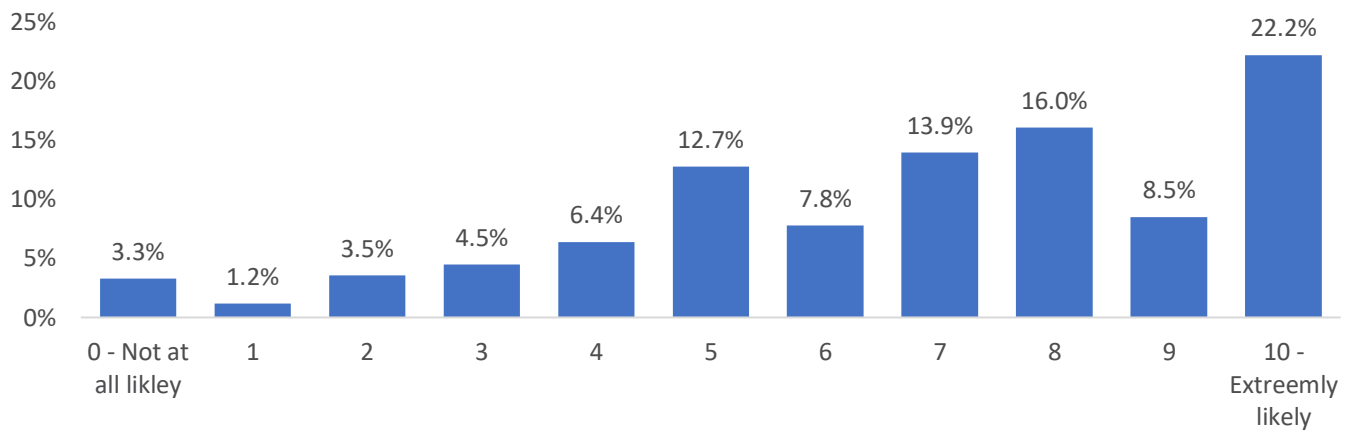


Q: Based on all of your experiences with the Con Edison Marketplace website, how satisfied are you with the website overall?

Figure 12 presents the results of a question asking respondents how likely they are to recommend the website to a friend, colleague or relative. Almost two-thirds of respondents (60.8%) scored this question a seven or higher; almost one-quarter (22.2%) scored this the highest possible value (10).

Additional Questions

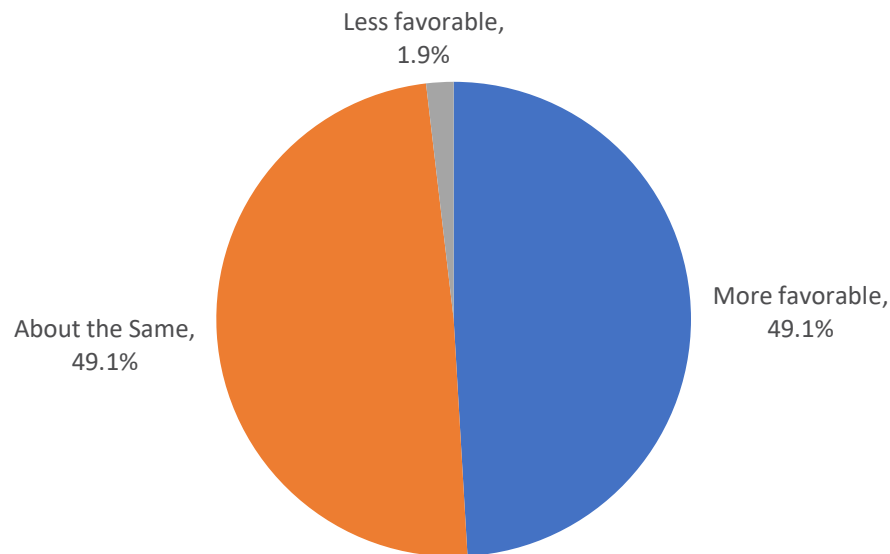
Figure 12. Likelihood to Recommend Site



Q: How likely are you to recommend the Con Edison Marketplace to a friend, colleague or relative?

Finally, Figure 13 shows the results of a question asking how Marketplace affected customers' opinions of Con Edison. Almost one-half (49.1%) of respondents indicated that Marketplace improved their opinion of Con Edison. Only 1.9% of respondents said the website made them view Con Edison less favorably.

Figure 13. Marketplace Impact on Respondent Opinion of Con Edison



Q: Based on your experiences with the Con Edison Marketplace website, has this given you a more favorable, about the same, or less favorable opinion of Con Edison?

For all of these satisfaction metrics, it is important to keep in mind that they relate to purchases between July 2016 and December 2018. None of the changes to the site that have occurred since the end of 2018 (e.g., adding new features and functionality and expanding the available categories) would be captured in these results.

7. Cost Metrics for Marketplace

While a full-scale cost effectiveness analysis was outside of the scope of this project,³⁰ information on internal costs (administrative and marketing) and Enervue platform costs were available that allowed the research team to compute some simple cost metrics that can be used as a baseline for future assessments. benefits were not considered at all, so a determination of overall cost-effectiveness were beyond the scope of this study.³¹ For this study, the research team computed six cost metrics:^{32, 33}

1. **MMBtu saved per dollar spent** = Total MMBtu savings divided by total program expenses to-date
2. **Dollars spent per MMBtu saved** = Total program expenses to-date divided by total MMBtu savings
3. **kWh saved per dollar spent** = Total kWh savings divided by total proportion of program expenses represented by electricity savings (based on electric contribution to total MMBtu)
4. **Dollars spent per kWh saved** = Total proportion of program expenses represented by electricity savings (based on electric contribution to total MMBtu) divided by total kWh savings
5. **Therms saved per dollar spent** = Total Therm savings divided by total proportion of program expenses represented by gas savings (based on gas contribution to total MMBtu)
6. **Dollars spent per Therm saved** = Total proportion of program expenses represented by gas savings (based on gas contribution to total MMBtu) divided by total Therm savings

The metrics were calculated for both first-year and lifetime savings. For the purposes of this study we refer to these as cost-savings metrics to distinguish them from true cost-effectiveness metrics, which would also account for the value of all benefits including the avoided cost of energy, uplift to other programs (some of which were not included in this study, for instance, rooftop solar sales) and non-energy benefits.

