|  |
| --- |
| Program Report  New Jersey Natural Gas Engineered Solutions Program Evaluation – Program Year 1  **Date:** January 26, 2023 |
|  |

Table of contents

[Abstract iii](#_Toc145690063)

[Executive Summary iv](#_Toc145690064)

[1 Introduction 1](#_Toc145690065)

[1.1 Program design and implementation 1](#_Toc145690066)

[1.2 Key findings and observations 1](#_Toc145690067)

[2 Process evaluation 2](#_Toc145690068)

[2.1 Program goals 2](#_Toc145690069)

[2.2 Program staff interviews 2](#_Toc145690070)

[2.2.1 Program delivery 2](#_Toc145690071)

[2.2.2 Program design and processes 3](#_Toc145690072)

[2.2.3 Tracking metrics and performance 3](#_Toc145690073)

[2.2.4 Challenges and opportunities 3](#_Toc145690074)

[3 Impact evaluation 5](#_Toc145690075)

[4 Evaluability assessment 6](#_Toc145690076)

[4.1 Boilers 6](#_Toc145690077)

[4.2 Furnaces 6](#_Toc145690078)

[4.3 Standalone storage water heaters 7](#_Toc145690079)

[4.4 Instantaneous gas water heaters 7](#_Toc145690080)

[4.5 Gas chillers 8](#_Toc145690081)

[4.6 Program data assessment 8](#_Toc145690082)

[5 Program comparisons 10](#_Toc145690083)

[6 CONCLUSIONS and KEY FINDINGS 11](#_Toc145690084)

List of tables

[Table 2‑1 Engineered Solutions Subprogram Estimated Participation and Savings triennial goals 2](#_Toc145690085)

[Table 4‑1. Engineered solutions program data assessment 9](#_Toc145690086)

[Table 6‑1. Facility types 15](#_Toc145690087)

[Table 6‑2. Boiler types 16](#_Toc145690088)

Abstract

DNV conducted a process evaluation and an evaluability assessment for the Engineered Solutions subprogram of the Energy Solutions for Business program.

Findings

As the Engineered Solutions subprogram did not have any claimed savings in Program Year 1 (PY1), there are **no impact-related** findings.

The **process evaluation** findings included:

* The Engineered Solutions program had no completed projects and, therefore, no claimed savings in PY1 but had seven committed projects in the pipeline. Project complexity, commissioning requirements, long lead times and supply chain delays contributed to no project completions. Persistent supply chain disruptions have caused C&I projects to proceed at a slow pace, with wait times for equipment sometimes exceeding 30 weeks.
* According to the NJNG program staff, Engineered Solutions, under the previous program iteration launched in 2019, booked nearly all the hospitals in their service territory, as such, program opportunities within hospitals is limited. The program is looking toward the secondary health markets as a way to increase program participation.

The **evaluability assessment** determined what data points would need to be collected at the time of implementation to allow for an effective evaluation of the following measure types:

* Boilers
* Furnaces
* Standalone storage water heaters
* Instantaneous gas water heaters
* Gas chillers

DNV also summarized the required standard program data needed to evaluate the Engineered Solutions program.

The Engineered Solutions subprogram offers measures that are more complex in nature. As such, measures and associated tracking metrics may not fit in a traditional format. DNV will work with NJNG engineers and contractors during the planning (or ex-ante) phase of a project to ensure the appropriate metrics are being collected to support evaluation efforts.

Recommendations

**Process evaluation:** Continue to investigate barriers to program participation and develop new pathways to engage in customer outreach and communication.

**Impact evaluation:** Before project completion, the evaluator encourages NJNG to discuss proposed engineering approaches for PY2 projects with the evaluation team, particularly for more complex and large projects.

**Evaluability assessment:** Collect the data points listed in the body of the report for boilers, furnaces, standalone storage water heaters, instantaneous gas water heaters, and gas chillers, as well as the standard program data identified.

Executive Summary

This report provides the results of the impact and process evaluations of New Jersey Natural Gas’s (NJNG) Energy Solutions for Business – Engineered Solutions subprogram for the period beginning July 1, 2021, and ending on June 30, 2022 (Program Year 1, or PY1). This subprogram is part of the Commercial & Industrial (C&I) sector.

Summary of methods

**Process evaluation:** In June 2022, DNV conducted in-depth interviews with program staff to learn more about the history and context of its programs, program design and processes, and challenges and opportunities. These interviews included speaking with various Program Staff members, including the Director of SAVEGREEN, the Commercial Supervisor and the Senior Evaluation Measurement & Verification Specialist.

