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Outwit Complexity

Commercial and Industrial (C&I) Prescriptive and Custom Program Evaluation Report

Evaluation Cycle 1 – Program Year 1

Prepared for:

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November 18, 2022

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Abstract

Guidehouse conducted an impact evaluation, process evaluation and net-to-gross study of Atlantic City Electric's (ACE's) Commercial and Industrial (C&I) Prescriptive and Custom program for Program Year (PY) 1 (July 1st, 2021 – June 30th, 2022). We conducted a tracking database review to verify savings calculations and fielded online surveys to gather information on quantity and types of measures installed. We used the same surveys to gather information on process evaluation, net-to-gross and demographics. Additionally, we conducted interviews with program staff and implementers to develop a robust understanding of the program. Our recommendations from the impact and process evaluations are described in Table AB-1 below.

Table AB-1: C&I Prescriptive and Custom Program Recommendations

Evaluation Area	Recommendation
Process	Recommend developing outreach plan that provides information on types of measures incentivized by the program. Also consider creating a handout that describes available incentives that all contractors can use onsite as a leave behind.
	Recommend educating customers and contractors so that they are aware of labor costs that they will have to incur as they install new measures.
	Implementers must collect site-specific contact information and include it in the tracking data for each project.
	Consider advising the implementer to inform program participants that they will be invited to a follow up survey to gather information on energy savings and determine the efficacy of the program.
Impact	Recommend implementers develop more robust process for data collection, documentation, and tracking. We also recommend setting up a streamlined and consistent process of sharing tracking data with evaluators.
	Update and use savings based on the NJ protocols.

Executive Summary

The Commercial and Industrial (C&I) Prescriptive and Custom program incentivizes replacements and upgrades of lighting, HVAC, kitchen, and refrigeration equipment in commercial buildings.

Guidehouse conducted an impact evaluation, process evaluatifon, and net-to-gross study for ACE's C&I Prescriptive and Custom program for PY 1. The objective of our impact evaluation was to streamline the data collection and sharing mechanism for future evaluations, check completeness of the tracking data, check the evaluability of the data, and verify savings calculation methodology used by the implementers. Our evaluation analysis included a tracking data review, verification using surveys and documentation provided in the project files.

We compared the savings calculated by the implementers with our calculations based on New Jersey's protocols.[1] We also calculated savings using the secondary metric i.e., the updated savings algorithms that are likely to be incorporated in the next version of the TRM.

Table ES-1 below shows the program's verified savings using the FY 2020 and FY 2022 protocols.

Table ES-1: ACE C&I Prescriptive and Custom Impact Evaluation Results

Types of Savings	Tracked Savings	FY 2020		FY 2022	
		Evaluated Savings	Realization Rates	Evaluated Savings	Realization Rates
Energy Savings (MWh)	4,927	5,032	1.02	5,032	1.02
Utility Peak Demand Savings (kW)	819	822	1.00	822	1.00

Guidehouse also put forth several findings and recommendations to improve the documentation, data availability and savings calculations. Table ES-2 below shows the findings and recommendations from the impact evaluation.

Table ES-2: ACE C&I Prescriptive and Custom Impact Evaluation Findings and Recommendations

Finding	Recommendation
Implementer's processes for data collection, documentation, data sharing and calculation of savings are still not fully established. Some of the fields in the tracking data were also mislabeled or seemed duplicative.	Implementers must set up more robust processes for data gathering and tracking which can be shared easily to support evaluation. Tracking data must have clearly labeled fields and any redundant fields must be deleted from the database to keep it efficient and easy to interpret.

[1] https://www.njcleanenergy.com/files/file/NJCEP%20Protocols%20to%20Measure%20Resource%20Savings%20Clean.pdf

Finding	Recommendation
One project was affected by incorrect inputs and savings calculations.	We recommend additional QC of savings calculations and inputs before reporting savings.

For Process evaluation, Guidehouse conducted program staff and implementer interviews to gather information on the delivery, marketing approach, implementation, trade allies, and customer outreach. These interviews also provided information on barriers to increasing participation experienced by the program staff and implementers. Guidehouse also conducted online surveys to identify challenges and barriers experienced by customers. Table ES-3 below shows the key results, findings, and recommendations from our process evaluation.

Table ES-3: ACE C&I Prescriptive and Custom Process Evaluation Findings and Recommendations

Finding	Recommendation
Customers are often not presented with the full scope of measures offered through the program. This could limit the opportunities for customers to participate in the program.	Guidehouse recommends improving the customer outreach to market the measures incentivized by the program. Also consider creating a handout that all contractors can use onsite as a leave behind.
Some customers reported finding it difficult to pay for labor costs associated with project installation.	Recommend educating customers and contractors so that they are aware of labor costs that they will have to incur as they install new measures.
Several sites (e.g., pharmacies with multiple locations) had a single person listed as the key contact. This made it difficult to identify the right site contact and get unique participants for conducting surveys.	Guidehouse recommends improving documentation to require site-specific contact information for each project.
Survey response rates for this program were lower than expected.	Consider advising the implementer to inform program participants that they will be invited to a follow up survey to gather information on energy savings and determine the efficacy of the program.

Surveys also included questions on net-to-gross and demographics. Guidehouse used the survey questions recommended by the SWE to capture net-to-gross and firmographics. Table ES-4 below shows the net-to-gross results from this study.

Table ES-4: Net-to-Gross Results

Type	Results
Freeridership	0.01
Spillover	0.03
Net-to-Gross Ratio	1.02

That this program had 91 unique participants in PY 1 and the data contained 53 usable email addresses (there were several projects with a single customer email address). Of those seven completed the online survey and five were usable for our analysis.