The cost-savings metrics for first-year savings are shown in Table 29 through Table 31.

³⁰ A comprehensive cost-effectiveness assessment requires information on an array of factors such as electric avoided costs, non-energy benefits, gas avoided costs, complete demand, electricity, and gas savings (note: some measures had no demand savings because this information was not available), incremental measure costs, effective useful lives, etc. Amassing and analyzing all this information was outside of the scope of this project.

³¹ While a previous Pacific Gas and Electric Company report reported similar metrics, they are not comparable to the ones presented in this report as the evaluation methods have been refined enough to make the values incomparable.

³² Because comprehensive demand savings were not available for this study, they are not included in the cost-savings assessment.

³³ Note that there is only a single budget for the Marketplace offering, and the total expenses needed to be allocated to the electric and gas savings separately. In order to complete these calculations, the research team first converted total lifetime MWh and therm savings to MMBtu and summed to derive total lifetime gross and net MMBtu. The research team then computed the proportion of total MMBtu savings comprised of electricity and gas and applied the resulting percentages to the total program expenses to derive separate electric and gas expenses. These calculations are provided in Appendix C.

Cost Metrics for Marketplace

Table 29. Cost-Savings Metrics based on First-Year Savings (MMBtu)

Metric	First-Year Gross Savings	First-Year Net Savings
MMBtu per \$	0.04	0.03
\$ per MMBtu	\$22.79	\$35.25

Table 30. Cost-Savings Metrics based on First-Year Savings (kWh)

Metric	First-Year Gross Savings	First-Year Net Savings
kWh per \$	12.86	8.31
\$ per kWh	\$0.08	\$0.12

Table 31. Cost-Savings Metrics based on First-Year Savings (Therms)

Metric	First-Year Gross Savings	First-Year Net Savings
Therms per \$	0.44	0.28
\$ per Therms	\$2.28	\$3.53

The cost-savings metrics for lifetime savings are shown in Table 32 through Table 34.

Table 32. Cost-Savings Metrics based on Lifetime Savings (MMBtu)

Metric	Lifetime Gross Savings	Lifetime Net Savings
MMBtu per \$	0.54	0.35
\$ per MMBtu	\$1.85	\$2.84

Table 33. Cost-Savings Metrics based on Lifetime Savings (kWh)

Metric	Lifetime Gross Savings	Lifetime Net Savings
kWh per \$	158.57	103.07
\$ per kWh	\$0.01	\$0.01

Table 34. Cost-Savings Metrics based on Lifetime Savings in (Therms)

Metric	Lifetime Gross Savings	Lifetime Net Savings
Therms per \$	5.41	3.52
\$ per Therms	\$0.18	\$0.28

It is important to note that any costs/savings are a function of how many visitors to the site make an efficient purchase. One of the greatest advantages of Marketplace is its ability to reach large numbers of people, and the number of people that are reached through Marketplace is largely a function of the scale of strategic marketing and promotional activities to support the site. The cost/saving numbers will improve as strategic marketing and promotions increase.

As stated earlier, when weighing the costs from Marketplace, energy savings (and the avoided costs associated with them) are not the only expected benefit. Earlier we showed how Marketplace is filling a unique niche in the

Cost Metrics for Marketplace

market for consumer electronics and home appliances by providing key information that customers want but cannot find elsewhere. Also, Marketplace seems to be positively affecting customer satisfaction, But Marketplace is also providing other benefits including:

- Solar: Helping customers get quotes from local rooftop solar installers as well as the savings for going with community solar.
- Contractor services: Helping customers get quotes from local installers for appliance installation services.
- Providing targeted offers from retailers and value-added service providers for Con Edison customers.

In sum, a full assessment of the costs and benefits of Marketplace requires weighing costs against the value of energy savings and demand reductions, installed solar capacity, and EV charger installations as well as non-energy benefits. But intangible benefits need to be considered as well to fully understand the value of Marketplace.

8. Study Limitations

While the research team attempted to rely on industry best practices when conducting this study, several limitations exist. These limitations include:

- **Low response rates:** The reported response rate for this study was low at 2.4%. A couple things contributed to this. During the fielding of the survey the research team was alerted that the format of the email invites was steering many of the invites into spam, which was corrected during the fielding. Also, after the fielding of the survey, the evaluation team discovered an issue where most email invites to Gmail accounts were blocked. Since Gmail addresses account for a sizable proportion of the overall sample frame (about 37% of all cases), this issue resulted in a much-deflated response rate. Note that all sent emails were kept in for the purposes of calculating the response rate because we do not know the full extent of the issue (as we typically do not with any email addresses used as part of a web survey), but it is certain that the actual response rate, less the rejected Gmail invites, would be notably larger.
- **Small numbers of respondents:** One of the biggest limitations with this study is the relatively small number of respondents available to calculate some of the key parameters. This was most notably the case with the verification of energy efficient purchases (see Table 19), where in many cases no respondents provided a model number to verify; overall, only about one-quarter (24.8%) of the product purchases were captured through this verification process. The research team attempted to work around the sparse data by using overall counts instead of product-level counts to derive the percent verified as energy efficient, but this is not ideal. Increasing the size of the study and/or the response rate would help alleviate some of these small *n* issues. However, developing or refining an approach for verifying model purchases is likely to be an ongoing challenge.
- **Self-report surveys:** Self-report surveys are widely used in the energy efficiency evaluation industry. However, it is worth noting that this approach to conducting research has its disadvantages. Most of the disadvantages associated with self-report surveys center on reliability. Some of these disadvantages include:
 - Not all eligible respondents actually complete the survey. This can result in non-responses bias if those that did answer the survey are different from those that did not answer it.
 - Respondents may not recall the details of an event or topic covered in the survey.
 - Respondents may want to present themselves in a positive light.
 - Some of the concepts covered in the survey may be a challenge for respondents to understand and answer accurately.
 - Respondents may not provide honest answers.

