



REV Demonstration Project:
Connected Homes Platform

2019 Q2 Quarterly Progress Report

Dated: July 31, 2019

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1.0 EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) submits this quarterly report 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

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, 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-

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).

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.²

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.

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.³ This accounting procedure establishes a standardized framework that governs how the Company categorizes and allocates the costs of the REV demonstration projects and 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 program costs have been as planned and the program has driven increases in non-revenue generating benefits, exceeding targets for customer engagement and energy savings. Progress in Q4 2018 has continued to facilitate revenue generation from sponsorship, advertising and increased revenue contribution of Marketplace e-commerce sales.

² <https://www.coned.com/en/about-con-edison/media/news/20190313/con-edison-and-homeadvisor-play-matchmaker-for-consumers-and-energy-efficiency-contractors>

³ 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.

1.5 CONNECTED HOMES PLATFORM

The Project seeks to provide 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 will be most relevant to them. The Project is 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, is administering marketing campaigns promoting a set of products and services to participating customers to demonstrate and evaluate the proof of concept.

2.0 CONNECTED HOMES – QUARTERLY PROGRESS

2.1 DEMONSTRATION HIGHLIGHTS

2.1.1 Since Previous Quarter – Major Tasks Completion

- The Project team offered customers an Earth Day lighting promotion and continued ongoing email campaigns, which resulted in the sale of 4,257 lighting units in Q2.
- The Project team offered customers a Father's Day smart thermostat promotion and continued ongoing campaigns, which resulted in the sale of 1,459 thermostat units in Q2.

2.2 ACTIVITIES OVERVIEW

Created and tested new e-commerce email templates to improve conversion rates.

Conducted successful smart thermostat promotions for Earth Day and Father's Day, resulting in an increase in energy savings and revenue.

Continued to drive adoption of home upgrades with sponsored emails from Con Edison's partner, Sealed.

Revised email creative templates to improve customer experience and reach.

An independent assessment of the energy savings achieved by the Project, was completed in Q2 2019 by Opinion Dynamics. The assessment was designed to address multiple objectives, including estimating the energy savings derived from Con Edison Marketplace product sales and assessing customer engagement relative to the

Con Edison Marketplace. The key findings indicate that the Con Edison Marketplace delivered a total of 4.0 MW of gross demand savings, 8,657 MWh of gross electricity savings, and 123,049 Therms of gross gas savings over the July 2016 - December 2018 period. The study also found the Con Edison Marketplace provided some program lift to existing downstream and midstream programs. The report is included as Appendix C.

Marketplace Marketing Initiatives

Solar Email Campaigns

The Project team continued to promote both the rooftop and community solar programs in Q2 2019. Since deployment, the community solar program has collected 1,543 leads and 179 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 will continue with solar promotions through Q3 2019.

The Project team also continued promoting rooftop solar accessibility, driving a total of 2,529 leads and 219 sold solar projects to date.

The image shows a landing page for a solar savings calculator. At the top, it asks 'Do You Have 60 Seconds to Save \$1,850 a Year?' and includes a 'Calculate Savings' button. Below this, it states 'Find out How Much Going Solar Can Save You in Less than 60 Seconds!' and 'Join the 50,000+ customers who used our savings calculator to get an instant estimate. Simply enter your address and voila!'. The main section displays a comparison of costs and savings:

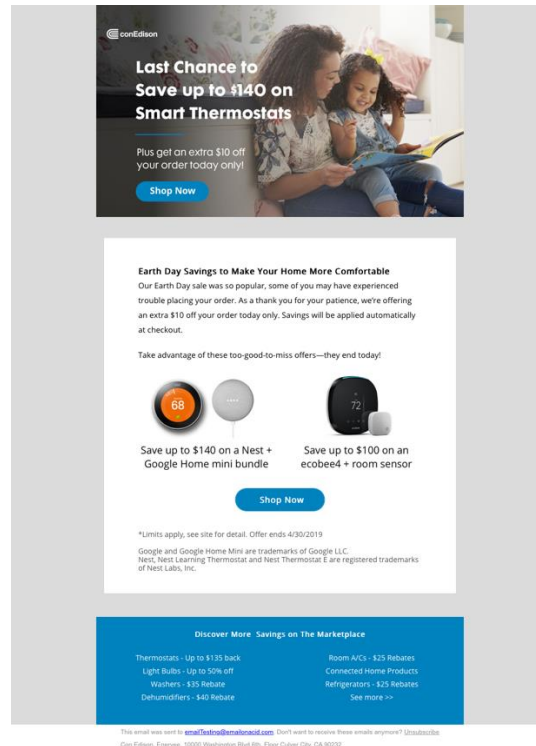
Category	Current Cost	With Solar Savings
Your Current Bill	\$180	
Monthly Savings		\$17*
Annual Savings		\$159*
Monthly Savings		\$162*
Annual Savings		\$1,850*

Below the table, it says 'If the potential savings interest you, request an easy online quote, and a personal solar consultant will help walk you through the process.' and includes another 'Calculate Savings' button. At the bottom, there is a section titled 'Discover more on Marketplace' with a list of rebates:

- Thermostats - Up to \$135 in savings
- Light Bulbs - Save up to 50%
- Washers - \$35 Rebate
- Dehumidifiers - \$40 Rebate
- Room A/Cs - \$25 Rebates
- Connected Home
- Refrigerators - \$25 Rebates
- And more >>>

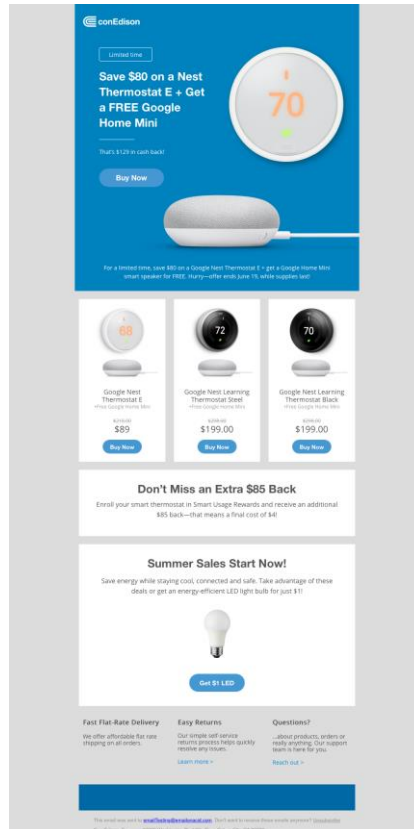
Earth Day Promotion

During Earth Day celebration, the Project team marketed smart thermostat manufacturer sales promotions. The Earth Day promotion resulted in the sale of 269 smart thermostat units.



Father's Day Thermostat Promotion

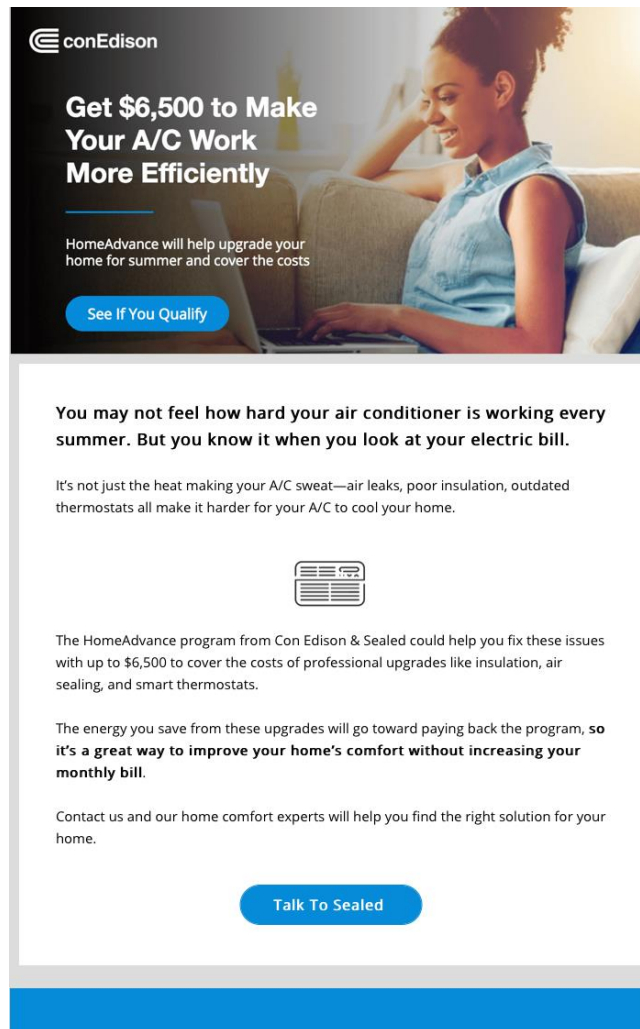
The Project team participated in manufacturer sales for smart thermostats. This sale was the first to use the updated e-commerce template, featuring product tiles in the email, as well as updated segmentation data. This promotion resulted in the sale of 860 smart thermostat units.



New template featuring product tiles in email

Sealed Email Promotion:

After the successful initial promotion of Con Edison's partner, Sealed, the Project team will continue to promote the program through the end of 2019. In Q2 2019, there were 3 different promotional campaigns that successfully drove 1,013 leads for our partner Sealed.



Sealed Email June

2.2.1 Key Metrics

In Q2 2019, the Project continued to see significant e-commerce sales, via the new Checkout application. For additional details on program results to date, see Appendix A: List of Metrics and Results.

Con Edison Marketplace E-Commerce Sales:

In Q2 2019, the team recorded 7,532 e-commerce orders consisting of 4,257 light bulbs, 1,459 thermostats and 18 power strips.

Digital Customer Engagement:

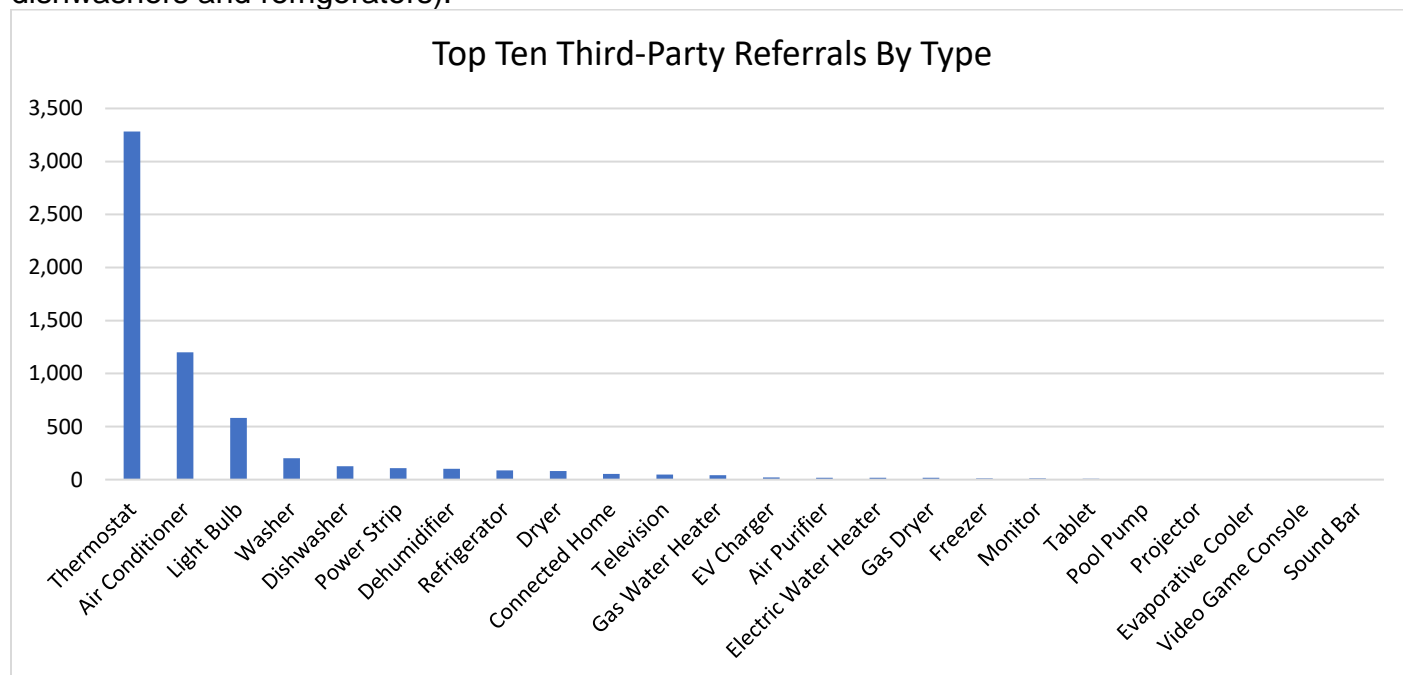
In Q2 2019, Con Edison's Marketplace attracted 125,383 unique visitors and 257,386 sessions, resulting in 427,970 corresponding page views.