1. Introduction

1.1 Program Description

ACE's Prescriptive program offers incentives for several high efficiency upgrades for commercial and industrial customers. Prescriptive program measures include lighting retrofits, lighting controls, HVAC retrofits, refrigeration, variable frequency drives (VFDs), electronically commutated motors (ECMs), commercial kitchen equipment, plug load controls, commercial appliances, office equipment, water heating, agricultural equipment, and residential appliances in Commercial & Industrial (C&I) buildings.

The Custom Program provides a path for customers with more complex projects, and with measures not included in the Prescriptive program, the opportunity to receive financial incentives. Custom measures include compressed air, refrigeration, data center equipment/servers, HVAC/chillers, HVAC controls, motors/VFDs, agricultural lighting, and custom lighting.

Table 1-1 below shows the energy and peak demand savings that was projected by ACE and reported as actual ex ante savings for PY 1. Based on the reported savings it is evident that the program has yet to fully ramp up to achieve the savings it projected for the year.

Table 1-1: PY1 Planned vs Reported Savings

Program	Planned Savings	Reported Savings	Reported Energy Savings as a % of Portfolio Reported Energy Savings
Energy Savings (MWh)	18,930	4,927	19%
Peak Demand Savings (kW)	496	819	

1.1.1 Program Population

The program had 91 total projects in PY 1 and 53 unique participants since some participants had multiple projects. Close to 99% of the savings for PY 1 were from lighting measures.

As part of our impact evaluation, we stratified the population based on measure types. This allows us to investigate savings results from specific measures and provides more focused recommendations. Table 1-2 shows the total number of participants and savings from the program in PY 1.

Table 1-2: PY 1 C&I Prescriptive and Custom Program Survey Population

Strata	Building Type	Total Projects	Total Energy Savings (MWh)	Total Peak Demand Savings (kW)
Lighting (Retrofit)	Warehouse/Industrial, Retail, Office, Grocery, Other,	85	4,590	758

	Multifamily – Common Areas, Multifamily – Exterior, Education			
Lighting Controls	Warehouse/Industrial, Retail	1	219	47
HVAC	Retail, Religious Worship	2	3	3
Custom Equipment	Other	1	39	0
Commercial Kitchen Equipment	Retail	1	4	1
Variable Frequency Drives	Retail	1	71	10
Total		91	4,927	819

1.2 Conclusions and Recommendations

Guidehouse had the following conclusions from our study:

- Evaluability
    - Implementers must provide site-level contact information to allow evaluators to survey and contact each project in the tracking data.
    - Tracking data must be organized with clear labels and without any duplicate fields to allow evaluators to interpret the data and conduct evaluation
    - Guidehouse and the implementers must work to set up a process to transfer data to Guidehouse for evaluation on a regular basis.
    - Guidehouse also recommends developing project calculators to have more clarity on the methodology and inputs used to calculate savings for custom and prescriptive measures.
- Process Improvements
    - Customers are often unaware of the full list of measures that can be incentivized by the program.
    - Implementers must use the custom channel to identify unique opportunities for extracting savings from the customers. It is unclear how the custom aspect of the program is currently being marketed to the customers.
    - Guidehouse also recommends implementers provide additional guidance on the kind of costs the customer may incur as part of the implementation so that the customers are not caught unaware of their obligations.

2. Evaluation Analysis

This section presents the results of our PY 1 evaluation. Section 2.1 of this report compares our results with similar utilities. Section 2.2 speaks to the evaluability concerns for this program. Section 2.3, 2.4 and 2.5 discusses the methodology and results from our impact, process, and net-to-gross studies. Section 2.6 includes our results from cost-effectiveness analysis of this program.

2.1 Benchmarking

This section provides comparison of the evaluation results with similar utilities.

2.1.1 Savings and Realization Rates

Guidehouse compared the savings and realization rates (RRs) of ACE's C&I Prescriptive and Custom program with similar programs offered by other utilities. ACE's program has achieved savings per participant on the low range of the other utilities, but higher than some. We believe this may be due to the fact that these programs recently transitioned from the BPU to the utilities and may not have fully ramped up yet. Table 2-1 shows the difference between ACE's savings and realization rates and the savings and realization rates of peer utilities.

Table 2-1: C&I Prescriptive Program Impact Evaluation Benchmarking

Utility	Reported Energy Savings (MWh)	Energy Savings per Participant (kWh)	Peak Demand Savings per Participant (kW)	Energy RR	Peak Demand RR
Delmarva	15,496	114	20	1.01	0.98
Pepco	46,951	69	11	0.92	1.01
BGE	119,589	67	12	1.05	1.01
ACE	**4,927**	**54**	**9**	**1.02**	**1.00**
Potomac Edison	46,503	50	8	0.98	0.97
SMECO	6,720	35	5	1.06	0.97
ComEd	291,967	NA	NA	1.00	0.97
PECO	146,698	NA	NA	1.08	0.99
Con Edison	85,899	NA	NA	0.92	0.80

2.1.2 Measure Mix

ACE's C&I Prescriptive and Custom program includes comparable measure eligibility criteria and rebates values to peer utility programs. Table 2-2 shows these results.