The best strategy for minimizing the potential impact of these disadvantages is to adhere to industry and academic best practices when conducting a survey. This, however, will not necessarily overcome these disadvantages; it will just reduce their potential impact. Relying on self-report surveys will always present challenges that researchers need to be aware of and strive to address.

9. Conclusions

The overall objectives of this study included:

- Evaluating Con Edison's Marketplace with a goal of estimating energy savings derived from associated product sales.
- Assessing the role that Marketplace might be playing in affecting customer engagement.
- Assessing the benefits and costs associated with Marketplace to understand how they are shared across different existing program.

The key findings from this study include:

- With a residential account customer base of 2.9 million, the platform and related digital marketing drove 958,605 visits by unique active shoppers, resulting in an estimated 221,417 influenced purchases.
- The evaluation of the Con Edison online Marketplace over the time period July 2016 through December 2018 captured substantial energy savings.
 - The research team estimates **first-year gross** demand savings of 14.3 MW, 33,582 MWh of first-year gross electricity savings, and 972,856 therms of first-year gross gas savings. This translates to **first-year net** demand savings of 8.4 MW, 22,977 MWh of first-year net electricity savings, and 585,818 therms of first-year net gas savings.
 - The research team estimates **gross savings to-date** (covering the entire 30-month period covered by the study July 2016 through December 2018) of 17.9 MW of demand savings, 41,977 MWh of gross electricity savings to-date, and 1,216,070 therms of gross gas savings to-date. This translates to 10.5 MW of **net savings to-date**, 28,720 MWh of net electricity savings to-date, and 732,273 therms of net gas savings to date.
 - In terms of **gross lifetime** savings, product purchases through December 2018 will deliver an estimated 167.3 MW of gross demand savings, 451,637 MWh of gross electricity savings, and 10,716,046 of gross therm savings. This translates to 98.5 MW of **net lifetime** demand savings, 308,607 MWh of net lifetime electricity savings, and 6,451,645 therms of net lifetime gas savings.
- Total savings values are partitioned into four categories: (1) downstream, (2) online, (3) RPP, and (4) Marketplace.
 - Of the total net lifetime savings resulting from the Con Edison Marketplace offering, 60% of electricity savings, 75% of gas savings, and 53% of demand savings are associated with the last category of savings – savings originating from Marketplace that are not associated with any other program. It is worth emphasizing that unlike with the first three categories of savings, this was done without incentives. This result points to the potential to scale cost-effective energy savings by eliminating market and behavioral barriers that prevent private investment into efficient products. It is also worth noting that this impact was achieved, even though marketing budgets were primarily directed towards online purchases. Instant online point-of-sale discounts drove 165,571 product sales, accounting for 33% of electricity, 21% of natural gas and over 20% of total energy and demand reductions. Both the Marketplace and the online sales are new savings, not claimed by any other program.

Conclusions

- The overall Marketplace offering also provided lift to existing downstream rebate and RPP programs. About 6% of total electricity savings, 3% of total gas savings and 25% of total demand savings are associated with the downstream rebates. About 1% of total electricity savings, 1% of total gas savings, and 2% of total demand savings are associated with the RPP Program. The savings associated with the downstream rebates and RPP are already being claimed by those programs and the numbers presented herein represent the lift to those programs originating from Marketplace.
- A comprehensive assessment should be conducted to determine the cost effectiveness of delivering energy savings through Marketplace. Though a comprehensive cost-effectiveness assessment was beyond the scope of this study, the research team computed several simplified cost metrics to serve as baseline values for later comparison. Overall, for electricity savings, Marketplace-related purchases from July 2016 through December 2018 have delivered 8.31 kWh per dollar spent in terms of *first-year net* electricity savings (or a cost of \$0.12 per kWh saved), which translates to 103.07 kWh per dollar spent in terms of *lifetime net* electricity savings (or a cost of \$0.01 per kWh saved). For gas savings, the Marketplace offering has delivered 0.28 therms per dollar spent in terms of *first-year net* gas savings (or a cost of \$3.53 per therm saved), which translates to 3.52 therms per dollar spent in terms of *lifetime net* gas savings (or a cost of \$0.28 per therm saved). However, it is important to note that these simple cost metrics leave out important considerations such as participant costs, the sharing of costs that deliver savings to other programs, and research and evaluation costs. Furthermore, the study did not calculate any benefit metrics. Many benefits arise from Marketplace such as the value of avoided energy use and non-energy benefits such as Greenhouse Gas reductions, increasing Con Edison's digitally connected audience, improving customer perceptions of Con Edison, and animating the manufacturers and retailers to achieve REV goals.
- The less tangible effects that Marketplace has on the Con Edison customer experience should not be overlooked. Almost two-thirds of respondents (62.9%) indicated that Marketplace was important in affecting their purchase decision (see Figure 10). The information they found most helpful was the Energy Score, availability of rebates, and estimated energy savings (see Figure 9), which previous research has shown is generally the information hardest for customers to find. So, it appears that Marketplace is having a positive effect by helping to fill existing information gaps.
- This study also showed that almost two-thirds of the website users reported being satisfied with the site (see Figure 11), and almost half of the respondents (49.1%) reported having a more favorable view of Con Edison after using the website (see Figure 13). Thus, while Marketplace is influencing purchase decisions and filling existing information gaps, customers also seem to appreciate Con Edison's effort in offering the site. Further, Marketplace is also providing other benefits valuable to customers including helping customers get quotes from local rooftop solar installers as well as the savings for going with community solar, helping customers get quotes from local installers for appliance installation services, and providing targeted offers from retailers and value-added service providers for Con Edison customers.