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 Q2 2019, a total of 19,903 Con Edison Marketplace visitors have clicked through on Con Edison's large appliance rebate offers, and a total of approximately 33,169 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 Q2 2019, Con Edison Marketplace customers were directed to third-party appliance retail websites approximately 6,041 times. The most popular Con Edison Marketplace categories researched were thermostats and air conditioners. Some products, such as LED lighting and smart thermostats peak around special promotions (such as the Earth Day 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 Q2 2019 were 4,100 MWh and 6,930 Therms on a lifetime energy savings basis.

Greenhouse Gas Emissions Reductions:

The lifetime energy savings associated with Con Edison Marketplace e-commerce sales in Q2 2019 are estimated to reduce 4,433,627 pounds of carbon dioxide, 90.2 pounds of methane and 8.2 pounds of nitrous oxide emissions. Cumulatively, Marketplace e-commerce sales are expected to reduce greenhouse gas emissions by 225,561,356 CO₂e over the lifetime energy savings of the products.

2.2.2 Next Quarter Forecast



In Q3 2019, the Project team plans to continue focusing its efforts on channels that maximize energy savings while generating revenue.





Planned Q3 2019 activities for Con Edison Marketplace include:

- Additional LED lighting sales with the cross promotion of smart thermostats and power strips.
- Continue to offer summer smart thermostat promotions and manufacturer sales.
- Introduce promotions for the new Ecobee smart thermostat.
- Explore opportunities for campaigns focused on lower income customers through promotions of value priced smart thermostats.
- Continue customer satisfaction email surveying.
- Launch EV Chargers on Con Edison Marketplace e-commerce, to simplify the purchase process for customers.

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 runs from 1 August 2018 through 31 December 2019, and the Midpoint has been 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	

Checkpoint/Milestone	Timing*	Status
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	 Delayed or Stopped – Project Goals Impacted	 Completed
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2.2.4 Planned Activities

2.2.4.1 *DER Sales – Market Animation and Customer Choice*

Status: Green

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

As of Q2 2019: DER sales were as expected in Q2 2019.

2.2.4.2 *Messaging Effectiveness – Customer Motivation*

Status: Green

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

As of Q2 2019: Open rate achieved the End target after the first two months. Click-through rate achieved the Midpoint goal.

2.2.4.3 *Digital Engagement – Integrated Online Experience*

Status: Green

Expected Target for Phase 2 of Project Extension End⁴: 1,275,000 cumulative visits

As of Q2 2019: Digital engagement is tracking above expectations, with cumulative visits exceeding the Midpoint goal.

2.2.4.4 *Revenue Realization*

Status: Yellow

Expected Target by Phase 2 of Project Extension End: \$650,000

As of Q2 2019: Revenue realization is *below* expectations.

Total revenues for Q2 2019 (Phase 2 of Project Extension) were not on track to achieve the revised revenue goal, which was more ambitious than the prior goal.

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 are 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: Green

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

As of Q2 2019: Estimated electricity lifetime savings from sales of products in the Con Edison Marketplace are tracking as expected.

2.2.5 Changes to Project Design

No changes are planned.

⁴ 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.

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) and is now working through 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 focus 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. The team believes that at this stage in the Project, this level of effort in the DER recruitment process is suitable for potential third-party engagement.

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

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

Based on increased mobile traffic over the course of the Project, the team continued to test enhancements to the mobile platform and implement adjustments. The Project team has also shifted the media buying strategy to target a larger share of mobile traffic.

In order to improve open rates on emails, the Project team is now receiving monthly updates on new customers and integrating them into ongoing the Con Edison Marketplace promotions.

The Project team also performed a clean-up of email and segmentation, as well as development of ecommerce optimized email user experience, which has resulted in dramatic improvements in average open rates, improvements in unit sales.

2.4.2 Recommendations

The Project team recommends continuing in Q3 2019 to develop campaigns using advanced retargeting campaigns using the Con Edison Marketplace's new

segmentation tools to increase the number of active users returning to the Marketplace as well as create lookalike audiences.

Add EV charger category to e-commerce to enable interested customers to easily purchase the product on the Con Edison Marketplace.

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 Q2 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: 2,529 leads Community: 1,543 leads
		Solar sales reported	Number of solar systems sold	Cumulative	Rooftop: 219 contracts sold Community: 179 contracts sold
		Solar installations	Number of solar systems installed/community solar service initiated	Cumulative	Rooftop: 92 installations Community: 0 implementations
Revenue Realization	Total Revenue	Total revenue to Con Edison	Revenue gained	Annually	Actual revenue through Q1 2019 is roughly 55 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): 4,100 (lifetime) Gas savings (Therms): 6,930 (lifetime)
		Reduction in greenhouse gas emissions	Greenhouse gas emissions reduction from product sales from Marketplace e-commerce platform	Quarterly	4,433,617 lbs. CO ₂ ; 90.2 lbs. CH ₄ ; 8.2 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 <ul style="list-style-type: none"> Partner contracts signed DPS approval 	Successful Platform Build: <ul style="list-style-type: none"> Attract vendors in key categories Successful data transfer 	Platform Utilization: <ul style="list-style-type: none"> Click through rates Qualified leads Contact center volume Vendor retention Customer satisfaction 	Revenue Realization: <ul style="list-style-type: none"> Revenue per source Customer satisfaction Vendor retention
Key Elements	<ul style="list-style-type: none"> Platform provider contracted DER providers signed-on 	<ul style="list-style-type: none"> Develop platform End-to-end testing Contact center training Program go-live 	Evaluate response of specific audiences to <ul style="list-style-type: none"> DER combinations Channels Messages 	<ul style="list-style-type: none"> Leverage more granular customer data Optimize profit by refining <u>categories, pricing,</u> and 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	<ul style="list-style-type: none"> Solar systems Home audits Smart thermostats, LEDs, smart power strips HVAC systems Appliances Smart Home products 	<ul style="list-style-type: none"> Expanded DER products and services New DER partnership
Status	Completed	Completed	Ongoing	Started



Opinion **Dynamics**

Portland

503 287 9136 tel

503-281-7375 fax

3934 NE MLK Jr. Blvd.

Suite 300

Portland, OR 97212



Online Marketplace Assessment

Consolidated Edison Company of New York (Con Edison)

July 3, 2019



Contributors

Todd Malinick, PhD
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.

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 engagement.
- Assessing the benefits and costs associated with Marketplace to understand how they are shared across different existing program.

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 purchasers (those who purchased thermostats, power strips, and lighting)
- 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, 2,626 customers took part in the survey with a response rate of 2.5%.

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

1. Energy savings associated with downstream product purchases
2. Energy savings associated with online sales
3. Energy savings associated with a midstream product purchases⁵
4. Energy savings associated solely with Marketplace

Table 1 presents the final results of the analyses showing the gross and net savings⁶ to-date partitioned into downstream, online sales, midstream, and Marketplace. It is worth emphasizing that the downstream and midstream values presented herein refer to lift to the program from Marketplace and are not total program savings, only the savings associated with Marketplace lift. The savings associated with online sales and Marketplace in Table 1 and Table 2 are new savings not yet claimed by any existing programs. The savings shown in the table are "to-date", as they present all the savings that has amassed since the launch of the site in July 2016

⁵ The only midstream program associated with Marketplace is the Retail Products Platform (RPP) Program as several of the products offered on Marketplace are also part of that program.

⁶ 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 for an explanation of how net savings were calculated.

Executive Summary

through the end of 2018 (a 30-month period at the time of this research). Table 2 annualizes these savings to show estimated gross and net first-year savings.

Table 1. Gross and Net Savings To-Date by Program (July 2016 – December 2018)

Product	Gross Savings To-Date			Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	1.4	722	1,796	0.7	361	909
Online Sales	1.2	5,716	48,196	0.9	4,170	32,132
RPP	0.0	17	257	0.0	10	166
Marketplace	1.4	2,202	72,800	0.9	1,385	45,615
Total	4.0	8,657	123,049	2.4	5,926	78,823

Table 2. Gross and Net Annualized Savings

Product	Gross First-Year Savings			Net First-Year Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	0.5	289	718	0.3	144	364
Online Sales	0.5	2,287	19,278	0.3	1,668	12,853
RPP	0.0	7	103	0.0	4	66
Marketplace	0.5	881	29,120	0.3	554	18,246
Total	1.6	3,463	49,219	1.0	2,370	31,529

The key findings from this study include:

The evaluation of the Con Editions online Marketplace over the time period July 2016 through December 2018 captured energy savings beyond the existing Con Edison programs. The research team estimates that over this period, Marketplace delivered a total of 4.0 MW of gross demand savings, 8,657 MWh of gross electricity savings, and 123,049 Therms of gross gas savings. This translates to 2.4 MW of net demand savings, 5,926 MWh of net electricity savings, and 78,823 Therms of net gas savings (see Table 1).

The Marketplace provides some program lift to the existing downstream and midstream (RPP) programs. The total savings values are partitioned into four categories of savings (see Table 28): (1) downstream rebates, (2) online sales, (3) RPP, and (4) Marketplace. The savings associated with the downstream and RPP are already being claimed by those programs and the numbers presented herein represent the lift to those programs originating from Marketplace. The savings associated with Marketplace are new savings, not claimed by any other program.

A comprehensive cost-effectiveness assessment should be conducted to determine the efficacy of delivering energy savings through Marketplace. Though a comprehensive cost-effectiveness assessment was beyond the scope of this study, the research team computed some simplified cost metrics to provide some insights and to serve as baseline values for later comparison. This approach shows that the 8,657 MWh of net electricity savings and 123,049

Therms of net gas savings have been delivered at a cost of \$4,828,605 net of revenues.⁷ This equates to \$0.81 per net kWh saved (or 1.23 gross kWh per dollar spent) and \$61.26 per net therm saved (or 0.02 Therms per dollar spent). However, it should be emphasized that this analysis focuses only on financial costs and energy savings and does not include a range of other benefits arising from Marketplace such as the value of avoided energy use and non-energy benefits (such as Green House Gas (GHG)) reductions and increasing Con Edison's digitally connected audience or animating the marketplace to achieve REV goals). Further, the cost metrics also leave out other important considerations such as, participant costs, the disaggregation of costs associated with sharing savings with other programs, research and evaluation costs, and inaccuracies associated with estimating the energy savings. As such, a comprehensive cost-effectiveness assessment needs to be conducted to fully understand the efficacy of Marketplace.

The intangible 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 case study research showed was generally the information hardest for customers to find. So, it appears that Marketplace is having an effect on the market for consumer electronics and home appliances and is 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 (i.e. Sealed⁸) for Con Edison customers. Thus, to fully understand the value of Marketplace a wide range of factors need to be considered.

⁷ The Con Edison Marketplace empowers its customers to purchase energy saving products and services. By doing this, it provides an opportunity for Con Edison to generate revenue by leveraging new business models across digital advertising and sponsorship from energy-related New York businesses, affiliate referrals to national/local online retailers, direct sales of instant rebated home products and lead generation to value added service providers (i.e. solar & home contractors). The cost data reported in this report are net of these revenues.