Table 2-2: C&I Prescriptive and Custom Program Measure Eligibility and Incentive Benchmarking

Measure Type	Incentives Offered by ACE	Incentives Offered by Other Programs
Lighting	$2-$350	$2-$300
HVAC	$45-$100 per ton	$45-$100 per ton
Refrigeration and Food Services	$20-$1,500	$45-$2,000

2.1.3 Process Evaluation Results

Table 2-4 below shows the process results of ACE's C&I Prescriptive and Custom program benchmarked with another similar utility[2]. We note, these results are based on a small population and just 5 responses. These results will likely change as the program gets larger and the survey gets more responses in PY 2.

Table 2-3: C&I Prescriptive and Custom Program Process Benchmarking

Focus Area	ACE (n=5)	Midwestern Utility (n=99)
Program Awareness	Customers became aware of the program mostly through the ACE website (n=2), their installation contractor (n=2), and energy equipment vendors (n=2).	Installation contractor (33%), energy equipment vendor (11%), and prior program participation (11%).
Program Satisfaction	Program satisfaction: **4.40** using a 1-5 scale, customers did not provide information about drivers of dissatisfaction.	Program satisfaction: **98%** - using a scale of 0-10 satisfaction is calculated using percentage of applicable responses that rate satisfaction with the program as 6 or higher.
Other Satisfaction	Application process satisfaction: **4.40**	Application process satisfaction: **95%**
Barriers	Customers did not report experiencing extremely serious challenges or barriers but did note that since labor is not included in the program, it can be challenging to pay for labor costs associated with the installation (n=2).	NA

[2] Benchmarked utilities implement the same program structure as the ACE C&I Prescriptive and Custom Program, thus making them ideal to compare with.

2.1.4 Net-to-Gross

Table 2-4 below shows the results of ACE's C&I Prescriptive and Custom program benchmarked against other utilities with similar programs. Based on the results, the NTG for ACE is slightly higher than comparable programs by other utilities. We note, these results are based on a small population and just 5 responses. These results will change as we get a bigger population and more responses from the survey in PY 2.

Table 2-4 Net-to-Gross Results Benchmarked with other utilities

Utility	Freeridership	Participant Spillover	NTGR
Atlantic City Electric	0.01	0.03	1.02
Midwestern Utility	0.43	0.15	0.72
EmPOWER[3] (Five utilities in Maryland)	-	-	0.88

2.2 Evaluability

Guidehouse noticed some concerns with evaluability of the tracking data.

- The implementer provided a full extract of their tracking database and included many columns with duplicated field names. This made it very difficult for us to identify the right fields needed for evaluation.

  Recommendation: We recommend reviewing the tracking database and removing any duplicated fields from the data. We will work with implementers on identifying these fields.

- Customer contact information in the tracking data was provided at the company level (n=91) (rather than the site level), which lowered the size of our survey population (n=53).

  Recommendation: Implementers must provide site-level contact information in the tracking data.

- The data extract provided to Guidehouse that was not final and often changed (e.g., building types for several projects were updated after the extract had been sent to us). Several discussions with the implementer and manual updates to the tracking data were needed over the course of the tracking data review to resolve these discrepancies.

  Recommendation: Only finalized tracking data that is used to develop the reports for BPU, must be shared with Guidehouse. Any interim versions don't need to be shared with us.

[3] Only the final NTGR was available for benchmarking purposes, both freeridership and spillover values were not shared in reporting.

- Project calculators were not available. Guidehouse was unable to easily verify the algorithms that the implementer applied, and instead had to back-calculate the project savings using the New Jersey Clean Energy Protocols.

  Recommendation: While the implementers have built in their calculations in their IT systems, it is difficult for us to review these calculations. We recommend setting up and sharing calculators for us to review and recommend improvements.

2.3 Impact Evaluation

2.3.1 Impact Evaluation Overview and Methodology

Guidehouse used the methodologies specified in the coordinated measures list maintained by the NJ utilities to calculate savings. The team distributed online participant surveys via email to gather self-reported data on installed measures.

2.3.1.1 Evaluation Objectives

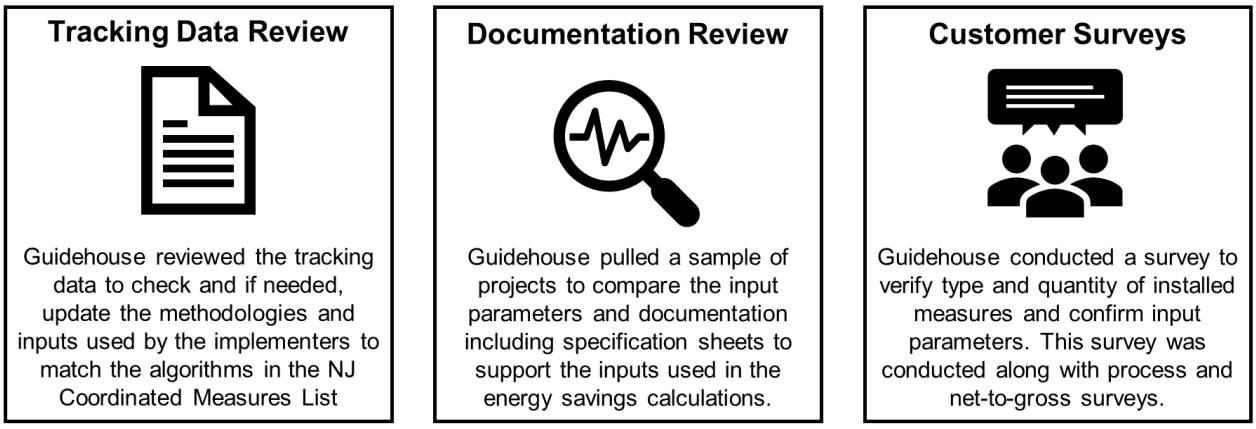
The following are the key objectives that the PY 1 impact evaluation addresses:

- Review the data being collected by the IC and establish data collection requirements for different types of measures offered by the program.
- Establish a smooth process for transfer of tracking data and project files with the aim of streamlining the process for future evaluations.
- Evaluate gross energy and peak demand savings following NJ Clean Energy Protocols.
- Calculate savings using new and revised measures developed by NJ's TRM working group.
- Identify data collection requirements for calculating PJM savings.
- Highlight areas for implementation team to improve data collection, estimate savings, etc.
- Highlight gaps or inaccuracies in the NJ protocols.