Appendix A. Marketplace Visitors Web Survey

Programming Notes

Group 1 = Rebate sample (2018 Appliances, 2017 Appliances, 2017 EWH³⁴, 2016-17 HW)

Group 2 = Enervee samples (Profiles, Solar, ClickThru)

Group 3 = Enervee Sales

Introduction

Thank you for agreeing to participate! This survey should only take 5-10 minutes to complete. Please keep in mind that your responses will be kept strictly confidential and none of your answers will be presented in a manner that can identify you.

Should you have any question about legitimacy of this survey, you may contact a Con Edison' Energy Efficiency Assistance Line at 1-877-870-6118 Mondays through Fridays from 9 am to 5 pm.

Before we begin, we have a couple of questions to ensure you are the right person to answer the questions and qualify for the survey.

Screening and Establishing Product Purchases

[ASK ALL]

S1. Have you ever visited Con Edison's Marketplace website? [INSERT SCREENSHOT OF MP]

The Con Edison Marketplace is the website that provides information on different models of home appliances and consumer electronics. The information provided includes product specifications, prices, product energy use, reviews, and links to stores where you can purchase the products. Also, some products such as thermostats and light bulbs can be purchased directly from the site.

1. Yes
2. No [IF GROUP = 2 or GROUP = 3]
3. Don't know [IF GROUP = 2 or GROUP = 3]

S2. When did you last visit Con Edison's Marketplace?

1. Within the past month
2. About 2 months ago
3. About 3-4 months ago
4. About 5-6 months ago
5. More than 6 months ago

³⁴ Note that there is no 2018 EWH file as the program converted to upstream in 2018.

Marketplace Visitors Web Survey

[DISPLAY IF GROUP=1]

- S3. Records indicate that you may have purchased the following product(s) and submitted a rebate through Con Edison within the past two years. Please tell us whether you remember purchasing the product and submitting the rebate application.

[Matrix Question]

[LOGIC] Item	Remember purchasing?		Remember submitting the rebate application?	
	Yes (1)	No/DK (2)	Yes (1)	No/DK (2)
S2_19: Clothes washer				
S2_16: Dehumidifier				
S2_12: Dishwasher				
S2_7: Electric water heater				
S2_14: Refrigerator				
S2_10: Room air conditioner				
S2_9: Gas water heater				

[DISPLAY IF GROUP=3]

- S4. Records indicate that you may have purchased the following product(s) directly from the Marketplace website sometime over the past year. Please tell us whether you remember making the purchase(s) or not.

[MATRIX QUESTION]

[LOGIC] Item	Remember purchasing?	
	Yes (1)	No/DK (2)
S3_17: Lighting		
S3_18: Power strip		
S3_11: Thermostat		

[DISPLAY IF ((GROUP=1 OR GROUP=3) AND (ANY S3=YES OR ANY S4=YES))]

- S5.1 Aside from the product(s) you purchased that we already mentioned, have you looked at and/or purchased any other product(s) presented on the Con Edison Marketplace since visiting the site?

[Matrix Question]

[LOGIC] Item	1 - Yes, I looked at this product on the Marketplace website and purchased one since I visited the website	2 - Yes, looked at this product on the Marketplace website, but I did not purchase one since visiting the website	3 - No, I did not look at this product on the Marketplace website	98-Don't know
ELECTRONICS				
S4.1_1: Monitor			Default	
S4.1_2: Projector			Default	
S4.1_3: Sound bar			Default	

Marketplace Visitors Web Survey

[LOGIC] Item	1 - Yes, I looked at this product on the Marketplace website and purchased one since I visited the website	2 - Yes, looked at this product on the Marketplace website, but I did not purchase one since visiting the website	3 - No, I did not look at this product on the Marketplace website	98-Don't know
S4.1_4: Tablet			Default	
S4.1_5: Television			Default	
LAWN & GARDEN				
S4_6: Pool pump			Default	
HEATING & COOLING				
S4.1_7: Electric water heater			Default	
S4.1_8: Evaporative cooler			Default	
S4.1_9: Gas water heater			Default	
S4.1_10: Room air conditioner			Default	
S4.1_11: Thermostat			Default	
KITCHEN				
S4.1_12 Dishwasher			Default	
S4.1_13: Freezer			Default	
S4.1_14: Refrigerator			Default	
HOME & OFFICE				
S4.1_15: Air purifier			Default	
S4.1_16: Dehumidifier			Default	
S4.1_17: Light bulbs			Default	
S4.1_18: Power strip			Default	
LAUNDRY				
S4.1_19: Clothes washer			Default	
S4.1_20: Electric clothes dryer			Default	
S4.1_21: Gas clothes dryer			Default	
Bundles				
S4.1_22: Thermostat/light bulb/smoke alarm bundle			Default	

[DISPLAY IF (GROUP =2 OR (NO S3=YES OR NO S4=YES))]

S5.2 Have you looked at and/or purchased any product(s) presented on the Con Edison Marketplace since visiting the site?