**Impact evaluation:** Due to no claimed savings in PY1, no impact evaluation activities were conducted for the Engineered Solutions program.

**Evaluability assessment:** For programs with limited or no participation, DNV conducted an evaluability assessment. This assessment included a review of the anticipated common measure types within the program, and the team recommended best practices for information and data points that should be collected at the time of implementation to allow for an effective evaluation.

Findings and recommendations

**Process evaluation:**

* The Engineered Solutions program had no completed projects and, therefore, no claimed savings in PY1 but had seven committed projects in the pipeline. Project complexity, commissioning requirements, long lead times and supply chain delays contributed to no project completions. In addition, persistent supply chain disruptions have caused C&I projects to proceed at a slow pace, with wait times for equipment sometimes exceeding 30 weeks.
* According to the NJNG program staff, Engineered Solutions, under the previous program iteration launched in 2019, booked nearly all the hospitals in their service territory. The program is looking toward the secondary health markets as a way to increase program participation.
* **Recommendation:** Continue investigating barriers to program participation and developing new pathways to engage in customer outreach and communication.

**Impact evaluation:**

* As there were no claimed savings, no impact findings are presented here.
* **Recommendation:** Before project completion, consider discussing proposed engineering approaches for approved projects with the evaluation team, particularly that are more complex and potentially claim large savings.

**Evaluability assessment:**

**Recommendation:** Data points that would need to be collected at the time of implementation to allow for an effective evaluation include information on boilers, furnaces, standalone storage water heaters, instantaneous gas water heaters, and gas chillers. The assessment also determined the algorithms that will be used to determine savings, listed here:

* **Boilers:** Fuel Savings (MMBtu/yr) = Capin \* EFLHh \* ((Effq/Effb)-1) / 1000 kBtu/MMBtu
* **Furnaces:** Fuel Savings (MMBtu/yr) = Capin \* EFLHh \* ((Effq/Effb)-1) / 1000 kBtu/MMBtu
* **Standalone storage water heaters:** Fuel Savings (MMBtu/yr) = ((1 – (EFFb / EFFq) + SLF49) \* Energy Use Density \* Area / 1000 kBtu/MMBtu
* **Instantaneous gas water heaters:** Fuel Savings (MMBtu/yr) = ((1 – (EFFb / EFFq) + SLF50) \* Energy Use Density \* Area
* **Gas chillers:**
* Winter Gas Savings (MMBtu/yr) = (VBEq – BEb)/VBEq \* IR \* EFLHc
* Energy Savings (kWh/yr) = Tons \* (kW/Tonb – kW/Tongc) \* EFLHc
* Summer Gas Usage (MMBtu/yr) = MMBtu Output Capacity / COP \* EFLHc
* Net Energy Savings (kWh/yr) = Energy Savings + Winter Gas Savings – Summer Gas Usage
* Peak Demand Savings (kW) = Tons \* (kW/Tonb – kW/Tongc) \* CF

DNV also analyzed the required standard program data needed to evaluate the Engineered Solutions program, summarized in the following table:

|  |  |  |
| --- | --- | --- |
| Type | Variables | Use |
| Participant | Name, address, phone number, email address, account number, business type | Participant surveys |
| Program Dates | Audit date, job approval date, installation date, work submit date, inspection date, payment date | Process Analysis  Impact Analysis |
| Baseline Equipment | Baseline efficiency levels, fuel type, system type, system size | TRM Update |
| Partner Utility Data | Utility name, customer account number | Match to the electric usage data for the billing analysis. |
| Subcontractor/Engineering Firm Data | Company name, contact name, phone number, email | Contractor interviews |
| Recommended Measures | All recommended measures, gas savings, electric savings, demand savings | Missed Opportunities |
| Installed Measures | Installed measures, gas savings, electric savings, demand savings | Impact analysis |
| Installed Measure Characteristics | Installed efficiency levels, fuel type, system type, system size | TRM Update |
| Job Cost | Cost for audit and installed measures | Cost-effectiveness |
| Energy Savings | Annual and lifetime gas savings, annual and lifetime electric savings, demand savings[[1]](#footnote-2), gas MMBtu savings, electric MMBtu savings, Total Energy Savings | Realization Rate  TRM Updates |

# Introduction

This report provides the results of the impact and process evaluations of New Jersey Natural Gas’s (NJNG) Energy Solutions for Business – Engineered Solutions (henceforth referred to as “Engineered Solutions”) subprogram for the period beginning July 1, 2021, and ending on June 30, 2022 (Program Year 1, or “PY1”). This program is part of the Commercial and Industrial (C&I) sector.