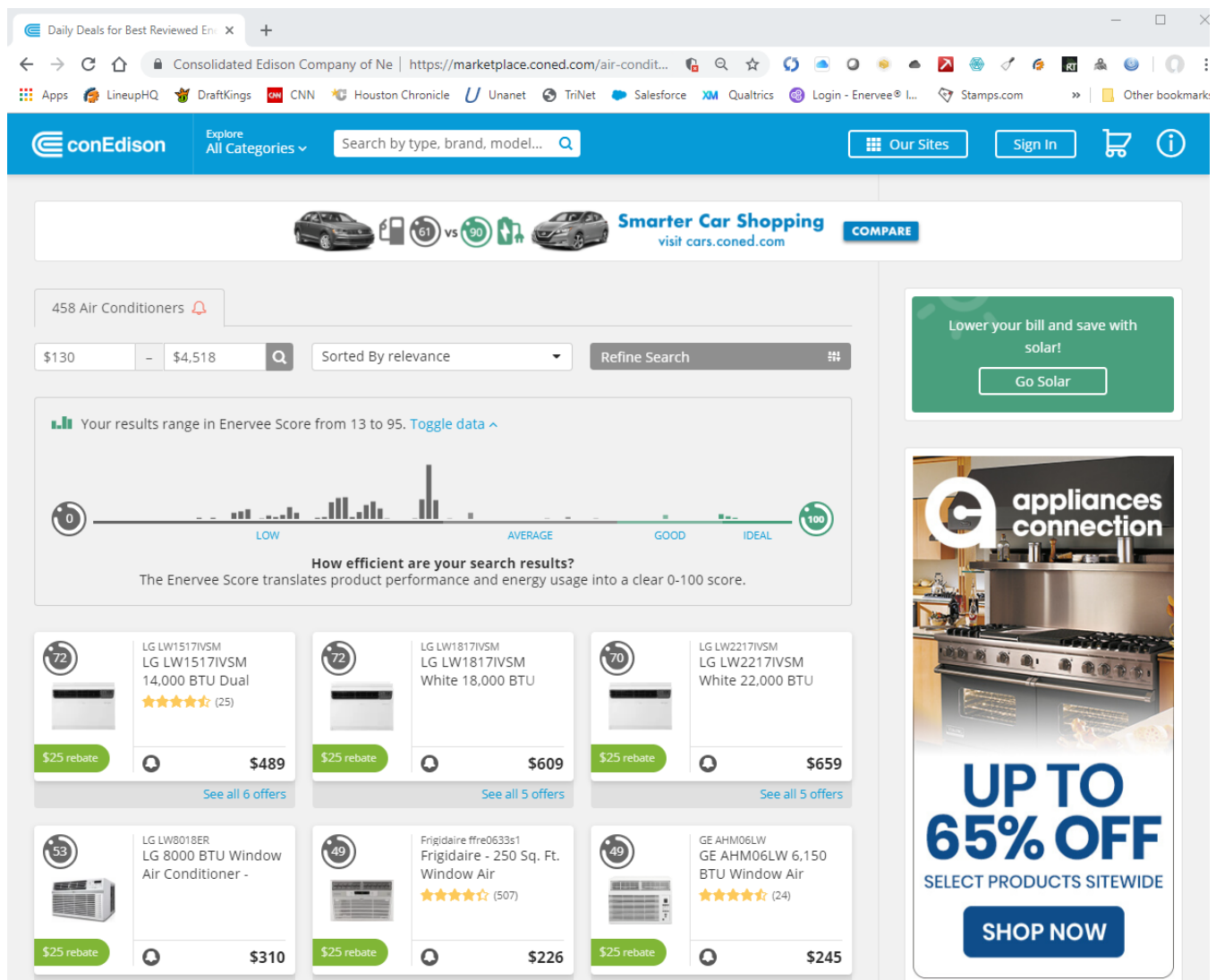
⁸ Based in New York City, Sealed coordinates and finances comprehensive residential efficiency improvements in partnership with utilities and local contractors. Sealed's efficiency improvements make homes more comfortable and valuable without increasing homeowners' expenses: Sealed only gets paid back for their investment based on the homeowners' actual energy savings.

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. However, 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

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the other products in the category. The closer to 100, the more efficient the product (see numbers in green circles in Figure 1). A second feature is the CLEARCOST, which shows 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 rebate application process from within the Marketplace website. A screenshot for a particular product 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 and a 'COMPARE' button. 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. A 'Claim Rebate' button is prominently displayed. 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 banner at the bottom of the product listing states 'Get a \$25 rebate' and provides instructions to enter an email for more information. On the right side, there's a sidebar with a 'Buy now from \$489' button, a 'Claim Rebate for a past purchase' button, and a green box indicating 'Claim Your Rebate! \$25'. Below this, there's a form to enter an email address and a 'Get Rebate Info' button. Further down, there's a section titled 'Most Efficient air conditioners' featuring a Panasonic XE15SKUA model with a 91 efficiency score, 15,000 BTU, and 22.1 SEER, priced at \$1,849. A 'See offer' button is located below the Panasonic listing.

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 in effect since April 2017. At the time this study was conducted, the site contained 20 products (see Table 3).⁹

Table 3. Con Edison Marketplace Product List

Non-Rebated	Rebated	Online Purchase with Instant Rebate	Online Purchase
Air purifiers Freezers Refrigerators Monitors Projectors Sound bars Tablets Televisions Clothes dryers Evaporative coolers Gas water heaters Pool pumps	Dehumidifiers Dishwashers Clothes washers Air conditioners Electric water heaters	Light bulbs Thermostats	Power strips

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:

- 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.

⁹ The website offers several products such as game consoles, connected home devices, electric vehicle chargers, and lighting dimmer switches that do not save energy and as such, are not included in this study.

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:

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

Several considerations that need to be taken into account when evaluating Marketplace include:

- **Only some purchases are tracked.** Customers can purchase three of the products offered directly through the website (two with instant rebates); five other products are rebated where customers can begin the application process through the Marketplace site.¹⁰ 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 sites' influence on customers' purchase decisions. The challenge is that there is no way of tracking purchases for the remaining products.¹¹ Instead, Marketplace provides site visitors with product information and specifications that they can use during their shopping journeys to, ideally, make more energy-efficient purchase decisions, 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. 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.
- **Some purchases tied to Marketplace can also be tied to other Con Edison programs.** Some of the product categories offered on the site are also products included in existing downstream and

¹⁰ 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.

¹¹ Though most products are not sold through the Marketplace website, Enervue 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, Enervue 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 (typically 24 hours), 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).

midstream¹² programs. For downstream programs, 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 midstream) 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.** While the benefits of Marketplace include the energy savings associated with energy-efficient products purchases that visitors buy because of what they learned on Marketplace, benefits also potentially include things like improved customer engagement and increased customer satisfaction. Thus, these less tangible things also need to be measured and incorporated into the assessment to truly understand the complete value that Marketplace might be playing 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 survey-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 4 presents the original number of cases in each file along with the final composition of the sample frame after 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; 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

¹² Note that the only midstream program interacting with Marketplace is Con Edison's RPP Program. The RPP Program pays incentives to participating retailers for each program-qualified unit (usually ENERGY STAR or better) they sell in certain product categories.

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 4. Final Sample Frame Composition

Source	Original Number of Cases	Final Sample Frame Number of Cases
Rebate	88,868	48,825
Sales	19,503	13,948
Enervee Profiles	33,791	27,764
Enervee Solar	2,956	149
Email Click Through	213,789	181,016
Total	358,907	271,702

3.3 Survey Design

The research team developed a survey that begins by asking respondents if they recalled visiting the Marketplace website.¹³ The survey provided a detailed description of the website to help stimulate recall.¹⁴ Respondents that did not recall visiting the site were screened out.¹⁵ 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 selected at random from the products they said they purchased.¹⁶

The research team treated downstream-rebated product purchases differently from other purchases because the rebate program data tied customers to specific models,¹⁷ and all the models in the file had been verified as part of the rebate submission process. Also, since a

¹³ 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.

¹⁴ 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."

¹⁵ 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.

¹⁶ 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.

¹⁷ End-use customers for midstream and upstream programs are not known because the incentives are paid to retailers, manufacturers, or distributors for these programs. Consequently, end-user information is not typically collected and there are no databases for these programs telling us which customers purchased which products.

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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.¹⁸ 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 2,626 respondents to the survey, 1,754 (66.8%) were screened out because they did not recall visiting the site. An additional 170 (6.5%) 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 702 (26.7%) respondents completed the remainder of the survey. Table 5 shows these results by data source.

¹⁸ 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.

Figure 3. Marketplace (MP) Survey Logic Flow

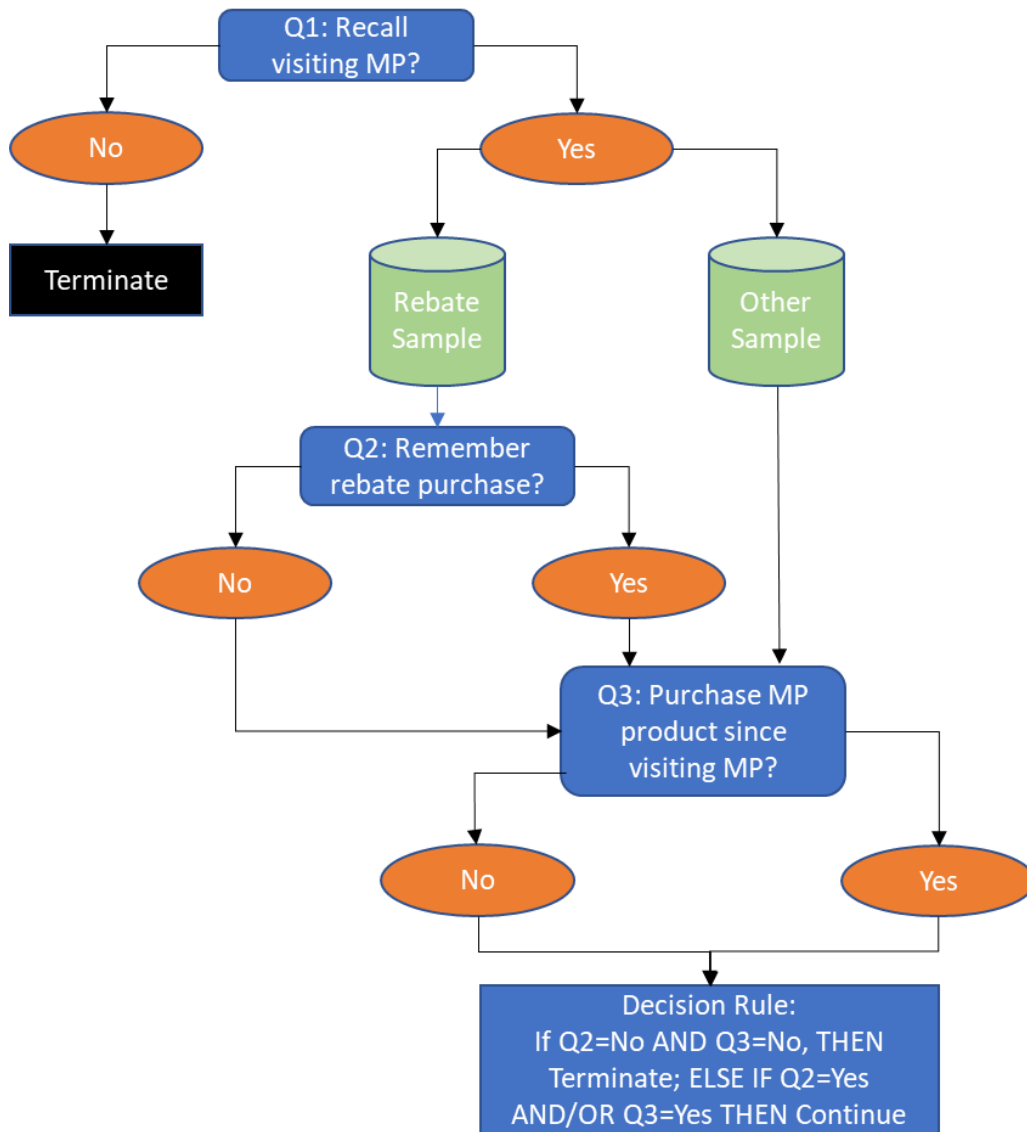


Table 5. Screened Out Respondents by Data Source

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	631	205	32.5%	63	10.0%	363	57.5%
Enervee	1,753	1,498	85.5%	46	2.6%	209	11.9%
Sales	242	51	21.1%	61	25.2%	130	53.7%
Total	2,626	1,754	66.8%	170	6.5%	702	26.7%

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.¹⁹ 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 research 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 6 shows the number of respondents, and final response rates by data source. The highest response rate (Responded/Sent Sample) was with the sales customers (4.4%; $n = 242$) and the lowest was with the Enervee customers (profiles, solar and email click-through) (2.1%; $n = 1,753$). The overall response rate across all sources was 2.5% ($n = 2,626$).²⁰

Table 6. Survey Distributions and Response Rates

Source	Total	Bad emails	Valid Sample	Sent Sample	Responded	Response Rate
Rebates	48,825	886	47,647	18,630	631	3.4%
Enervee ^a	208,929	1,019	206,354	82,438	1,753	2.1%
Sales	13,948	90	13,761	5,521	242	4.4%
Total	271,702	1,995	267,762	106,589	2,626	2.5%

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

3.5 Unit Energy Savings Values

To develop estimates of energy savings for this study the evaluation team developed one unit energy savings (UES) value for each product category.^{21,22} Many of the product categories are

¹⁹ 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 that available sample would not be possible. Also, we have no idea of the actual population size.