[Matrix Question]

Marketplace Visitors Web Survey

[LOGIC] Item	1 - Yes, I looked at this product on the Marketplace website and purchased one since I visited the website	2 - Yes, looked at this product on the Marketplace website, but I did not purchase one since visiting the website	3 - No, I did not look at this product on the Marketplace website	98-Don't know
ELECTRONICS				
S4.2_1: Monitor			Default	
S4.2_2: Projector			Default	
S4.2_3: Sound bar			Default	
S4.2_4: Tablet			Default	
S4.2_5: Television			Default	
LAWN & GARDEN				
S4.2_6: Pool pump			Default	
HEATING & COOLING				
S4.2_7: Electric water heater			Default	
S4.2_8: Evaporative cooler			Default	
S4.2_9: Gas water heater			Default	
S4.2_10: Room air conditioner			Default	
S4.2_11: Thermostat			Default	
KITCHEN				
S4.2_12 Dishwasher			Default	
S4.2_13: Freezer			Default	
S4.2_14: Refrigerator			Default	
HOME & OFFICE				
S4.2_15: Air purifier			Default	
S4.2_16: Dehumidifier			Default	
S4.2_17: Light bulbs			Default	
S4.2_18: Power strip			Default	
LAUNDRY				
S4.2_19: Clothes washer			Default	
S4.2_20: Electric clothes dryer			Default	
S4.2_21: Gas clothes dryer			Default	
Bundles				
S4.2_22: Thermostat/light bulb/smoke alarm bundle			Default	

[IF GROUP=1 AND (NO S3=YES OR NO S5.1=YES) TERM]

[IF GROUP=2 AND NO S5.2=YES TERM]

[IF GROUP=3 AND (NO S4=YES OR NO S5.2=YES) TERM]

Influence of Marketplace

[ASK ALL]

Q2. How much did each of the following Con Edison Marketplace features help to facilitate your shopping experience?

[MATRIX QUESTION]

[RANDOMIZE] Item	1 – not at all helpful	2	3	4	5 – Extremely helpful	6 - I do not recall this Marketplace feature	98 – Don't know
1. Energy efficiency (Energy Score)							
2. Retail price information							
3. Integrated instant rebate through the website							
4. Estimated energy bill savings							
5. Estimated cost to buy and run model (Clear Cost)							
6. Popularity / star rating							
7. Where to buy (links to online and local retailers)							
8. List of product features/specifications							
9. Estimated global impact of running efficient equipment (EcoView)							
10. Price drop alerts							
11. Filter and sort functionality							
96. Other, please specify [OPEN-ENDED RESPONSE]							

[FOR Q2-Q12 CYCLE THROUGH ONCE FOR PRODUCT (S2.2=YES OR S3=YES OR S4.1=YES OR S4.2=YES) WITH HIGHEST ENERGY SAVINGS]

[ASK ALL]

Q3. If you had NOT visited Con Edison's Marketplace, which of the following would you most likely have done? If you have purchased more than one **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**, please consider just the most recent **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** you purchased.

[Single response]

1. Not purchased that particular **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** model, but purchased another **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** model
2. Not purchased any **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** model
3. Purchased the same **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**, but delayed the purchase decision *by at least one year*
4. Purchased the same **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** within the year
98. DON'T KNOW

Marketplace Visitors Web Survey

[IF Q2= 1]

- Q4. *Would you have purchased a **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** model that was ENERGY STAR® certified? Again, consider only the most recent purchase if you have purchased more than one **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**.*

[Single response]

1. *I am not aware of ENERGY STAR®*
2. *No*
3. *Yes*
98. *Don't know/Not sure*

[ASK ALL]

- Q5. *Overall, how influential would you say the Marketplace website was in affecting your decision to purchase the **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** you purchased? Again, consider only the most recent purchase if you have purchased more than one **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**.*

[Single response]

1. 1 – Not at all influential
2. 2
3. 3
4. 4
5. 5 – Extremely influential
98. Don't know

[ASK IF GROUP=1 OR GROUP=3]

- Q6. *How much did the availability of the rebate influence your decision to purchase the **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**?*

[SINGLE RESPONSE]

1. 1 – The rebate did not affect my purchase decision at all
2. 2
3. 3
4. 4
5. 5 – The rebate was the only reason I purchased this particular model
6. 6 – I was not aware there was a rebate
98. Don't know

Model Verification

- Q7. *We want to understand how much energy is used by the product(s) you purchased. The easiest way for us to collect this information accurately is for you to provide a picture of your purchase receipt, which contains the product model number and location of the purchase.*

Marketplace Visitors Web Survey

For an additional \$15, are you willing to provide a photo of your purchase receipt for your **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]**? If you purchased more than one, just provide a photo for the most recent purchase.

[Single response]

- 1. Yes
- 2. No
- 98. Don't know

[DISPLAY IF Q6=YES]

Q8. Great! Please upload a picture of the receipt. Please make sure the model number and store address are legible. See example below.

[FILE UPLOAD]

[ONCE UPLOADED, SKIP TO CUSTOMER SATISFACTION/RECOMMENDATION BLOCK]

[DISPLAY IF Q6]

Q9. For an extra \$10, would you be willing to provide us with a photo of the nameplate on the **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** which contains the model number? A typical product nameplate looks like the image below. If you purchased more than one, just provide a photo for the most recent purchase.

[PRODUCT NAMEPLATE IMAGE]

[Single response]

- 1. Yes
- 2. No
- 98. Don't know

[DISPLAY IF q8=YES]

Q10. Great! Please upload a picture of the name plate. Please make sure the model number is legible.