2.3.1.2 Evaluation Methods and Tools

Guidehouse used three methods to conduct the impact evaluation for this program: a tracking data review to verify the methods used by the implementers, customer surveys to verify installation type and quantity, and documentation review to ensure there is enough data in the project files to back up input assumptions. We used the results from the three methods to calculate the verified gross energy and peak demand savings for the program. Figure 1 demonstrates the evaluation methodologies we used for impact evaluation.

Figure 1: Impact Evaluation Methodology for ACE's C&I Prescriptive and Custom Program



2.3.2 Impact Evaluation Results

2.3.2.1 Program-Level Verified Gross Energy and Peak Demand Savings

Table 2-5 and Table 2-6 show the program-level savings and realization rates using FY 2020 and FY 2022 NJ Savings Protocols, respectively. The FY 2020 and FY 2022 realization rates are calculated relative to the reported energy and peak demand savings.

Table 2-5: FY 2020 C&I Prescriptive and Custom Program Calculated Savings

Program	Tracked Energy (MWh)	Tracked Peak Demand (kW)	Evaluated Energy FY 2020 (MWh)	Evaluated Peak Demand FY 2020 (kW)	FY 2020 Energy RR	FY 2020 Peak Demand RR
Prescriptive	4,888	819	4,992	822	1.02	1.00
Custom	39	0.0	39	0	1.00	-
Total	**4,927**	**819**	**5,032**	**822**	**1.02**	**1.00**

Table 2-6: FY 2022 C&I Prescriptive and Custom Program Calculated Savings

Program	Tracked Energy (MWh)	Tracked Peak Demand (kW)	Evaluated Energy FY 2022 (MWh)	Evaluated Peak Demand FY 2022 (kW)	FY 2022 Energy RR	FY 2022 Peak Demand RR
Prescriptive	4,888	819	4,992	822	1.02	1.00
Custom	39	0.0	39	0	1.00	-
Total	**4,927**	**819**	**5,032**	**822**	**1.02**	**1.00**

2.3.2.2 Measure Level Verified Gross Energy and Peak Demand Savings

Table 2-7 and Table 2-8 show the measure-level savings and realization rates using FY 2020 and FY 2022 NJ Savings Protocols, respectively. The FY 2020 and FY 2022 realization rates are calculated relative to the reported energy and peak demand savings.

Table 2-7: FY 2020 C&I Prescriptive and Custom Program Measure Level Calculated Savings

Strata	Tracked Energy (MWh])	Tracked Peak Demand (kW)	Evaluated Energy FY 2020 (MWh)	Evaluated Peak Demand FY 2020 (kW)	FY 2020 Energy RR	FY 2020 Peak Demand RR
Lighting (Retrofit)	4,590	758	4,693	761	1.02	1.00
Lighting Controls	219	47	219	47	1.00	1.00
HVAC	3	3	5	4	1.60	1.41
Custom Equipment	39	0	39	0	1.00	-
Commercial Kitchen Equipment	4	1	4	1	1.00	1.00
VFDs	71	10	71	10	1.00	1.00
Total	**4,927**	**819**	**5,032**	**822**	**1.02**	**1.00**

Table 2-8: FY 2022 C&I Prescriptive and Custom Program Measure Level Calculated Savings

Strata	Tracked Energy (MWh])	Tracked Peak Demand (kW)	Evaluated Energy FY 2022 (MWh)	Evaluated Peak Demand FY 2022 (kW)	FY2022 Energy RR	FY2022 Peak Demand RR
Lighting (Retrofit)	4,590	758	4,693	761	1.00	1.00
Lighting Controls	219	47	219	47	1.00	1.00
HVAC	3	3	5	3	1.60	1.00
Custom Equipment	39	0	39	0	1.00	-
Commercial Kitchen Equipment	4	1	4	1	1.00	1.00
VFDs	71	10	71	10	1.00	1.00
Total	**4,927**	**819**	**5,032**	**822**	**1.00**	**1.00**

2.3.3 Key Findings and Recommendations

2.3.3.1 Recommendation Summary

Table 2-9 summarizes the Guidehouse evaluation team's impact findings and recommendations.

Table 2-9: C&I Prescriptive and Custom Program Impact Findings and Recommendations

Finding	Recommendation	Impact
Data collection, documentation and savings calculation processes are still unclear and need to be made more robust for supporting evaluation. E.g., savings calculators were not available, tracking data had duplicated fields.	Tracking data should have clearly labeled fields, that are not duplicated. And savings need to align with established protocols.	Improved data tracking, documentation to support evaluation
The process for sharing tracking data on a quarterly basis needs to be established. We received tracking data several times and parameters such as building types often changed in each version.	Guidehouse will work with implementers on developing a process for data sharing Implementers should ensure that the final set of tracking data they share aligns with reported savings.	Accurate savings calculation
One HVAC project used EER for calculating savings in place of IEER	Calculate savings based on the NJ protocols.	Improved savings accuracy
Two unitary HVAC projects were affected by updated EFLH in the FY22 NJ TRM addendum, resulting in slightly higher savings	None	Increased savings for HVAC projects

2.3.3.2 Hours of Use Findings

Survey respondents reported hours of use that were significantly different from the deemed hours outlined in the New Jersey TRM, as shown below in Table 2-10. However, only five participants answered these questions, casting doubt on whether this pattern reflects the full participant population. Guidehouse does not recommend conducting additional research yet, but would like to highlight the discrepancies we found through our evaluation research.