²⁰ 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 ConEdison'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.

²¹ 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.

²² 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.

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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 and Con Edison Energy Efficiency staff estimated per unit savings values based on the best available information. Demand and gas savings were not readily available for all the products. Table 7 shows the demand, electricity, and gas savings values used for each product category for this study, also showing the savings sources.

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Table 7. Unit Energy Savings Values by Product Category

Product Category	kW/unit	kWh/unit	Therms/unit	Data Derived	TRM Savings formula
Monitors		66.93		RPP	N/A
Projectors		340.69		RPP	N/A
Sound Bars	0.004	213.73	0.00	RPP	Not currently in TRM. Measure anticipated to be part of TRM in Q4 of 2018
Tablets		2.70		RPP	N/A
Televisions		182.52		RPP	N/A
Pool Pumps	0.518	2,092.50	0.00	TRM	TRM ROR September 2018 - Pool Pump
Room ACs	0.154	73.38	0.00	DMTS	TRM v6 - Air Conditioner - Room (RAC)
Electric Water Heaters	0.170	3,554.12	0.00	HVAC	TRM v6 - Heat Pump Water Heater (HPWH) - Air Source
Evaporative Coolers				RPP	N/A
Gas Water Heaters	0.000	0.00	83.48	HVAC	TRM v6 - Storage Tank & Instantaneous Domestic Water Heater
Thermostats - WiFi	0.230	104.00	0.00	RETAIL T-STAT INVOICES	TRM v6 - Thermostat- Wi-Fi (Communicating)
Thermostats - Learning	0.127	162.89	6.98	RETAIL T-STAT INVOICES	TRM ROR March- Learning Thermostat
Dishwashers	0.023	91.77	0.00	DMTS	TRM ROR September 2018 - Dishwasher
Freezers	0.004	40.00	0.00	RPP	TRM v6 - Refrigerator & Freezer Replacement
Refrigerators	0.004	40.00	0.00	RPP	TRM v6 - Refrigerator & Freezer Replacement
Air purifiers	0.080	125.00	0.00	RPP	TRM ROR June 2017- Air Purifier
Dehumidifiers	0.010	128.22	0.00	DMTS	TRM v6 - Dehumidifier
Light bulbs (LEDs)	0.003	44.29	0.00	DMTS	TRM v6 - Light Emitting Diode (LED), Compact Fluorescent Lamp (CFL) and Other Lighting
Clothes Dryers	0.002	22.50	0.00	RPP	TRM v6 - Clothes Dryer
Clothes Washers	0.007	72.41	5.69	DMTS	TRM v6 - Clothes Washer
Power Strips - Tier 1	0.000	57.50	0.00	TRM	TRM v6 - Advanced Power Strip
Power Strips - Tier 2	0.000	158.90	0.00	TRM	TRM v6 - Advanced Power Strip

3.6 Net-to-Gross Estimation

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

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

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

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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%

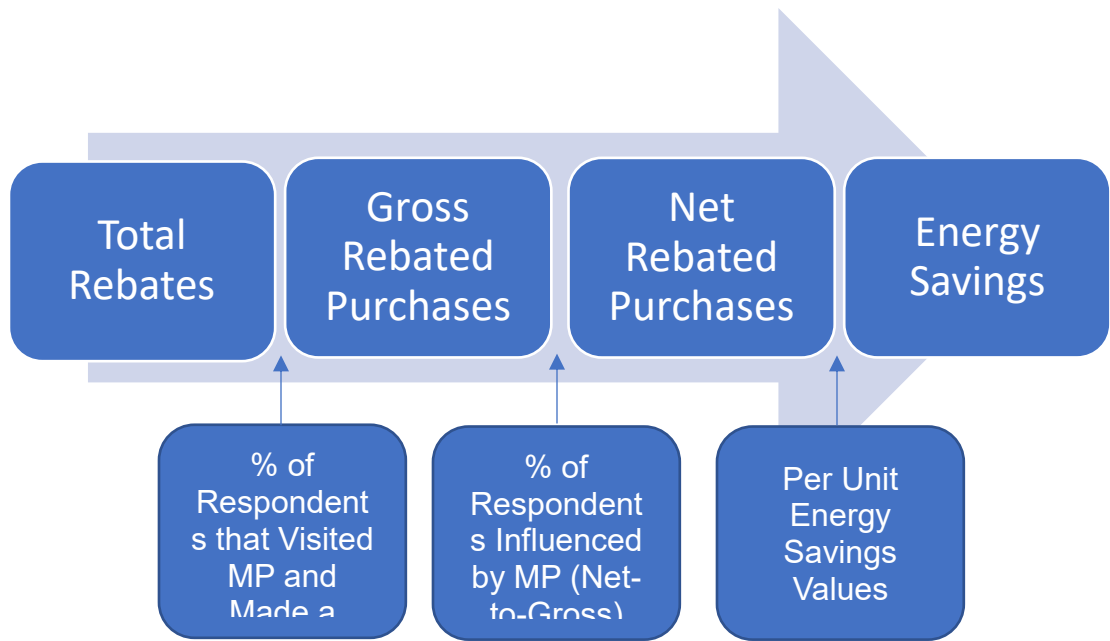
Two examples of net-to-gross scoring are provided in Appendix B.

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 (and quantity), and because they were part of Con Edison’s downstream program, we inherently know that the product is energy efficient. As such, the only key parameters we need to estimate are: (1) the percent of respondents that visited Marketplace and made a purchase of a rebated product, (2) the percent of these visitors that were influenced by Marketplace, and (3) the per unit energy savings values. These parameters 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 computing the percentage of respondents that visited Marketplace and made a purchase of a rebated product since visiting. This is shown in Columns A through C of Table 8. Here it is worth noting that some respondents purchased several products since visiting the site but were only asked about up to three products in the survey to prevent overburdening the respondents. If more than three products were mentioned, three products were randomly selected from the set of purchased product categories. Thus, Column B refers to respondents “Eligible for Follow-up Questions” and Column D refers to “Asked Follow-up Questions”.

Results

Column E presents the degree of influence the site had on the purchase decision (or the net-to-gross ratios) that were computed as shown earlier in the Section 3.6 Net-to-Gross Estimation. Column F shows the estimated number of respondents that were asked the follow-up questions that were influenced by the Marketplace website.

Table 9 continues the computations by applying the estimated parameters to the population of interest. Column G presents the total number of rebated products per the program data and Column H applies the percentage of respondents that visited the site and made a purchase (Column C from Table 8) to derive the estimated number of purchases made after visiting the site, or alternatively, the gross units sold. Column J applies the net-to-gross ratios (Column E from Table 8) in order to derive the estimated number of units purchased influenced by Marketplace, or alternatively net units sold,

In Table 11, the research team converts the gross and net units purchased from Table 9 to gross and net energy savings to-date by multiplying by the per unit energy savings values in Table 10 (values excepted from Table 7). It is important to note that values in Table 11 include savings amassed to-date, or over the 30-month period July 2016 through December 2018. In Table 12, the research team annualizes the savings to show, on average, annual savings attributable to Marketplace.

It is important to note that the savings values presented in this section are savings that are already being claimed by the downstream programs, and as such, represent Marketplace lift to the downstream programs.

Table 8. Estimating Purchases and Net-to-Gross Ratios - Downstream

Product	Total Respondents	Visited MP and Made Purchase (Eligible for Follow-up Questions)	% of Responded That Visited MP and Made Purchase	Asked Follow-up Questions	% Influenced by MP (NTGR)	Asked Follow-up Questions Influenced by MP
	A	B	C = B / A	D	E	F
Clothes Washers	631	25	4.0%	19	50.7%	9.6
Dehumidifiers	631	12	1.9%	11	60.4%	6.6
Dishwashers	631	44	7.0%	39	47.6%	18.6
Electric Water Heaters	631	0	0.0%	0	0.0%	0.0
Gas Water Heaters	631	2	0.3%	0	50.0%	0.0
Refrigerators	631	3	0.5%	3	62.5%	1.9
Room AC	631	114	18.1%	100	50.1%	50.1
Total		200		172		34.8

Table 9. Estimating Gross and Net Units Purchased - Downstream

Product	Total Rebated Units (Population)	% of Responded That Visited Site and Made Purchase	Estimated Number of Visitors that Made Purchase (Gross Units Purchased)	% Influenced by MP (NTGR)	Estimated Number of Units Influenced by MP (Net Units Purchased)
	G	H = C	I = G x H	J = E	K = I x J
Clothes Washers	7,608	4.0%	301	50.7%	153

Results

Product	Total Rebated Units (Population)	% of Responded That Visited Site and Made Purchase	Estimated Number of Visitors that Made Purchase (Gross Units Purchased)	% Influenced by MP (NTGR)	Estimated Number of Units Influenced by MP (Net Units Purchased)
	G	H = C	I = G x H	J = E	K = I x J
Dehumidifiers	1,555	1.9%	30	60.4%	18
Dishwashers	9,011	7.0%	628	47.6%	299
Electric Water Heaters	20	0.0%	0	0.0%	0
Gas Water Heaters	309	0.3%	1	50.0%	0
Refrigerators	206	0.5%	1	62.5%	1
Room AC	48,187	18.1%	8,706	50.1%	4,363
Total	66,896		9,667		4,834

Table 10. UES Values - Downstream

Product	Annual Per Unit UES		
	kW	kWh	Therms
	L	M	N
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

Table 11. Gross and Net Savings To-Date (July 2016 – December 2018)

Product	Gross Units Purchased	Gross Savings To-Date			NTGR	Net Savings To-Date		
		MW	MWh	Therms		MW	MWh	Therms
	O = I	P = L x O / 1000	Q = M x O / 1000	R = N x O	S = E	T = P x S	U = Q x S	V = R x S
Clothes Washers	301	0.002	22	1,714	0.51	0.001	11	868
Dehumidifiers	30	0.000	4	0	0.60	0.000	2	0
Dishwashers	628	0.014	58	0	0.48	0.007	27	0
Electric Water Heaters	0	0.000	0	0	0.00	0.000	0	0
Gas Water Heaters	1	0.000	0	82	0.50	0.000	0	41
Refrigerators	1	0.000	0	0	0.63	0.000	0	0
Room AC	8,706	1.337	639	0	0.50	0.670	320	0
Total	9,667	1.354	722	1,796	3.21	0.678	361	909

Results

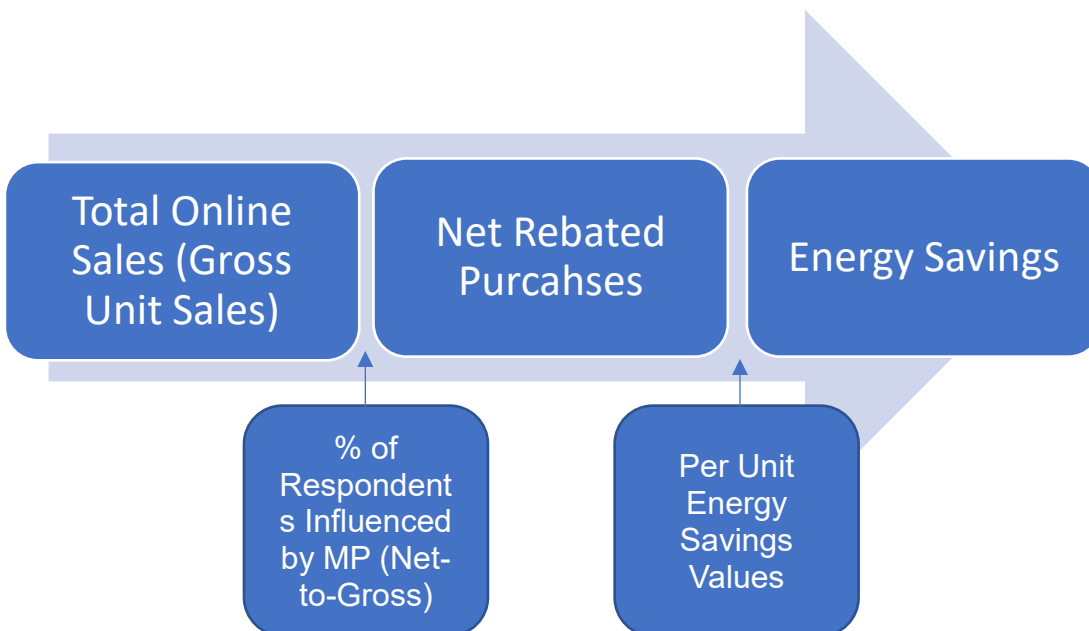
Table 12. Gross and Net First-Year Savings