## Program design and implementation

The Engineered Solutions subprogram provides tailored energy efficiency assistance to public service entities, such as municipalities, universities, schools, hospitals, and health care facilities (“MUSH”) and non-profit entities. The program provides guided consultative service throughout delivery to assist customers in identifying and undertaking large energy-efficiency projects while requiring no up-front funding from the customer. Through the Engineered Solutions program, customers receive an in-depth audit and detailed assessment of their facilities, which results in detailed assessment and recommendation recommended of energy-efficiency measures that could be cost-effectively installed. Customer incentives are determined on a project-by-project basis. The selection of trade allies is subject to a competitive solicitation process. In addition to the calculated project-by-project incentive, participants have the option of financing the non-incentive portion of project costs through on-bill repayments.

Engineered Solutions targets C&I MUSH, non-profit entities, and other businesses seeking comprehensive solutions that can't be served by either the Direct Install or Prescriptive and Custom Measures subprograms. The Engineered Solutions subprogram provides energy audits and incentives to entities that directly serve the public, which often has difficulty investigating and investing in energy efficiency. Engineered Solutions projects may include HVAC, building envelope, motors, lighting, controls, and other building systems and energy-consuming measures.

## Key findings and observations

The Engineered Solutions subprogram did not have any completed projects or claimed savings in PY1. Therefore, there are no impact-related findings. However, the evaluation team conducted program manager interviews to inform our process evaluation findings.

Program staff attributed low participation in the Engineered Solutions subprogram to the complexity of the projects, resulting in long development timelines. Additionally, delays in the supply chain of up to 30 weeks for large HVAC equipment are common, as noted by NJNG. However, this long lead time for projects will not impact NJNG’s ability to achieve its targeted savings for the Engineered Solutions program, as they currently have committed projects that account for approximately 1 million therms savings planned for PY2 and PY3. These projects are currently in the design phase and the customers have committed to completing them.

# Process evaluation

## Program goals

Per the NJNG’s approved Program Plan[[2]](#footnote-3), the Engineered Solutions subprogram participation and savings goal for PY1 through PY3 are presented in Table 2‑1.

As mentioned earlier, there were no completions in PY1 but had 7 committed projects in the pipeline. Looking ahead to PY2 and PY3, according to the program staff, the Engineered Solutions has two projects currently under development that, if completed, will account for approximately 1 million therms savings, essentially meeting the triennium goal (996,325 for PY1+PY2+PY3) for the subprogram. More details on the program metrics are explained in the Challenges & Opportunities section below.

Table 2‑1 Engineered Solutions Subprogram Estimated Participation and Savings triennial goals

|  |  |  |  |
| --- | --- | --- | --- |
| Metric | PY1 | PY2 | PY3 |
| Estimated Participants[[3]](#footnote-4) | 7 | 8 | 8 |
| Projected Net Annual Natural Gas Savings (therms) | 306,091 | 336,700 | 353,535 |

## Program staff interviews

DNV conducted in-depth interviews with two NJNG energy efficiency program staff members in June 2022. We used these interviews to both learn about and document staff perceptions of the following:

* Roles and responsibilities with the programs
* Program design and processes, including marketing and outreach
* How, if at all, has program delivery changed in comparison to how NJNG ran it in the prior program
* Program metrics and performance against goals
* Challenges and opportunities

As part of our C&I interviews, we spoke with the Director of SAVEGREEN about the Energy Solutions for Business program. His role as program manager extends back to 2009, when he first began working on NJNG’s SAVEGREEN programs. With 13 years of experience, he expressed a deep understanding of the programs, including the software systems used, and is, therefore, able to provide technical support to other staff on both residential and commercial programs. At a high level, he described his role as being responsible for program development and new technologies. He is responsible for the management of the commercial and industrial teams. The Commercial Supervisor and the Senior Evaluation Measurement & Verification Specialist were also involved in the Program Staff interviews conducted by the evaluation team.