Table 2-10: Comparison of Site-Reported and TRM Deemed Hours of Use

Building Type	Site-Reported Hours of Use	TRM Deemed Hours of Use
Retail - Small (n=1)	2,297	4,926
Multifamily (n=1)	1,998	5,950
Other (n=1)	8,760	4,573
Warehouse/Industrial – Large (n=1)	4,719	4,116

Warehouse/Industrial – Small (n=1)	2,545	3,799

2.4 Process Evaluation

2.4.1 Process Evaluation Overview and Methodology

To obtain process findings, Guidehouse reviewed the program materials, surveyed customers, and interviewed program implementors and program managers. The following results are the outcomes of these efforts.

2.4.1.1 Evaluation Objectives

The objective of the process evaluation was to better understand what is going well and what could be improved in the program. The SWE's guidance for such programs recommends conducting a process evaluation with the objectives outlined in Table 2-11. Guidehouse used the guidance provided by the SWE to define the objectives for this process evaluation.

Table 2-11: Process Evaluation Objectives

Overall Objective	Detailed Objectives
Document changes from NJ BPU to IOU	Document what changes occurred in the program implementation and what stayed the same when the IOU began implementing the program.
Participation Metrics	Document participation rate, closing rate, project completion rate, number of participants, partial participants and, where possible, compare with NJ BPU management.
End-user satisfaction	Satisfaction with all key steps and elements of the program process by end users, reasons for participation, challenges to participation, decision-making, reasons for adoption or rejection of recommended measures, and suggestions to address challenges and barriers.
Program staff satisfaction	Satisfaction with the back-office processes by the implementation team; cycle time findings for back-office processes.
Implementation team satisfaction	Satisfaction with all key steps and elements of the program processes by market actors involved in program delivery and for market actors involved in NJ BPU period request assessment of any differences, their reasons for being in the program, challenges to participating in the program, access to products, reasons for recommending services and products, comparison of experiences prior to and during program, and suggestions to address challenges and barriers.
Challenges	Document any difficulties with program-related efficiency products from end user and implementation team perspectives such as availability, quality of materials, installation, quality of product, waiting times, etc. Differentiate COVID-19-related causes where possible.

2.4.2 Process Evaluation Results

The following table presents the participant survey disposition. The survey response rate (9.5%) was impacted by a lower-than-expected number of participants and a short evaluation

timeframe. The process evaluation results presented in this report were primarily based on the customer survey.

Table 2-12: Prescriptive Program Participant Survey Disposition

Description	Count
Unique projects	91
Unique participants with emails	53
Survey responses	7
Screen outs[4]	2
Usable responses[5]	5
Response rate	9.4%

The remaining sections provide the process evaluation survey results by topic.

2.4.2.1 Program Design

Customers that responded to the survey (n=5) were generally satisfied with the incentive they received through the prescriptive and custom program, providing an average satisfaction score of 4.40 using a scale of 1-5, where 1 is extremely dissatisfied and 5 is extremely satisfied.[6] Customers did not share any feedback on drivers of dissatisfaction.

Satisfaction of a similar prescriptive program in the mid-west presented a satisfaction score of 98%. Responses are based on a 0-10 scale and calculated using the percentage of applicable responses that rate satisfaction with the program as 6 or higher.

2.4.2.2 Program Implementation

Respondents learned about the program in several ways (Figure 2). Customers mentioned that they learned about the program through the ACE website (n=2), their installation contractor (n=2), and energy equipment vendors (n=2). Other benchmarked programs had similar top awareness channels; word of mouth (26%), TV (19%), and utility website (16%).

In discussions with the program implementors, Guidehouse learned that during the transition period from the BPU to ACE, there was some confusion in the market in terms of incentives and

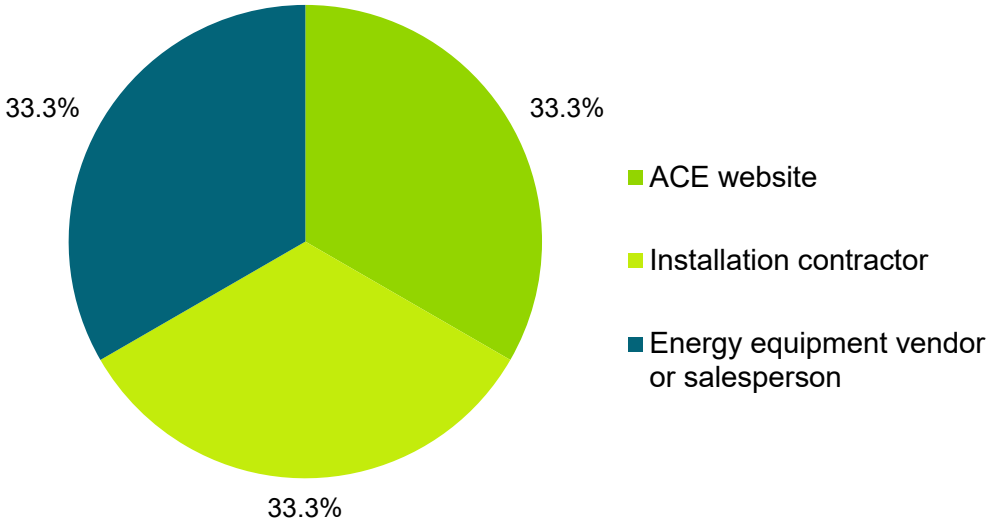
[4] Customers that could not provide information on their participation in the program.