Product	Gross Savings Annualized			Net Savings Annualized		
	MW	MWh	Therms	MW	MWh	Therms
	$X = P \times 0.4$	$Y = Q \times 0.4$	$Z = R \times 0.4$	$AA = T \times 0.4$	$AB = U \times 0.4$	$AC = V \times 0.4$
Clothes Washers	0	9	686	0.000	4	347
Dehumidifiers	0	2	0	0.000	1	0
Dishwashers	0	23	0	0.003	11	0
Electric Water Heaters	0	0	0	0.000	0	0
Gas Water Heaters	0	0	33	0.000	0	16
Refrigerators	0	0	0	0.000	0	0
Room AC	1	256	0	0.268	128	0
Total	0.542	289	718	0.271	144	364

4.2 Online Product Sales

Estimating the energy savings associated with online product sales is relatively 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 net-to-gross ratios. 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



Results

Table 13 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 provides the UES values (extracted from Table 7) (Columns D through F),

Table 15 shows the gross and net savings to-date. 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 demand, electricity and therm savings, respectively. Column K is the same as Column B, showing the NTGRs, which are applied to the gross savings to derive net savings (Columns L, M, and N). Finally, Table 16 annualizes the gross and net savings.

Table 13. Gross Units Purchased and Net-to-Gross Ratio – 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
Learning Thermostats	6,902	66.7%	4,602
Lighting	103,120	74.6%	76,948
Power Strips	106	0.0%	0
Wi-Fi Thermostats	179	66.7%	119
	110,307		81,669

Table 14. UES Values – Online Purchases

Product	Annual Per Unit UES		
	kW	kWh	Therms
	D	E	F
Learning Thermostats	0.127	162.89	6.98
Lighting	0.003	44.29	0.00
Power Strips	0.000	57.50	0.00
Wi-Fi Thermostats	0.230	104.00	0.00

Table 15. Gross and Net Savings To-Date – Online Purchases (July 2016 – December 2018)

Product	Gross Units Purchased	Gross Savings To-Date			NTGR	Net Savings To-Date		
		MW	MWh	Therms		MW	MWh	Therms
	G = A	H = D x G / 1000	I = E x G / 1000	J = F x G	K = B	L = H x K	M = I x K	N = J x K
Learning Thermostats	6,902	0.875	1,124	48,196	0.667	0.583	750	32,132
Lighting	103,120	0.321	4,567	0	0.746	0.239	3,408	0
Power Strips	106	0.000	6	0	0.000	0.000	0	0
Wi-Fi Thermostats	179	0.041	19	0	0.667	0.027	12	0
Total	110,307	1.237	5,716	48,196	2.080	0.850	4,170	32,132

Results

Table 16. Gross and Net Annualized Savings – Online Purchases

Product	Gross Savings Annualized			Net Savings Annualized		
	MW	MWh	Therms	MW	MWh	Therms
	$O = H \times 0.4$	$P = I \times 0.4$	$Q = J \times 0.4$	$R = L \times 0.4$	$S = M \times 0.4$	$T = N \times 0.4$
Learning Thermostats	0.350	450	19,278	0.233	300	12,853
Lighting	0.128	1,827	0	0.096	1,363	0
Power Strips	0.000	2	0	0.000	0	0
Wi-Fi Thermostats	0.016	7	0	0.011	5	0
Total	0.495	2,287	19,278	0.340	1,668	12,853

4.3 Non-Downstream

As mentioned earlier, the approach used for estimating energy saving for non-downstream product purchases is different than the approaches used for estimating downstream product purchase savings or online purchase savings. Like with the downstream products the research team needed to estimate (1) the proportion of respondents that made a purchase since visiting the site and (2) the proportion of purchases influenced by the site. However, unlike with downstream or online products, these purchases also needed to be assessed to (3) determine if they were efficient purchases or not. Once these three parameters were estimated, they were applied to total unique active shoppers²³ 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.

²³ Unique active shoppers are defined in terms of online behaviors that suggest intent to purchase a product in a specific product category. The behavior of a given unique visitor may result in them being counted as an active shopper in more than one category (e.g., if someone was shopping for a washing machine and a clothes dryer, which are often bought together). For the purpose of this study, we define an active shopper as a unique visitor to the Con Edison Marketplace who interacted with a category or product page within that category at least once during the period in question, including actions such as: (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 brisk-and-mortar store locator, and/or (8) clicked to an incentive. Enervee developed estimates of unique active shoppers based on 2018 site traffic. The research team extrapolated the 2018 data to derive estimates for the July 2016 through December 2018 time period.

Figure 8. Non-Downstream Savings Estimation Model

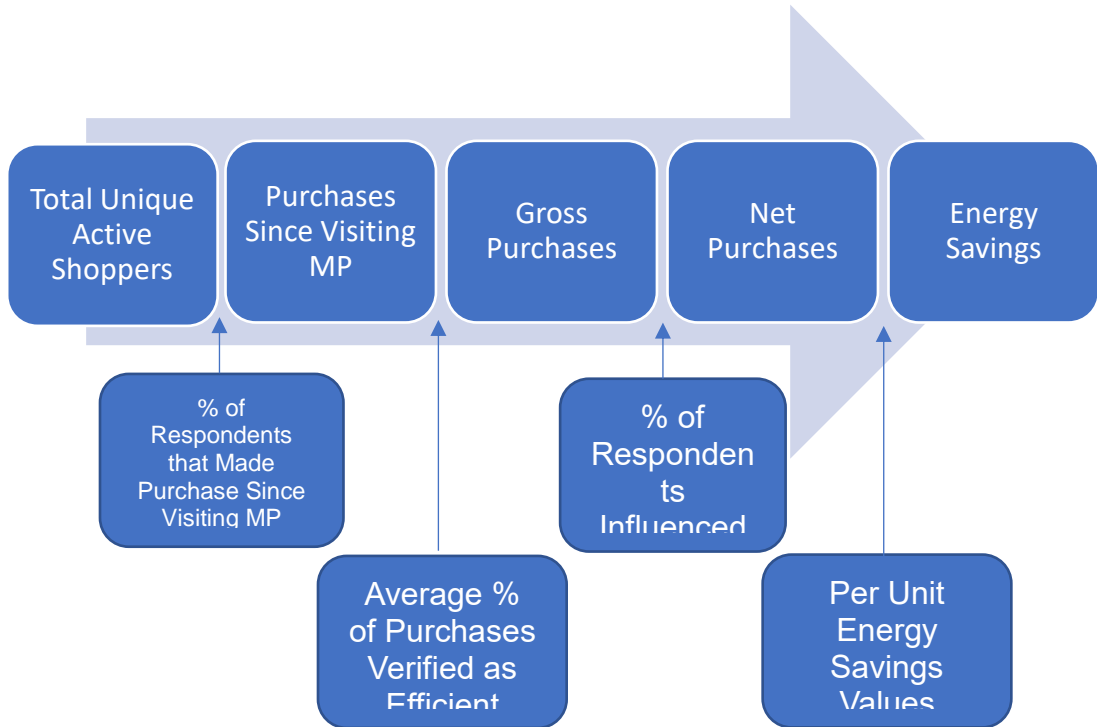


Table 17 starts by estimating the proportion of visitor purchases since visiting the site (Column C), which is the total respondents (Column A) divided by the number of respondents indicating they made a purchase, for each of the product categories, since visiting the site (Column B). Like with the downstream products, the research team worked to minimize survey burden on respondents, and if a respondent indicated they purchased more than three different products, they were only asked follow-up questions for three randomly selected products. Thus, not all respondents eligible for follow-up questions were asked all follow-up questions. This is represented by the difference between Columns B (eligible for follow-ups) and E (asked follow-ups). Column E presents the net-to-gross ratios computed for each of the product categories using the technique discussed earlier in the Section 3.6 Net-to-Gross Estimation. Column F shows the estimated number of respondents that were asked the follow-up questions that were influenced by the Marketplace website.

The next 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 18 shows the number of respondents asked the follow-up questions (Column G), the number of respondents that provided a model number through one of the three alternatives (Column H). Column I shows that roughly one-third of respondents (36.8%) provided a model number through one of the three alternatives. Column J is the number of units verified as energy efficient and Column K 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 product level estimates

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moving forward. Instead, the overall total of 69.3% (sum of Column J divided by sum of Column H, or 97 divided by 140) was used for subsequent calculations (see Column O of Table 19).

Moving on, Column L of Table 19 shows the estimated number of unique active shoppers to the site since its launch in July 2016. Column M is the same as Column C and represents the proportion of visitors to the site that made a purchase since visiting the site. Column N is the product of Columns L and M and represents the estimated number of total purchases since visiting the site. However, only some of these purchases are efficient, and Column P is the number of purchases estimated to be efficient, or gross units, which is the product of Columns N and O. Column Q is the same as Column E shown earlier and is the proportion of purchases estimated to be influenced by Marketplace (or alternatively, the net-to-gross ratios) which is applied to Column P to derive Column R, or the estimated efficient purchases influenced by Marketplace, or alternatively, net units.

In Table 21, the research team converts the gross and net units purchased from Table 19 to gross and net energy savings to-date by multiplying by the per unit energy savings values in Table 20 (values excepted from Table 7). It is important to note that values in Table 21 include savings amassed to-date, or over the 30-month period July 2016 through December 2018. In Table 22, the research team annualizes the savings to show, on average, annual savings attributable to Marketplace.