### Program delivery

Prior to June 30, 2021, many energy efficiency programs were administered through the Board of Public Utilities (BPU), which contracted with a third-party implementer. Due to legislation passed in 2018 that called for utilities to run efficiency programs and for both the utilities and the state to hit annual energy savings targets, the BPU conducted a proceeding regarding the implementation of that law. They ultimately decided to transfer the administration of the programs[[4]](#footnote-5) of most retrofit programs to the utilities, who are charged with achieving energy savings in their respective service territories. Utilities were also allowed to propose additional programs in the September 2021 filing. NJNG had been running an Engineered Solutions program since early 2019 and requested to continue running that program. Program staff noted that NJNG staff manage the program implementation but use external engineering firms under contract for on-field work and development. The SAVEGREEN Director preferred this internal delivery approach, stating that it fosters an ability to cultivate closer customer relationships and provide information and address any complaints directly with the customer.

### Program design and processes

The Director of SAVEGREEN Director (“Director”) described Engineered Solutions as a “comprehensive” subprogram to address larger commercial entities in defined market segments, such as hospitals. The program engages with a customer by doing a comprehensive ASHRAE[[5]](#footnote-6) energy audit (level determined by complexity), which results in NJNG identifying recommended energy conservation measures (ECMs). When a customer moves forward with Engineered Solutions program participation, NJNG works with an engineering firm on project design, then moves into construction administration, installation of ECMs, and finally commissioning and EM&V. When asked to provide examples of typical ECMs, the Director described several types of hospital HVAC systems, including air systems, boilers, chillers, cooling towers, controls, and building management systems. The Director also mentioned lighting as a significant part of Engineered Solutions, particularly in health care. With respect to air systems, COVID exacerbated the need for hospitals to upgrade their air systems.

NJNG actively markets its C&I programs. For the Engineered Solutions subprogram, program staff described a targeted marketing approach, including direct customer outreach and participation in industry-focused events (e.g., Alliance for Action[[6]](#footnote-7)).

Program staff also developed a simplified guide to enhancing customer understanding of the program process. This guide provides a step-by-step overview of each program’s many milestones to ensure that customers are informed and knowledgeable about what participation in the Engineered Solutions program looks like.

### Tracking metrics and performance

The Director explained that NJNG is bound by the June 10, 2020, BPU order to report program metrics within 75 days[[7]](#footnote-8) of the close of the program year. Program years run from July 1 through June 30. Program reporting will include metrics related to energy savings, customer participation, dollars invested, administrative costs, and other defined quantitative performance indicators. The program must also capture multiple technical data points like EFLHh (effective full-load heating hours), efficiencies for Boiler Reset Controls, Boilers, and Furnace measures to ensure the energy savings are properly recorded in accordance with approved Technical Resource Manual calculations (previously referred to as the NJCEP protocols). Additionally, NJNG is also required to track the relative participation of overburdened communities. NJNG submits quarterly reports to the BPU, as well as this annual evaluation report.

### Challenges and opportunities

Project staff attributed low participation in the Engineered Solutions subprogram to the complexity of the projects, resulting in long development timelines. The delays in the supply chain of 30 weeks are common for large HVAC equipment.

When asked about future opportunities, the Director explained that much of Engineered Solutions’ past success has been with hospitals, saying that under the previous program iteration launched in 2019, they were able to book all the hospitals in their service territory. Now the program is looking toward the secondary health markets and other eligible market segments.

# Impact evaluation

Due to no claimed savings, the Evaluation Team did not complete an impact evaluation for the Engineered Solutions subprogram in PY1.

# Evaluability assessment

For programs with limited or no participation, DNV conducted an evaluability assessment. This assessment included a review of the anticipated common measure types within the program and provided recommended best practices for information and data points that should be collected at the time of implementation to allow for an effective evaluation.

Engineered Solutions measures include HVAC, motors, lighting, controls, and other building systems, energy efficiency, and energy-consuming equipment. The evaluation team has summarized the required engineering inputs for commonly replaced measures for similar programs below.

The Engineered Solutions subprogram offers measures that are more complex in nature. As such, measures and associated tracking metrics may not fit in a traditional format. DNV will work with NJNG engineers and contractors during the planning (or ex-ante) phase of a project to ensure the appropriate metrics are being collected to support evaluation efforts.