[5] The number of survey responses minus screen outs.

[6] In PY 2, Guidehouse will implement a 9-point satisfaction scale.

program management[7]. This is something that the implementor recognizes and is working to clarify in PY2.

Figure 2: C&I Prescriptive and Custom Program Awareness (n=6)[8]

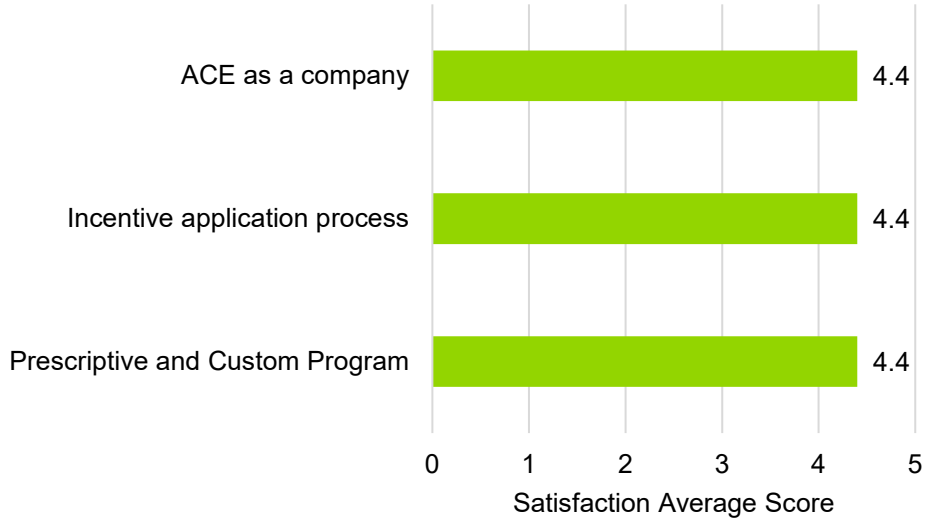


Survey respondents were generally satisfied with the application process with an average satisfaction score of 4.40 as seen in Figure 3. The satisfaction of an application process of a similar program in the mid-west was 95%.

Figure 3: C&I Prescriptive and Custom Component Satisfaction

[7] Contractors experienced market confusion during the transition from BPU to ACE as the processes for application submission and the incentives were transitioning with the change in management.

[8] Customers were allowed to provide multiple responses to the question, “How did you learn about the Prescriptive and Custom Program? Select all that apply.”, which is why the n value is higher than the number of respondents.



2.4.2.3 Challenges

Customers did not report experiencing extremely serious challenges or barriers, but two customers did note that since labor is not included in the program, it can be challenging for them to pay for labor costs associated with the installation (n=2). Respondents did not provide additional detail on this item, but the evaluation team did confirm with implementors that labor costs for measures installed is the responsibility of the customer.

2.4.3 Key Findings and Recommendations

Table 2-13 summarizes the Guidehouse evaluation team's process findings and recommendations.

Table 2-13: C&I Prescriptive and Custom Program Process Findings and Recommendations

Finding	Recommendation	Impact
Based on implementor feedback, customers may be unaware of the full scope of measures offered through the program.	Consider developing outreach that details the various types of measures incentivized by the program. Also consider creating a handout that all contractors can use onsite as a leave behind.	Increase participation, increase project savings
Some customers reported finding it difficult to pay for labor costs associated with project installation.	Consider educating customers and contractors on labor costs so that it does not become a deterrent for customer participation.	Improve participation
Several sites (e.g., pharmacies with multiple locations) had a single person listed as the key site contact. This made it difficult	Guidehouse recommends improving documentation to require site-specific contact information for each project.	Increase the number of survey responses and the accuracy of the answers

to identify unique participants for conducting surveys.		
Survey response rates for this program were lower than expected.	Consider advising the implementer to inform program participants that they will be asked to participate in an online survey to gather information on energy savings and determine the efficacy of the program. This can be accomplished by making note of this survey on the program's leave behind materials or include it on the program's application form.	Increase response rates and therefore improve the reliability of survey results

2.5 Net-to-Gross Evaluation

2.5.1 Net to Gross Data Collection Methodology

Guidehouse used a self-report method to calculate NTG ratios and net savings by estimating freeridership and spillover in a single survey. The survey battery utilized is referenced in the NJ EMV Guidelines-NTG Triennium 1 documentation provided by the SWE.

The methodology referenced by the SWE included template questions, response scoring, and a high-level function of how to calculate NTG. Guidehouse experienced several challenges in using this methodology:

- Challenges in determining how factors such as timing and efficiency were applied to the final freeridership ratio. In absence of this guidance, Guidehouse took an average of all scores to determine the intention score.
- The spillover logic referenced in the guide did not align with the recommended questions, making the logic difficult to follow.
- The spillover calculations and the description provided were inconsistent. Guidehouse determined that the description was most accurate and decided against using the proposed calculations when determining spillover.
- Based on these challenges, Guidehouse has proposed several recommendations for improvements in Appendix B.