Table 17. Estimating Purchases, Efficiency Verification, and Net-to-Gross – Non-Downstream

Product	Total Respondents	Made Purchase Since Visiting MP (Eligible for Follow-up Questions)	% Purchased Since Visiting MP	Asked Follow-up Questions	% Influenced by MP (NTGR)	Asked Follow-up Questions Influenced by MP
	A	B	C = B / A	D	E	F = D x E
Air Purifier	2,626	14	0.5%	8	54.7%	4.4
Clothes Washer	2,626	18	0.7%	13	64.4%	8.4
Dehumidifier	2,626	14	0.5%	10	68.8%	6.9
Dishwasher	2,626	14	0.5%	8	59.4%	4.8
Electric Clothes Dryer	2,626	13	0.5%	8	62.5%	5.0
Electric Water Heater	2,626	15	0.6%	8	82.8%	6.6
Evaporative Cooler	2,626	6	0.2%	4	82.5%	3.3
Gas Water Heater	2,626	12	0.5%	9	56.9%	5.1
Freezer	2,626	20	0.8%	6	72.9%	4.4
Light Bulb	2,626	178	6.8%	167	59.1%	98.6
Monitor	2,626	9	0.3%	4	59.4%	2.4
Pool Pump	2,626	3	0.1%	2	87.5%	1.8
Power Strip	2,626	25	1.0%	19	66.5%	12.6
Projector	2,626	4	0.2%	1	50.0%	0.5
Refrigerator	2,626	29	1.1%	21	60.1%	12.6
Room AC	2,626	39	1.5%	29	56.9%	16.5

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Product	Total Respondents	Made Purchase Since Visiting MP (Eligible for Follow-up Questions)	% Purchased Since Visiting MP	Asked Follow-up Questions	% Influenced by MP (NTGR)	Asked Follow-up Questions Influenced by MP
	A	B	C = B / A	D	E	F = D x E
Sound Bar	2,626	6	0.2%	3	41.7%	1.3
Tablet	2,626	12	0.5%	5	55.0%	2.8
Television	2,626	18	0.7%	12	63.5%	7.6
Thermostat	2,626	74	2.8%	66	63.3%	41.8
Total		523		403		247

Table 18. Efficient Model Verification

Product	Asked Follow-up Questions	Provided Model Number	% Provided Model Number	Verified as ES	Actual % Verified ES
	G	H	I = H / G	J	K = J / H
Air Purifier	8	3	37.5%	1	33.3%
Clothes Washer	13	3	23.1%	1	33.3%
Dehumidifier	10	1	10.0%	0	NA
Dishwasher	8	4	50.0%	3	75.0%
Electric Clothes Dryer	8	4	50.0%	0	NA
Electric Water Heater	8	0	0.0%	0	NA
Gas Water Heater	9	0	0.0%	0	NA
Freezer	6	0	0.0%	0	NA
Light Bulb	167	50	29.9%	36	72.0%
Monitor	4	0	0.0%	0	NA
Pool Pump	2	0	0.0%	0	NA
Projector	1	0	0.0%	0	NA
Refrigerator	21	2	9.5%	1	50.0%
Room AC	29	8	27.6%	3	37.5%
Sound Bar	3	1	33.3%	0	NA
Tablet	5	0	0.0%	0	NA
Television	12	5	41.7%	2	40.0%
Thermostat	66	59	89.4%	50	84.7%
Total	380	140	36.8%	97	69.3%

Results

Table 19. Estimating Gross and Net Units Sold – Non-Downstream

Product	Unique Active Shoppers Since Product Entered MP	% Purchased Since Visiting MP	Estimated Purchases Since Visiting MP	Average % of Purchases Verified as Efficient	Estimated Efficient Purchases (Gross Units)	% Influenced by Marketplace (NTGR)	Estimated Efficient Purchases Influenced by MP (Net Units)
	L	M	N = L x M	O = Mean (K)	P = N x O	Q = E	R = P x Q
Air Purifier	3,303	0.5%	18	69.3%	12	54.7%	7
Clothes Washer	38,113	0.7%	261	69.3%	181	64.4%	117
Dehumidifier	6,448	0.5%	34	69.3%	24	68.8%	16
Dishwasher	22,005	0.5%	117	69.3%	81	59.4%	48
Electric Clothes Dryer	5,425	0.5%	27	69.3%	19	62.5%	12
Electric Water Heater	6,220	0.6%	36	69.3%	25	82.8%	20
Evaporative Cooler	315	0.2%	1	69.3%	0	82.5%	0
Freezer	2,770	0.8%	21	69.3%	15	72.9%	11
Gas Water Heater	26,743	0.5%	122	69.3%	85	56.9%	48
Light Bulb	231,128	6.8%	15,667	69.3%	10,855	59.1%	6,411
Monitor	5,013	0.3%	17	69.3%	12	59.4%	7
Pool Pump	401	0.1%	0	69.3%	0	87.5%	0
Power Strip	1,948	1.0%	19	69.3%	13	66.5%	9
Projector	2,060	0.2%	3	69.3%	2	50.0%	1
Refrigerator	18,753	1.1%	207	69.3%	143	60.1%	86
Room AC	110,593	1.5%	1,642	69.3%	1,138	56.9%	648
Sound Bar	2,200	0.2%	5	69.3%	3	41.7%	1
Tablet	7,398	0.5%	34	69.3%	23	55.0%	13
Television	18,565	0.7%	127	69.3%	88	63.5%	56
Thermostat	476,458	2.8%	13,426	69.3%	9,303	63.3%	5,885
Total			31,785	69.3%	22,023		13,396

Results

Table 20. UES Values - Non-Downstream

Product	Annual Per Unit Savings		
	kW	kWh	Therms
	S	T	U
Air Purifier	0.080	125.00	0.00
Clothes Washer	0.007	72.41	5.69
Dehumidifier	0.010	128.22	0.00
Dishwasher	0.023	91.77	0.00
Electric Clothes Dryer	0.002	22.50	0.00
Electric Water Heater	0.170	3,554.12	0.00
Evaporative Cooler	0.000	0.00	0.00
Freezer	0.004	40.00	0.00
Gas Water Heater	0.000	0.00	83.48
Light Bulb	0.003	44.29	0.00
Monitor	0.000	66.93	0.00
Power Strip	0.000	57.50	0.00
Projector	0.000	340.69	0.00
Refrigerator	0.004	40.00	0.00
Room AC	0.154	73.38	0.00
Sound Bar	0.004	225.00	0.00
Tablet	0.000	2.70	0.00
Television	0.000	182.52	0.00
Pool Pump	0.518	2,092.50	0.00
Thermostat	0.127	162.89	6.98

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Table 21. Gross and Net Savings To-Date – Non-Downstream (July 2016 – December 2018)

Product	Gross Units Sold	Estimated Gross Savings To-Date			% Influenced by MP (NTGR)	Estimated Net Savings To-Date		
		MW	MWh	Therms		MW	MWh	Therms
	$V = P$	$W = (S \times V) / 1000$	$X = (T \times V) / 1000$	$Y = U \times V$	$Z = E$	$AA = W \times Z$	$AB = X \times Z$	$AC = Y \times Z$
Air Purifier	12	0.0	2	0	0.55	0.0	1	0
Clothes Washer	181	0.0	13	1,029	0.64	0.0	8	663
Dehumidifier	24	0.0	3	0	0.69	0.0	2	0
Dishwasher	81	0.0	7	0	0.59	0.0	4	0
Electric Clothes Dryer	19	0.0	0	0	0.63	0.0	0	0
Electric Water Heater	25	0.0	87	0	0.83	0.0	72	0
Evaporative Cooler	0	0.0	0	0	0.83	0.0	0	0
Freezer	15	0.0	1	0	0.73	0.0	0	0
Gas Water Heater	85	0.0	0	7,069	0.57	0.0	0	4,025
Light Bulb	10,855	0.0	481	0	0.59	0.0	284	0
Monitor	12	0.0	1	0	0.59	0.0	0	0
Pool Pump	0	0.0	1	0	0.88	0.0	1	0
Power Strip	13	0.0	1	0	0.66	0.0	0	0
Projector	2	0.0	1	0	0.50	0.0	0	0
Refrigerator	143	0.0	6	0	0.60	0.0	3	0
Room AC	1,138	0.2	84	0	0.57	0.1	48	0
Sound Bar	3	0.0	1	0	0.42	0.0	0	0
Tablet	23	0.0	0	0	0.55	0.0	0	0
Television	88	0.0	16	0	0.64	0.0	10	0
Thermostat	9,303	1.2	1,515	64,959	0.63	0.7	959	41,093
Total	22,023	1.4	2,219	73,057		0.9	1,395	45,781

Results

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

Product	Estimated Gross First-Year Savings			Estimated Net First-Year Savings		
	MW	MWh	Therms	MW	MWh	Therms
	AD = W x 0.40	AE = X x 0.40	AF = Y x 0.40	AG = AA x 0.40	AH = AB x 0.40	AI = AC x 0.40
Air Purifier	0.0	0.6	0.0	0.0	0.3	0.0
Clothes Washer	0.0	5.2	411.7	0.0	3.4	265.2
Dehumidifier	0.0	1.2	0.0	0.0	0.8	0.0
Dishwasher	0.0	3.0	0.0	0.0	1.8	0.0
Electric Clothes Dryer	0.0	0.2	0.0	0.0	0.1	0.0
Electric Water Heater	0.0	35.0	0.0	0.0	29.0	0.0
Evaporative Cooler	0.0	0.0	0.0	0.0	0.0	0.0
Freezer	0.0	0.2	0.0	0.0	0.2	0.0
Gas Water Heater	0.0	0.0	2,827.5	0.0	0.0	1,610.0
Light Bulb	0.0	192.3	0.0	0.0	113.6	0.0
Monitor	0.0	0.3	0.0	0.0	0.2	0.0
Pool Pump	0.0	0.3	0.0	0.0	0.2	0.0
Power Strip	0.0	0.3	0.0	0.0	0.2	0.0
Projector	0.0	0.3	0.0	0.0	0.1	0.0
Refrigerator	0.0	2.3	0.0	0.0	1.4	0.0
Room AC	0.1	33.4	0.0	0.0	19.0	0.0
Sound Bar	0.0	0.3	0.0	0.0	0.1	0.0
Tablet	0.0	0.0	0.0	0.0	0.0	0.0
Television	0.0	6.4	0.0	0.0	4.1	0.0
Thermostat	0.5	606.1	25,983.7	0.3	383.4	16,437.3
Total	0.6	888	29,223	0.3	558	18,312

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 an 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 midstream or upstream programs—air cleaners, clothes dryers, clothes washers, freezers, soundbars, refrigerators, and room air conditioners—that are also tied to participating retailers are assigned to the midstream programs.
- The savings associated with the eight products offered on the Marketplace website tied to midstream—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.

Assigning savings to the first of the above was straightforward and was completed in estimating the savings in the downstream section of this chapter. Assigning saving for the next two was also straightforward and simply involved separating the results in the non-downstream section of this chapter by product category. Assigning savings to the last two required two more steps.

First, the research team needed to estimate the proportion of the midstream/upstream purchases that were made at participating retailers' brick-and-mortar stores. In the survey respondents were asked to indicate where they purchased the products they did, and Table 23 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 a midstream participating retailer. Column C shows the proportions of purchases that get assigned to the midstream program; Column D shows the proportions that are assigned to Marketplace.

Partitioning Savings by Program

Table 23. Estimating Midstream (RPP) and Marketplace Proportions for Relevant Product Categories

Product	Provided Purchase Location	Midstream	% Midstream	% 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%

The research team then took these proportions and divided the savings associated with these seven product categories from the non-downstream section accordingly. Table 24 represents the gross and net savings associated with the downstream programs as computed earlier in this report.

Table 24. Downstream Savings To-Date by Product (July 2016 – December 2018)

Product	Gross Savings To-Date			Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Clothes Washers	0	22	1,714	0	11	868
Dehumidifiers	0	4	0	0	2	0
Dishwashers	0	58	0	0	27	0
Electric Water Heaters	0	0	0	0	0	0
Gas Water Heaters	0	0	82	0	0	41
Refrigerators	0	0	0	0	0	0
Room AC	1	639	0	1	320	0
Total	1.4	722	1,796	0.7	361	909

Table 25 presents gross and net savings to-date associated with online purchases.

Table 25. Online Purchase Savings To-Date by Product (July 2016 – December 2018)

Product	Gross Savings To-Date			Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Learning Thermostats	0.9	1,124	48,196	0.6	750	32,132
Lighting	0.3	4,567	0	0.2	3,408	0
Power Strips	0.0	6	0	0.0	0	0
Wi-Fi Thermostats	0.0	19	0	0.0	12	0
Total	1.2	5,716	48,196	0.9	4,170	32,132

Table 26 shows the gross and net savings associated with the midstream, Retail Products Platform (RPP) Program. Keep in mind that both the downstream and RPP values represent lift to those programs originating from Marketplace. Table 27 shows the gross and net savings associated with Marketplace were it to be a stand-alone program. Finally, Table 28

Partitioning Savings by Program

summarizes the aggregate savings by program to-date, while Table 29 estimates what the savings to-date look like when annualized to represent first-year savings.