[FILE UPLOAD]

[ONCE UPLOADED, SKIP TO CUSTOMER SATISFACTION/RECOMMENDATION BLOCK]

[DISPLAY IF Q6~=YES AND Q8~=YES]

Q11. For an extra \$5 can you provide the model number for the **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** you purchased? If you purchased more than one, just provide the model number for the most recent purchase.

[Single response]

- 1. Yes: [OPEN ENDED RESPONSE]
- 2. No
- 98. Don't know

[ASK ALL]

Q12. Did you purchase your **[PURCHASED PRODUCT TYPE/REBATED PRODUCT]** in an actual store or online? If you purchased more than one, just consider the most recent purchase.

Marketplace Visitors Web Survey

[Single response]

1. In an actual store
2. Online
98. Don't know/don't remember

[ASK IF Q11=1 (in an actual store)]

Q13. What retailer did you make the purchase from?

[OPEN ENDED]

Customer Satisfaction and Recommendations

[ASK ALL]

Q14. How many times have you visited the Marketplace website?

[Single response]

1. Once or twice
2. A few times
3. Several times

Q15. Based on all of your experiences with the Con Edison Marketplace website, how satisfied are you with the website overall?

[Single response]

1. 1 – Not at all satisfied
2. 2
3. 3
4. 4
5. 5 - Extremely satisfied
98. Don't know

Q16. How likely are you to recommend the Con Edison Marketplace to a friend, colleague or relative?

[Single response]

1. 0 – Not at all likely
2. 1
3. 2
4. 3
5. 4
6. 5
7. 6
8. 7
9. 8
10. 9
11. 10 – Extremely likely

Marketplace Visitors Web Survey

Q17. Based on your experiences with the Con Edison Marketplace website, has this given you a more favorable, about the same, or less favorable opinion of Con Edison?

- 1. More favorable
- 2. About the same
- 3. Less favorable
- 98. Don't know

Q18. Are you a Con Edison customer?

- 1. Yes
- 2. No
- 3. Don't know/Not sure

Thank you for your participation!

Net-To-Gross Example

Appendix B. Net-To-Gross Example

The following provides an example of how free ridership and the net-to-gross battery is scored for the survey. A mock respondent's responses to the net-to-gross questions are shown in red. Free ridership is computed as the sum of two individual scores (1) influence and (2) intention.

$$\text{Influence} + \text{Intention} = \text{Free Ridership}$$

The net-to-gross ratio is then one minus free ridership score:

$$1 - \text{Free Ridership} = \text{NTGR}$$

Figure 14. Influence Score Example #1

Q1. Overall, how important would you say the Marketplace website was in affecting your decision to purchase the [PRODUCT] you purchased?

1 – Not at all important
2
3
4
5 – Extremely important
98. Don't know

Q2. How much did each of the following Marketplace features help to facilitate your shopping experience?

[RANDOMIZE] Item	1 – Not at all helpful	2	3	4	5 – Extremely helpful
Energy efficiency (Energy Score)					X
Retail price information				X	
Integrated instant rebate through the website			X		
Filter and sort functionality				X	
Price drop alerts			X		
Estimated global impact of running efficient equipment (EcoView)			X		
List of product features / specifications		X			
Estimated energy bill savings		X			
Estimated cost to buy and run model (Clear Cost)			X		
Where to buy (links to online and local retailers)			X		
Popularity / star rating			X		

The maximum score is assigned an influence score based on the following scoring rules:

- 1 → Influence Score = 50%
- 2 → Influence Score = 37.5%
- 3 → Influence Score = 25%
- 4 → Influence Score = 12.5%
- 5 → Influence Score = 0%

Net-To-Gross Example

In this example, the maximum influence score is a 5 and the resulting influence score is 0%...³⁵

Figure 15. Intention Score Example #1

Q3. Thinking about the [Product] that you purchased... If you had NOT visited Con Edison's Marketplace, which of the following would you most likely have done?

- ☒ 1. Not purchased that particular [PRODUCT] model, but purchased another [PRODUCT] model
- 2. Not purchased any [PRODUCT] model
- 3. Purchased the same [PRODUCT], but delayed the purchase decision *by at least one year*
- 4. Purchased the same [PRODUCT] within the year
- 98. Don't know

[ASK IF Q3 = 1]

Q4. Would you have purchased a [PRODUCT] model that was ENERGY STAR® certified?

- 1. I am not aware of ENERGY STAR®
- ☒ 2. No
- 3. Yes
- 98. Don't know/Not sure

The intention score is computed according to the following rules:

If Q3 = 2 or 3 → Intention Score = 0%

If Q3 = 4 → Intention Score = 50%

If Q3 = 98 → Intention Score = 25%

If Q3 = 1 & Q4 = 1 → Intention Score = 0%

If Q3 = 1 & Q4 = 2 → Intention Score = 0%

If Q3 = 1 & Q4 = 3 → Intention Score = 50%

If Q3 = 1 & Q4 = 98 → Intention Score = 25%

The resulting intention score is 0%.

The influence and intention scores are summed to derive the Free Ridership score:

$$\text{Influence} + \text{Intention} = \text{Free Ridership}$$

³⁵ Though it may seem counterintuitive that someone who scored an aspect of the site as “extremely helpful” would get an influence score of 0%, it is important to note that at this point of the process, we are computing one aspect of free ridership and the result is really saying that the person is not yet a free rider because the site had notable influence on their purchase decision.

Net-To-Gross Example

$$0\% + 0\% = 0\%$$

One minus the free ridership score is the net-to-gross ratio:

$$1 - \text{Free Ridership} = \text{NTGR}$$

$$1 - 0\% = 100\%$$

Overall, this result means that 100% of the respondent's gross savings is attributable to the website. This should make sense when one considers that this person found at least one aspect of the site "extremely helpful" and they would have not bought an ENERGY STAR model in the absence of the program.