2.5.2 Net-to-Gross Results and Key Findings

Guidehouse found a freeridership value of 0.01 and participant spillover of 0.03 producing a NTG ratio (NTGR) of 1.02 (see Table 2-14). The overall NTG (1.02) appears to be higher than other benchmarked utilities. One of the reasons for this difference is the low program population and number of responses. We received only 5 responses to the survey to inform these results. We expect the NTG results to change in the subsequent years once the program grows and matures.

Table 2-14: Program Year 2021 C&I Prescriptive and Custom Program NTGR

Utility	Freeridership	Participant Spillover	NTGR
Atlantic City Electric	0.01	0.03	1.02
Midwestern Utility	0.43	0.15	0.72
EmPOWER[9] (Five utilities in Maryland)	-	-	0.88

The low level of freeridership was driven primarily by participants stating that they either would not have installed as many measures or no measures in absence of the program. One survey respondent stated, "…we would not do the upgrades without the program.".

Spillover was driven entirely by a single respondent purchasing LEDs, high efficiency motor fans, a central AC, VSD (variable speed drives or motors), and exit signs without receiving incentives from program. This respondent stated that the program was very influential in their decision to pursue additional energy efficiency upgrades outside of the program.

[9] Only the final NTGR was available for benchmarking purposes, both freeridership and spillover values were not shared in reporting.

2.6 Cost Effectiveness

Guidehouse collected adequate data to support a cost effectiveness analysis for this program and adhered to the New Jersey Cost Test (NJCT). The NJCT was developed as the primary test to evaluate the benefits and costs of EE and DR programs established in the state pursuant to the Clean Energy Act (CEA) during the first three-year program cycle, starting with PY 1 on July 1, 2021, and running through the end of program year 3 (PY3) on June 30, 2024.

Guidehouse calculated six cost tests for all three Energy Solutions for Business (ESB) programs grouped together i.e., Prescriptive and Custom, Energy Management and Engineered Solutions. We did not see any participation for Energy Management and Engineered Solutions. Therefore, all the benefits reported for the ESB programs are from the prescriptive and custom program. While most of the program costs come from Prescriptive and Custom, Engineered Solutions and Energy Management also contributed to the costs for calculating BC ratios.

Cost test results presented in Table 2-15 and Table 2-16 were calculated using net ex-post savings. The C&I sector achieved a NJCT ratio above 1.0. Table 2-15 also includes a comparison of cost-effectiveness results based on evaluated savings with those reported in program filings. While, the results differ significantly, we note, that the C&I program is still in the process of ramping up. We expect the program to achieve more comparable cost effectiveness results once it has more participation and matures.

Table 2-15: Net C&I Program and Sector Cost Test Results

Program	Source	NJCT	PCT	PACT	RIMT	TRCT	SCT
Energy Solutions for Business – All*	Evaluation	1.76	3.88	1.01	0.30	0.74	0.92
Energy Solutions for Business – Prescriptive & Custom	Filings[10]	8.7	8.0	13.9	3.0	6.7	18.6

** All Energy Solutions for Business programs include Prescriptive & Custom, Engineered Solutions and Energy Management*

Table 2-16: Program and Sector NJCT NPV Benefits and Costs

Program	NPV Benefits ($1,000)	NPV Costs ($1,000)	Net Benefits ($1,000)
Energy Solutions for Business	$8,472	$4,820	$3,653

[10] BCA results for the filing were sourced from Attachment 2 of the petition of Atlantic City Electric to the BPU, for approval of an energy efficiency program, cost recovery mechanism, and other related relief for plan years one through three.

Appendix A. Survey Verification

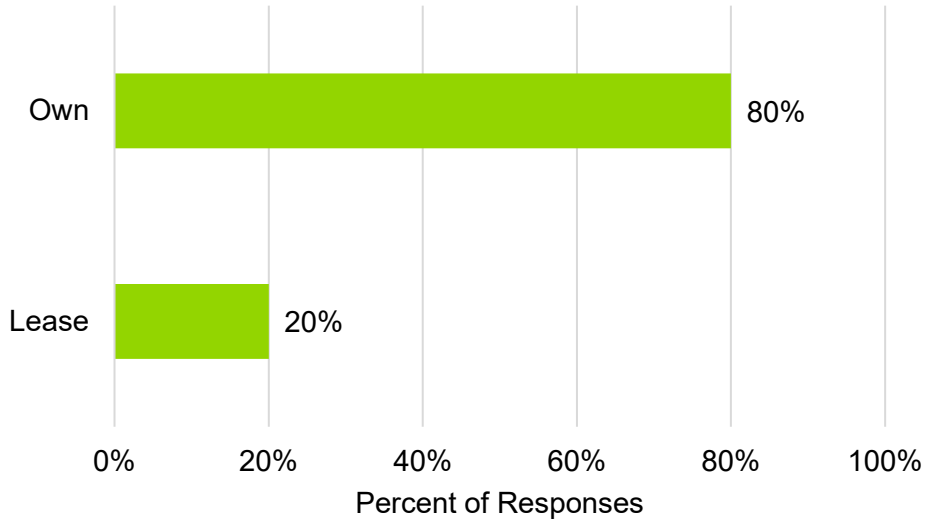
Guidehouse used participant contact information from the program tracking data to invite participants to an on-line survey. Rather than random sampling in PY 1, Guidehouse used a census of ACE's Prescriptive program participants with valid contact information.