Table 26. Midstream Savings To-Date by Product (July 2016 – December 2018)

Product	Gross Savings To-Date			Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Air Purifier	0.0	0	0	0.0	0	0
Clothes Washer	0.0	3	257	0.0	2	166
Electric Clothes Dryer	0.0	0	0	0.0	0	0
Freezer	0.0	0	0	0.0	0	0
Refrigerator	0.0	1	0	0.0	1	0
Room AC	0.0	12	0	0.0	7	0
Sound Bar	0.0	0	0	0.0	0	0
Total	0.0	17	257	0.0	10	166

Table 27. Marketplace Savings To-Date by Product (July 2016 – December 2018)

Product	Estimated Gross Savings To-Date			Estimated Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Air Purifier	0.0	2	0	0.0	1	0
Dehumidifier	0.0	3	0	0.0	2	0
Dishwasher	0.0	7	0	0.0	4	0
Clothes Washer	0.0	10	772	0.0	6	497
Electric Clothes Dryer	0.0	0	0	0.0	0	0
Electric Water Heater	0.0	87	0	0.0	72	0
Evaporative Cooler	0.0	0	0	0.0	0	0
Freezer	0.0	0	0	0.0	0	0
Gas Water Heater	0.0	0	7,069	0.0	0	4,025
Light Bulb	0.0	481	0	0.0	284	0
Monitor	0.0	1	0	0.0	0	0
Pool Pump	0.0	1	0	0.0	1	0
Power Strip	0.0	1	0	0.0	0	0
Projector	0.0	1	0	0.0	0	0
Refrigerator	0.0	5	0	0.0	3	0
Room AC	0.1	71	0	0.1	41	0
Sound Bar	0.0	1	0	0.0	0	0
Tablet	0.0	0	0	0.0	0	0
Television	0.0	16	0	0.0	10	0
Thermostat	1.2	1,515	64,959	0.7	959	41,093
Total	1.4	2,202	72,800	0.9	1,385	45,615

Partitioning Savings by Program

Table 28. Gross and Net Savings To-Date by Program (July 2016 – December 2018)

Program	Gross Savings To-Date			Net Savings To-Date		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	1.4	722	1,796	0.7	361	909
Online Sales	1.2	5,716	48,196	0.9	4,170	32,132
RPP	0.0	17	257	0.0	10	166
Marketplace	1.4	2,202	72,800	0.9	1,385	45,615
Total	4.0	8,657	123,049	2.4	5,926	78,823

Table 29. Gross and Net Annualized Savings by Program

Program	Gross First-Year Savings			Net First-Year Savings		
	MW	MWh	Therms	MW	MWh	Therms
Downstream	0.5	289	718	0.3	144	364
Online Sales	0.5	2,287	19,278	0.3	1,668	12,853
RPP	0.0	7	103	0.0	4	66
Marketplace	0.5	881	29,120	0.3	554	18,246
Total	1.6	3,463	49,219	1.0	2,370	31,529

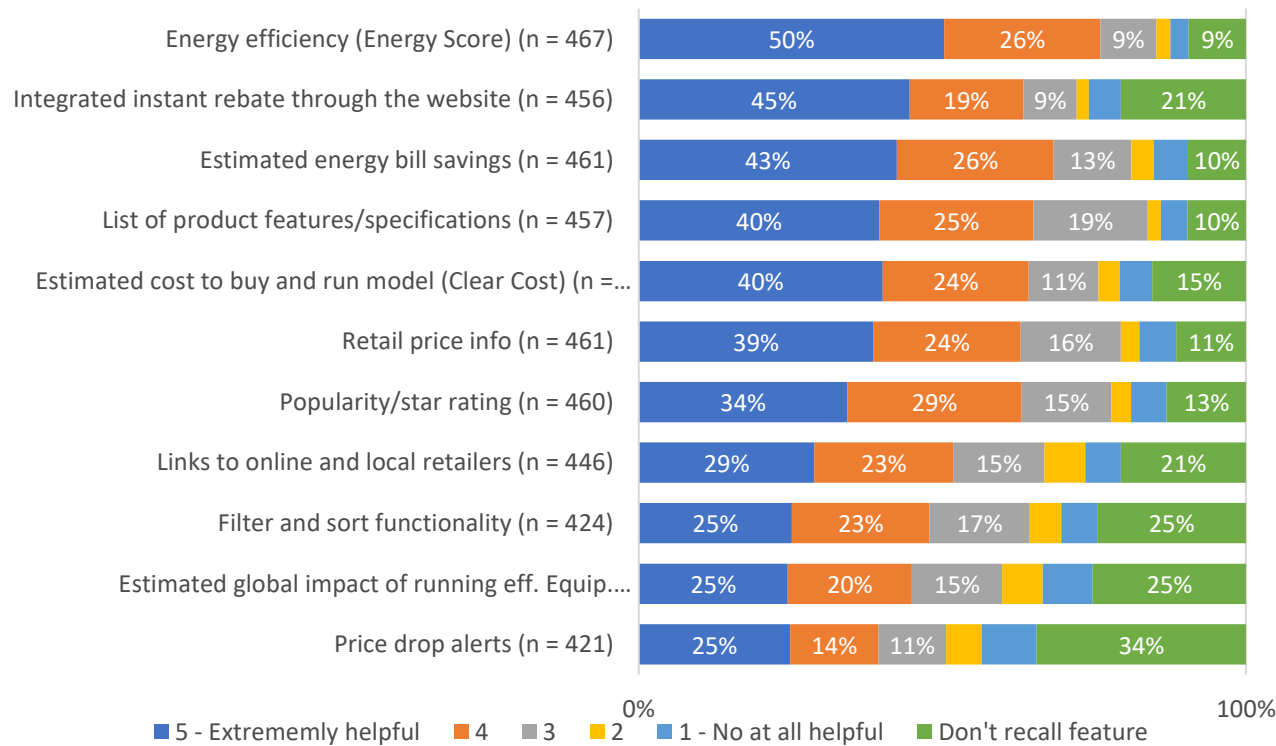
It is worth emphasizing that the downstream and midstream values presented herein refer to lift to the program from Marketplace and are not total program savings, only the savings associated with Marketplace lift.

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



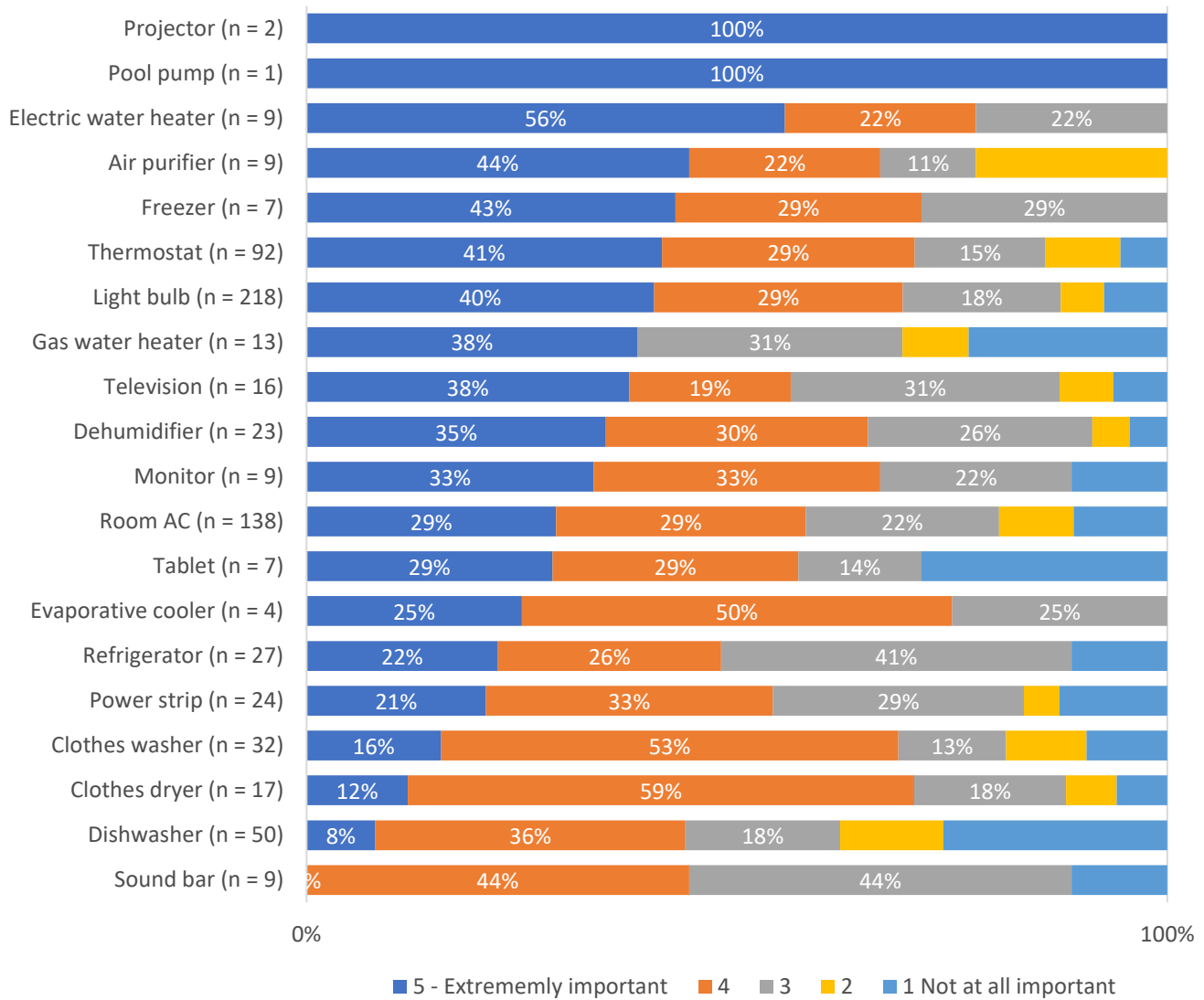
Q: How much did each of the following Con Edison Marketplace features help to facilitate your shopping experience?

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.”

Additional Questions

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

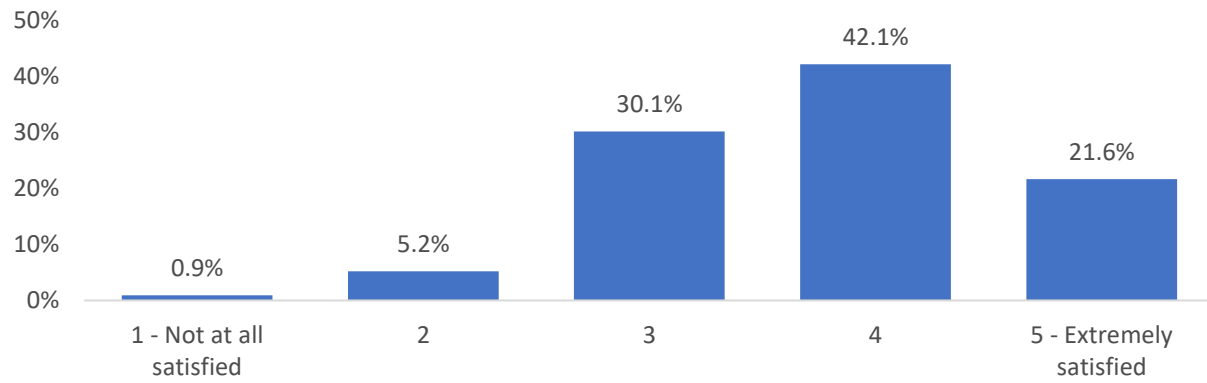
The attainment of energy savings is only one goal associated with implementing Marketplace. In addition to energy savings, Con Edison expects to positively affect customer satisfaction by providing Marketplace to its customers. Overall, the results indicate that Marketplace is indeed positively affecting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

Additional Questions

(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.

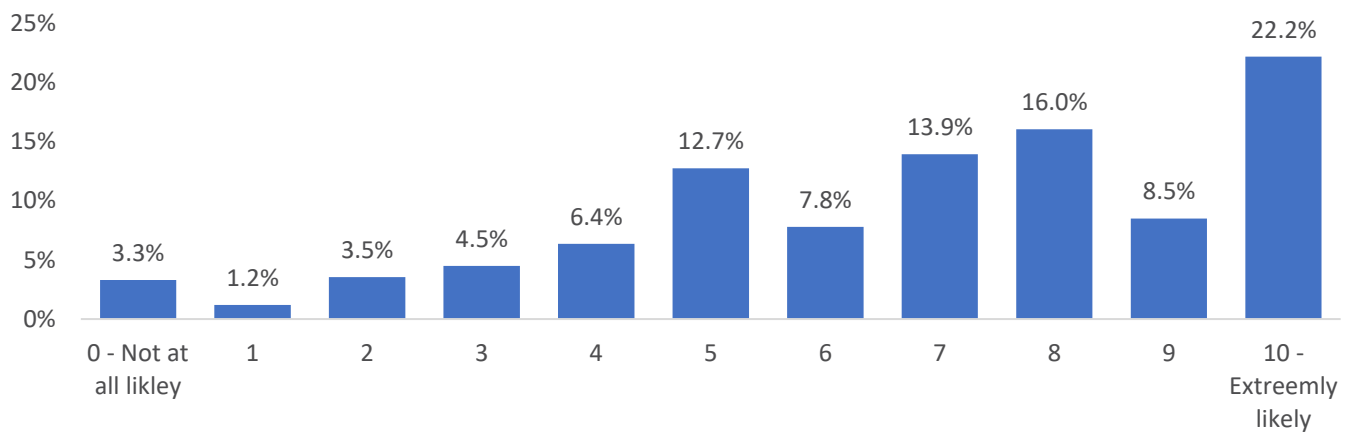
Figure 11. Overall Website Satisfaction



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).