The following is a second example.

Figure 16. Influence Score Example #2

Q1. Overall, how important would you say the Marketplace website was in affecting your decision to purchase the [PRODUCT] you purchased?

- 1 – Not at all important
- 2
- 3
- 4**
- 5 – Extremely important
- 98. Don't know

Q2. How much did each of the following Marketplace features help to facilitate your shopping experience?

[RANDOMIZE] Item	1 – Not at all helpful	2	3	4	5 – Extremely helpful
Energy efficiency (Energy Score)				X	
Retail price information				X	
Integrated instant rebate through the website			X		
Filter and sort functionality				X	
Price drop alerts			X		
Estimated global impact of running efficient equipment (EcoView)			X		
List of product features / specifications		X			
Estimated energy bill savings		X			
Estimated cost to buy and run model (Clear Cost)			X		
Where to buy (links to online and local retailers)			X		
Popularity / star rating			X		

Maximum score across items is 4 resulting in an influence score of 12.5%.

Net-To-Gross Example

Figure 17. Intention Score Example #2

Q3. Thinking about the [Product] that you purchased... If you had NOT visited Con Edison's Marketplace, which of the following would you most likely have done?

- ☒ 1. Not purchased that particular [PRODUCT] model, but purchased another [PRODUCT] model
- ☐ 2. Not purchased any [PRODUCT] model
- ☐ 3. Purchased the same [PRODUCT], but delayed the purchase decision *by at least one year*
- ☐ 4. Purchased the same [PRODUCT] within the year
- ☐ 98. Don't know

[ASK IF Q3 = 1]

Q4. Would you have purchased a [PRODUCT] model that was ENERGY STAR® certified?

- ☐ 1. I am not aware of ENERGY STAR®
- ☐ 2. No
- ☒ 3. Yes
- ☐ 98. Don't know/Not sure

Applying the scoring rule results in an intention score of 50%.

$$\text{Influence} + \text{Intention} = \text{Free Ridership}$$

$$12.5\% + 50\% = 62.5\%$$

One minus the free ridership score is the net-to-gross ratio:

$$1 - \text{Free Ridership} = \text{NTGR}$$

$$1 - 62.5\% = 37.5\%$$

Overall, this result means that 37.5% of the respondent's gross savings is attributable to the website. This should make sense when one considers that this person found at the site to be somewhat helpful (max score for 12 items of 4) and they likely would have not bought an ENERGY STAR model in the absence of the program.

Computing Population-Weighted Purchase Rates for Non-Downstream Products

Appendix C. Computing Population-Weighted Purchase Rates for Non-Downstream Products

The estimation of non-downstream product purchase rates involves three separate sample sources with different purchase rates. Table 35 shows the product level purchase rates computed in a combined manner, and then by the individual sample sources.

Table 35. Product Purchase Rates by Sample Source

Product	Combined Purchases			Rebate Group Purchases			Enervue Group Purchases			Online Group Purchases		
	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP
	A	B	C = B / A	D	E	F = E / D	G	H	I = H / G	J	K	L = K / J
Air Purifier	2,607	17	0.65%	449	2	0.45%	1,947	14	0.72%	211	1	0.47%
Clothes Washer		23	0.88%		4	0.89%		18	0.92%		1	0.47%
Dehumidifier		16	0.61%		4	0.89%		11	0.56%		1	0.47%
Dishwasher		16	0.61%		2	0.45%		14	0.72%		0	0.00%
Electric Clothes Dryer		18	0.69%		7	1.56%		11	0.56%		0	0.00%
Electric Water Heater		12	0.46%		0	0.00%		11	0.56%		1	0.47%
Evaporative Cooler		6	0.23%		1	0.22%		5	0.26%		0	0.00%
Freezer		13	0.50%		1	0.22%		10	0.51%		2	0.95%
Gas Clothes Dryer		17	0.65%		5	1.11%		12	0.62%		0	0.00%
Gas Water Heater		15	0.58%		4	0.89%		9	0.46%		2	0.95%
Light Bulb		182	6.98%		38	8.46%		144	7.40%		0	0.00%
Monitor		15	0.58%		2	0.45%		10	0.51%		3	1.42%
Pool Pump		2	0.08%		0	0.00%		2	0.10%		0	0.00%
Power Strip		28	1.07%		4	0.89%		23	1.18%		1	0.47%

Computing Population-Weighted Purchase Rates for Non-Downstream Products

Product	Combined Purchases			Rebate Group Purchases			Enervee Group Purchases			Online Group Purchases		
	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP	Total Respondents	Made Purchases Since Visiting MP	% of Purchases Since Visiting MP
	A	B	C = B / A	D	E	F = E / D	G	H	I = H / G	J	K	L = K / J
Projector		3	0.12%		0	0.00%		3	0.15%		0	0.00%
Refrigerator		38	1.46%		7	1.56%		29	1.49%		2	0.95%
Room AC		48	1.84%		7	1.56%		36	1.85%		5	2.37%
Sound Bar		10	0.38%		1	0.22%		8	0.41%		1	0.47%
Tablet		13	0.50%		1	0.22%		12	0.62%		0	0.00%
Television		24	0.92%		3	0.67%		21	1.08%		0	0.00%
Thermostat		80	3.07%		17	3.79%		63	3.24%		0	0.00%
Total		596	22.86%		110	24.50%		466	23.93%		20	9.48%

Because the purchase rates vary significantly across the three sample sources (24.50% for the rebate group; 23.93% for the Enervee group; 9.48% for the online group), the research team developed population-weighted purchase rates to ensure the purchase rates used in savings calculations are representative of the overall population. We developed the weights by taking the relative size of each sample source in the population. Table 36 shows the population sizes and weights for each source.