This survey included impact- and process-related questions and the statewide net-to-gross (NTG) battery of questions approved by the SWE (after adjusting to match the specifics of the C&I Prescriptive and Custom program). For the first year, the impact questions were fairly high-level to verify installation and examine whether the measure was early replacement or replace on burnout. If more detail is needed for the PY 2 evaluation, Guidehouse will consider using the online survey to recruit participants for a virtual verification to examine in more detail the exact equipment installed.

A.1 Survey Firmographics

The overwhelming majority of survey respondents (80%) own their business space, as seen in Figure A-4. A majority of respondents (60%) reported the square footage of their facility as over 100,000 square feet.

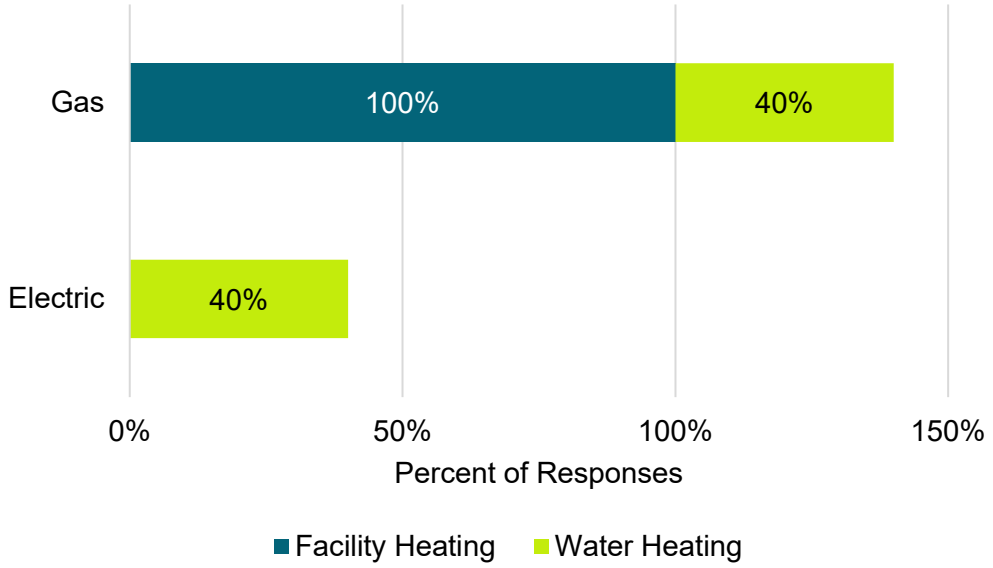
Figure A-4. Facility Ownership Status



All survey respondents heat their facilities with gas (100%). Gas is also the most common fuel being used to heat their water (40%), followed by electric (40%).[11] These results are shown in Figure A-5.

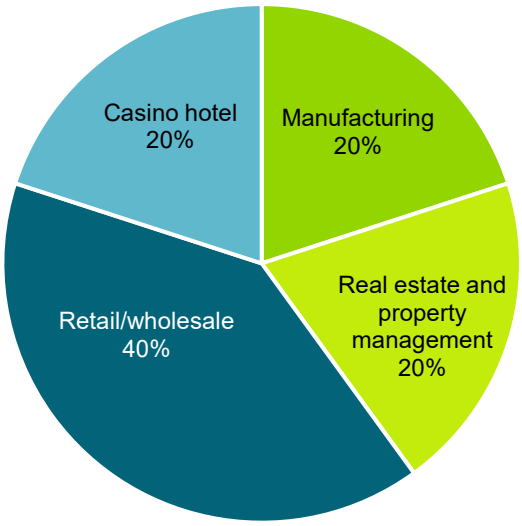
[11] One respondent did not know the fuel type for water heating at their facility

Figure A-5. Fuel Type for Facility and Water Heating



Survey respondents represent a variety of industries including retail/wholesale (40%), casino hotel (20%), manufacturing (20%) and real estate and property management (20%) (Figure A-6).

Figure A-6. Survey Respondent's Industries



Appendix B. Net to Gross Recommendations

During the PY 1 evaluation, Guidehouse experienced some challenges using the methodology presented in the NJ EMV Guidelines-NTG Triennium 1 documentation provided by the SWE. Guidehouse has developed several recommendations to help improve clarity for the PY 2 evaluation year.

- Intention scores are given on a range of 0-100% where a 100% is a full freerider and a 0% is not a freerider, and values in between are partial free riders. Guidehouse recommends converting the scoring in the guidance to follow this best practice. Currently all intention values are inverted.

- NTG questions are an opinion of the most likely scenario to occur in the absence of the program's influence. Therefore, Guidehouse recommends removing the uncertainty by removing *Don't Know* response options from NTG questions. If the '*Don't Know'* response option is to be included, there is an equal likelihood the affirmative or negative of the question is true, therefore, these are assigned a 50% partial freerider score.

- The questions regarding intent (Questions C4 and D7 in the example) batteries, deem the customer as a partial freerider if they would have purchased a lower efficiency option. Since the intent of the program is to influence the customer to buy the program-qualified energy-efficient option, Guidehouse feels that the response option of purchasing a lower efficiency option is a zero freerider, and not a partial.

- Regarding the timing application, it is Guidehouse's opinion that the likelihood of a respondent accurately predicting the timing of what may have happened in absence of the program decreases over time. Therefore, if they would have installed the item anyway within 3 months, Guidehouse is fairly certain this is an accurate statement (full freerider score). The following responses would then be rated as follows; within a year is a partial freerider of 0.5, and anything more than a year or never is deemed as zero.

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