Figure 12. Likelihood to Recommend Site

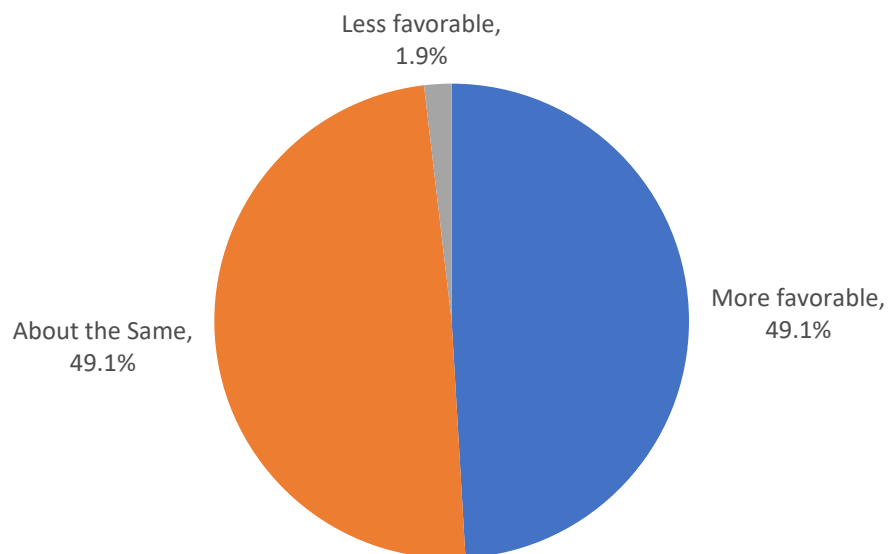


Q: How likely are you to recommend the Con Edison Marketplace to a friend, colleague or relative?

Additional Questions

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?

7. Cost Metrics for Marketplace

While a full-scale cost effectiveness analysis was outside of the scope of this project,²⁴ 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. However, it should be noted that the research team was unable to find published comparative data to assess if these values are “good” or “bad,” and benefits were not considered at all, so a determination of overall efficacy and cost-effectiveness were beyond the scope of this study.²⁵

For this study, the research team computed four cost metrics: (1) kWh savings per dollar spent (total kWh savings divided by total net program expenses to-date), (2) dollars spent per kWh saved (total net program expenses to-date divided by kWh savings), (3) therm savings per dollar spent (total therm savings divided by total net program expenses to-date), and (4) dollars spent per therm saved (total net program expenses to-date divided by therm savings)²⁶ It should be noted that these cost metrics do not allocate costs among electricity and therm 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 account for the value of the avoided energy, as well as non-energy benefits.

These cost-savings metrics are shown in Table 30 and Table 31 . Given the \$4,828,605 in program expenses (\$936,107 in internal expenses including associated administrative and marketing costs, and \$3,892,498 in Enervue platform costs net of revenues²⁷) over the period July 2016 through December 2018, the table shows that the Marketplace offering has delivered about 1.79 kWh for every dollar spent (or cost of about \$0.56 per kWh saved) in terms of gross savings over the period. For net savings over the period, Marketplace delivered about 1.23 kWh per dollar spent (or cost of about \$0.81 per kWh saved). On the gas side, Marketplace has delivered 0.03 gross therms per dollar spent (or cost of about \$39.24 per therm saved); this translates to 0.02 net therms per dollar spent (or a cost of about \$61.26 per therm).

²⁴ 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.

²⁵ 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.

²⁶ Because comprehensive demand and gas savings were not available for this study, they are not included in the cost-savings assessment as the metrics would be misleading.

²⁷ The Con Edison Marketplace empowers its customers to purchase energy saving products and services. By doing this, it provides an opportunity for Con Edison to generate revenue by leveraging new business models across digital advertising and sponsorship from energy-related New York businesses, affiliate referrals to national/local online retailers, direct sales of instant rebated home products and lead generation to value added service providers (i.e. solar & home contractors).

Cost Metrics for Marketplace

Table 30. Electric Cost-Savings Metrics

Metric	Estimated Gross Savings To-Date	Estimated Net Savings To-Date
kWh per \$	1.79	1.23
\$ per kWh	\$0.56	\$0.81

Table 31. Gas Cost-Savings Metrics

Metric	Estimated Gross Savings To-Date	Estimated Net Savings To-Date
Therms per \$	0.03	0.02
\$ per Therm	\$39.24	\$61.26

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 is not the only expected benefit. Earlier we showed how Marketplace is filling a unique niche in the 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 (i.e. Sealed) 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 reduction, 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 evaluation team attempted to rely on industry best practices when conducting this study, several limitations exist. These limitations include:

- **Small numbers of respondents:** Probably the biggest limitation 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 18), where in many cases no respondents provided a model number to verify, and for most of the remainder of cases, only a small number of respondents submitted a model number. The evaluation 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 would result in more respondents submitting model numbers, but the fact is that the study size would need to be increased so dramatically that the cost of conducting the study would likely become a limitation. Increasing the incentive for customers to provide the information is also another possible alternative, but one needs to consider that we offered incentives in this study,²⁸ so it is not clear how large the incentive would need to be to prompt action. The fact is that verifying model numbers of product purchases is a difficult task and will likely remain a challenge moving ahead.
- **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 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.

- **A comprehensive cost effectiveness study is needed to fully understand the cost and benefits of Marketplace:** While the evaluation team attempted to develop some cost metrics to provide some basic insights and baselines for future comparison, these should not be conflated with cost-effectiveness metrics. A comprehensive cost effectiveness analysis would need to include information on an array of factors such as electric avoided costs, non-energy benefits, gas avoided costs, complete demand, electricity, and gas savings, incremental measure costs, effective useful lives, etc. Amassing and

²⁸ The study included a tiered incentive structure where respondents were offered an initial \$5 to complete the survey, and were offered an additional \$15 to submit a photo of their sales receipt, an additional \$10 to provide a photo of their product nameplate, or an additional \$5 to simply enter the product model number.

Study Limitations

analyzing all this information was outside of the scope of this project but should be undertaken to fully understand Marketplace's costs and benefits to Con Edison.

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:

This evaluation of the Con Edison online Marketplace over the time period July 2016 through December 2018 captured a measurable amount of energy savings. The research team estimates that over this period, Marketplace delivered a total of 4.0 MW of gross demand savings, 8,657 MWh of gross electricity savings, and 123,049 therms of gross gas savings. This translates to 2.4 MW of net demand savings, 5,926 MWh of net electricity savings, and 78,823 therms of net gas savings (see Table 28).

The effect that Marketplace has on the downstream and midstream (RPP) programs should not be underestimated. The total savings values are partitioned into four categories of savings (see Table 28): (1) downstream, (2) online sales, (3) RPP, and (4) Marketplace. The savings associated with the downstream and RPP are already being claimed by those programs and the numbers presented herein represent the lift to those programs originating from Marketplace. The savings associated with Marketplace are new savings, not claimed by any other program.

A comprehensive cost-effectiveness assessment should be conducted to determine the efficacy of delivering energy savings through Marketplace. Though a comprehensive cost-effectiveness assessment was beyond the scope of this study, the research team computed some simplified cost metrics to provide some insights and to serve as baseline values for later comparison. This approach shows that the 8,657 MWh of net electricity savings and 123,049 Therms of net gas savings have been delivered at a cost of \$4,828,605 net of revenues.²⁹ This equates to \$0.81 per net kWh saved (or .23 gross kWh per dollar spent) and \$61.26 per net therm saved (or 0.02 Therms per dollar spent). However, it should be emphasized that this analysis focuses only on financial costs and energy savings and does not include a range of other benefits arising from Marketplace such as the value of avoided energy use and non-energy benefits (such as GHG reductions and increasing Con Edison's digitally connected audience or animating the marketplace to achieve REV goals). Further, the cost metrics also leave out other important considerations such as, participant costs, the disaggregation of costs associated with sharing savings with other programs, research and evaluation costs, and inaccuracies associated with estimating the energy savings. As such, a comprehensive cost-

²⁹ The Con Edison Marketplace empowers its customers to purchase energy saving products and services. By doing this, it provides an opportunity for Con Edison to generate revenue by leveraging new business models across digital advertising and sponsorship from energy-related New York businesses, affiliate referrals to national/local online retailers, direct sales of instant rebated home products and lead generation to value added service providers (i.e. solar & home contractors). The cost data reported in this report are net of these revenues.

Conclusions

effectiveness assessment needs to be conducted to fully understand the efficacy of Marketplace.

The intangible 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 case study research showed was generally the information hardest for customers to find. So, it is clear that Marketplace is having an effect on the market for consumer electronics and home appliances and is 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 (i.e. Sealed) for Con Edison customers. Thus, to fully understand the value of Marketplace a wide range of factors need to be considered.

Appendix A. Market Place Visitors Web Survey

Programming Notes

Group 1 = Rebate sample (2018 Appliances, 2017 Appliances, 2017 EWH³⁰, 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

³⁰ Note that there is no 2018 EWH file as the program converted to upstream in 2018.

Market Place 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	

Market Place 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]

Market Place 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]

Q1. 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]

Q2. 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

Market Place Visitors Web Survey

[IF Q2= 1]

- Q3. *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]

- Q4. *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]

- Q5. *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

- Q6. *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.*

Market Place 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]

Q7. 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]

Q8. 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]

Q9. 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]

Q10. 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]

Q11. 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.

Market Place 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)]

Q12. What retailer did you make the purchase from?

[OPEN ENDED]

Customer Satisfaction and Recommendations

[ASK ALL]

Q13. How many times have you visited the Marketplace website?

[Single response]

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

Q14. 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

Q15. 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

Market Place Visitors Web Survey

Q16. 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

Q17. 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%.³¹

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:

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

³¹ 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.

Net-To-Gross Example

For more information, please contact:

Todd Malinick, PhD
Director

503-943-2217 tel
503-281-7375 Fax
tmalinick@opiniondynamics.com

3934 NE MLK Jr. Blvd., Suite 300
Portland, OR 97212



Opinion Dynamics

Boston | Headquarters

617 492 1400 [tel](#)
617 492 7944 [fax](#)
800 966 1254 [toll free](#)

1000 Winter Street
Waltham, MA 02451

San Francisco Bay

510 444 5050 [tel](#)
510 444 5222 [fax](#)

1 Kaiser Plaza
Suite 445
Oakland, CA 94612

San Diego

858 270 5010 [tel](#)
858 270 5211 [fax](#)

7590 Fay Avenue
Suite 406
La Jolla, CA 92037

Portland

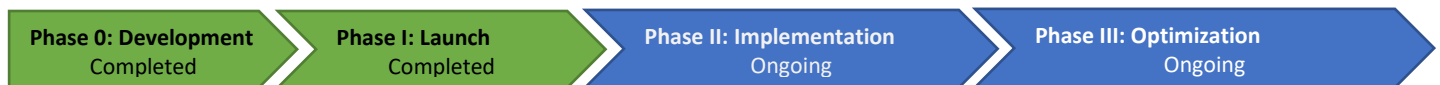
503 287 9136 [tel](#)
503-281-7375 [fax](#)

3934 NE MLK Jr. Blvd.
Suite 300
Portland, OR 97212

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 has now become 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
 Q2 2019 Spend: *filed confidentially*
 Cumulative Spend: *filed confidentially (on budget)*



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) Created and tested new e-commerce email templates and user experiences to improve conversion rates; and b) Conducted successful smart thermostat promotions for Earth Day and Father's Day.*

Upcoming Milestones: *Summer manufacturer sales for smart thermostats and LED lighting, campaigns highlighting lower-priced thermostats, and launching EV chargers on Checkout.*