Table 36. Population Sizes by Sample Source

Sample Source	Populations Size	Weight
M	N	O
Rebate	48,823	4.77%
Enervee	958,605	93.59%
Online	16,832	1.64%
Total	1,024,260	

The research team then computed the population-weighted product level purchase rates as shown in Table 37. The final column (Column Y) is what is used in Column E of

Computing Population-Weighted Purchase Rates for Non-Downstream Products

Table 37. Computation of Population-Weighted Product Purchase Rates

Product	Rebate			Enervee			Online			Weighted Total
	Purchase Rate	Weight	Weighted	Purchase Rate	Weight	Weighted	Purchase Rate	Weight	Weighted	Purchase Rate
	P = F	Q = O	R = P x Q	S =	T	U = S x T	V =	W	X = V x W	Y = R + U + X
Air Purifier	0.45%	4.77%	0.02%	0.72%	93.59%	0.67%	0.47%	1.64%	0.01%	0.70%
Clothes Washer	0.89%		0.04%	0.92%		0.87%	0.47%		0.01%	0.92%
Dehumidifier	0.89%		0.04%	0.56%		0.53%	0.47%		0.01%	0.58%
Dishwasher	0.45%		0.02%	0.72%		0.67%	0.00%		0.00%	0.69%
Electric Clothes Dryer	1.56%		0.07%	0.56%		0.53%	0.00%		0.00%	0.60%
Electric Water Heater	0.00%		0.00%	0.56%		0.53%	0.47%		0.01%	0.54%
Evaporative Cooler	0.22%		0.01%	0.26%		0.24%	0.00%		0.00%	0.25%
Freezer	0.22%		0.01%	0.51%		0.48%	0.95%		0.02%	0.51%
Gas Clothes Dryer	1.11%		0.05%	0.62%		0.58%	0.00%		0.00%	0.63%
Gas Water Heater	0.89%		0.04%	0.46%		0.43%	0.95%		0.02%	0.49%
Light Bulb	8.46%		0.40%	7.40%		6.92%	0.00%		0.00%	7.33%
Monitor	0.45%		0.02%	0.51%		0.48%	1.42%		0.02%	0.53%
Pool Pump	0.00%		0.00%	0.10%		0.10%	0.00%		0.00%	0.10%
Power Strip	0.89%		0.04%	1.18%		1.11%	0.47%		0.01%	1.16%
Projector	0.00%		0.00%	0.15%		0.14%	0.00%		0.00%	0.14%
Refrigerator	1.56%		0.07%	1.49%		1.39%	0.95%		0.02%	1.48%
Room AC	1.56%		0.07%	1.85%		1.73%	2.37%		0.04%	1.84%
Sound Bar	0.22%		0.01%	0.41%		0.38%	0.47%		0.01%	0.40%
Tablet	0.22%		0.01%	0.62%		0.58%	0.00%		0.00%	0.59%
Television	0.67%		0.03%	1.08%		1.01%	0.00%		0.00%	1.04%
Thermostat	3.79%		0.18%	3.24%		3.03%	0.00%		0.00%	3.21%
Total	24.50%	4.77%	1.17%	23.93%	93.59%	22.40%	9.48%	1.64%	0.16%	23.72%

Program Expense Allocations

Appendix D. Program Expense Allocations

This appendix provides details on how the program expenses were allocated across the electricity and gas savings.

The research team first converted first-year gross and net MWh and therm savings (Table 38) as well as lifetime gross and net MWh and therm savings (Table 39) into MMBtu. The conversion rates used for these calculations were:

- 1 MWh = 3.412142 MMBtu
- 1 Therm = 0.1 MMBtu

Next, within the net and gross savings categories, the electricity and gas MMBtu values were summed to derive total MMBtu. The research team then calculated the proportion of total MMBtu, within the net and gross savings, that were associated with MWh savings and therm savings. These proportions were then applied to the total program expenses to derive the allocation of total expenses across MWh and therm savings.

Table 38. Program Expense Allocation for First-Year Gross and Net Savings

Program	First-Year Gross Savings		First-Year Net Savings	
	MWh	Therms	MWh	Therms
Downstream	2338.5	29455.6	1160.1	14851.7
Online Sales	7895.6	201842.0	5464.6	129158.7
RPP	566.5	8695.4	287.3	4973.7
Marketplace	24272.8	765687.7	16928.9	456286.1
Total	35,073	1,005,681	23,841	605,270
mmBtu	119,676	100,568	81,348	60,527
Total MMBtu (sum of electricity MMBtu and gas MMBtu)		220,244		141,875
Proportion of MMBtu (MWh MMBtu / total MMBtu; Therms	0.5434	0.4566	0.5734	0.4266

Program Expense Allocations

Program	First-Year Gross Savings		First-Year Net Savings	
	MWh	Therms	MWh	Therms
MMBtu / total MMBtu)				

Program Expense Allocations

Table 39. Program Expense Allocation for Lifetime Gross and Net Savings

Program	Lifetime Gross Savings		Lifetime Net Savings	
	MWh	Therms	MWh	Therms
Downstream	27423.4	324011.3	13608.4	163368.6
Online Sales	149047.7	2220262.0	103600.2	1420745.7
RPP	5419.9	95649.0	2939.8	54711.2
Marketplace	283843.4	8437839.5	197294.9	5026788.4
Total	465,734	11,077,762	317,443	6,665,614
mmBtu	1,589,152	1,107,776	1,083,162	666,561
Total MMBtu (sum of electricity MMBtu and gas MMBtu)		2,696,928		1,749,723
Proportion of MMBtu (MWh MMBtu / total MMBtu; Therms MMBtu / total MMBtu)	0.5892	0.4108	0.6190	0.3810

Program Expense Allocations

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