## Boilers

This measure targets the use of smaller-scale boilers (less than or equal to 4000 MBH) and furnaces (no size limitation) in all commercial facilities. Larger sized boilers are treated under the custom measure path. This measure applies to new construction, replacement of failed equipment, or end of useful life. The following data points would need to be collected and provided in the program tracking data for boilers:

* Capin = Input capacity of the qualifying unit in kBtu/hr
* EFLHh = The equivalent Full Load Hours of operation for the average unit during the heating season in hours
* Effb = Boiler Baseline Efficiency
* Effq = Boiler Proposed (or installed) Efficiency
* 1000 = Conversion from kBtu to MMBtu
* Facility Type (FACILITY TYPE )
* Boiler Type (BOILER TYPE)
* Equipment Size (kBtu/hr)

Savings will be estimated using the following algorithm:

* Fuel Savings (MMBtu/yr) = Capin \* EFLHh \* ((Effq/Effb)-1) / 1000 kBtu/MMBtu

## Furnaces

The methodology outlined below shall be adopted for estimating savings for installation of qualifying furnaces. The following data points would need to be collected and provided in the program tracking data for furnaces:

* Capin = Input capacity of qualifying unit in kBtu/hr
* EFLHh = The Equivalent Full Load Hours of operation for the average unit during the heating season in hours
* Effb = Furnace Baseline Efficiency
* Effq = Furnace Proposed Efficiency
* 1000 = Conversion from kBtu to MMBtu
* Facility Type (FACILITY TYPE )
* Furnace Type (Gas Fired or Oil Fired)
* Equipment Size (kBtu/hr)

Savings will be estimated using the following algorithm:

* Fuel Savings (MMBtu/yr) = Capin \* EFLHh \* ((Effq/Effb)-1) / 1000 kBtu/MMBtu

## Standalone storage water heaters

This measure is intended for standalone storage water heaters installed in commercial facilities. The following data points would need to be collected and provided in the program tracking data for standalone storage water heaters:

* EFFq = Efficiency of the qualifying water heater
* EFFb = Efficiency of the baseline water heater, commercial grade
* EFb = Energy Factor of the baseline water heater, commercial grade
* Energy Use Density = Annual baseline water heater energy use per square foot of commercial space served (MMBtu/sq.ft./yr)
* Area = Square feet of building area served by the water heater
* SLF = Standby loss factor for savings of qualifying water heater over baseline
* SLb or q = Standby losses in kBtu/hr of the baseline and qualifying storage water heater, respectively. The baseline standby loss is calculated assuming the baseline water heater has the same input capacity rating as the qualifying unit’s input capacity using ASHRAE equipment performance standards. The qualifying unit’s standby losses are available on the AHRI certificate provided with the application.
* Capq = Rated input capacity of the qualifying water heater
* Facility Type (FACILITY TYPE )
* Equipment Size (kBtu/hr)

Where,

* SLF = (SLb – SLq) / Capq

Savings will be estimated using the following algorithm:

* Fuel Savings (MMBtu/yr) = ((1 – (EFFb / EFFq) + SLF49) \* Energy Use Density \* Area / 1000 kBtu/MMBtu

## Instantaneous gas water heaters

This measure is intended for instantaneous water heaters installed in commercial facilities. This measure assumes that the baseline water heater is either a code standalone storage water heater or a code instantaneous water heater. The following data points would need to be collected and provided in the program tracking data for instantaneous gas water heaters:

* EFFq = Efficiency of the qualifying instantaneous water heater.
* EFFb = Efficiency of the baseline water heater, commercial grade.
* EFb = Efficiency of the baseline water heater, commercial grade.
* SLF = Standby loss factor of the baseline water heater fuel usage. This was calculated from standby loss and input capacity data for commercial water heaters exported from the AHRI database.
* Facility Type (FACILITY TYPE )
* Equipment Type (Gas Storage Water Heater, Gas Instantaneous Water Heater)
* Equipment Size (kBtu/hr)
* Where,
* SLF = 0.775 × Capq -0.778
* Area = Square feet of building area served by the water heater
* Capq = Rated input capacity of the qualifying water heater

Savings will be estimated using the following algorithm:

* Fuel Savings (MMBtu/yr) = ((1 – (EFFb / EFFq) + SLF50) \* Energy Use Density \* Area

## Gas chillers

The measurement of energy savings for C&I gas fired chillers is based on algorithms with inputs collected on the application form or from manufacturer’s data sheets and utility studies. The following data points would need to be collected and provided in the program tracking data for gas chillers:

* VBE*q* = Vacuum Boiler Efficiency
* BEb = Efficiency of the baseline gas boiler
* IR = Input Rating = MMBtu/hour
* Tons = The rated capacity of the chiller (in tons) at site design conditions accepted by the program
* kW/Ton*b* = The baseline efficiency for electric chillers, as shown in the Gas Chiller Verification Summary table below
* kW/Tongc = Parasitic electrical requirement for gas chiller
* COP = Efficiency of the gas chiller
* MMBtu Output Capacity = Cooling Capacity of gas chiller in MMBtu
* CF = Coincidence Factor. This value represents the percentage of the total load that is on during electric system peak.
* EFLHc = Equivalent Full Load Hours. This represents a measure of chiller use by cooling season.
* Facility Type (FACILITY TYPE )

Savings will be estimated using the following algorithms:

* Winter Gas Savings (MMBtu/yr) = (VBEq – BEb)/VBEq \* IR \* EFLHc
* Energy Savings (kWh/yr) = Tons \* (kW/Tonb – kW/Tongc) \* EFLHc
* Summer Gas Usage (MMBtu/yr) = MMBtu Output Capacity / COP \* EFLHc
* Net Energy Savings (kWh/yr) = Energy Savings + Winter Gas Savings – Summer Gas Usage
* Peak Demand Savings (kW) = Tons \* (kW/Tonb – kW/Tongc) \* CF

## Program data assessment

Additionally, DNV has summarized the required standard program data that will be needed to evaluate the Engineered Solutions program, summarized in Table 4‑1.

Table 4‑1. Engineered solutions program data assessment

|  |  |  |
| --- | --- | --- |
| Type | Variables | Use |
| Participant | Name, address, phone number, email address, account number, business type | Participant surveys |
| Program Dates | Audit date, job approval date, installation date, work submit date, inspection date, payment date | Process Analysis  Impact Analysis |
| Baseline Equipment | Baseline efficiency levels, fuel type, system type, system size | TRM Update |
| Partner Utility Data | Utility name, customer account number | Match to the electric usage data for the billing analysis. |
| Subcontractor Data | Company name, contact name, phone number, email | Contractor interviews |
| Recommended Measures | All recommended measures, gas savings, electric savings, demand savings | Missed Opportunities |
| Installed Measures | Installed measures, gas savings, electric savings, demand savings | Impact analysis |
| Installed Measure Characteristics | Installed efficiency levels, fuel type, system type, system size | TRM Update |
| Job Cost | Cost for audit and installed measures | Cost-effectiveness |
| Energy Savings | Annual and lifetime gas savings, annual and lifetime electric savings, demand savings[[8]](#footnote-9), gas MMBtu savings, electric MMBtu savings, Total Energy Savings | Realization Rate  TRM Updates |

# Program comparisons

Due to the unique nature of the Engineered Solutions program, no program comparisons for this program are provided in PY1.

# CONCLUSIONS and KEY FINDINGS

* The Engineered Solutions program had no completed projects and, therefore, no claimed savings in PY1 but had seven committed projects in the pipeline. Project complexity, commissioning requirements, long lead times and supply chain delays contributed to no project completions. Persistent supply chain disruptions have caused C&I projects to proceed at a slow pace, with wait times for equipment sometimes exceeding 30 weeks.
* According to the NJNG program staff, Engineered Solutions, under the previous program iteration launched in 2019, booked nearly all the hospitals in their service territory. The program is looking toward the secondary health markets as a way to increase program participation.
* The **evaluability assessment** determined what data points would need to be collected at the time of implementation to allow for an effective evaluation of the following measure types:
* Boilers
* Furnaces
* Standalone storage water heaters
* Instantaneous gas water heaters
* Gas chillers
* DNV also summarized the required standard program data needed to evaluate the Engineered Solutions program.

Recommendations

**Process evaluation:** Continue to investigate barriers to program participation and develop new pathways to engage in customer outreach and communication.

* **Impact evaluation:** Before project completion, consider discussing proposed engineering approaches for approved projects with the evaluation team, particularly that are more complex and potentially claim large savings.

**Evaluability assessment:** Collect the data points listed in the body of the report for boilers, furnaces, standalone storage water heaters, instantaneous gas water heaters, and gas chillers, as well as the standard program data identified.

###### PROGRAM STAFF FEEDBACK

General Information

* Can you explain what your role and responsibilities are for this program and also of your company?
* Is there anything in particular you are interested in having the evaluators study?

Communication and Structure

1. [If not already mentioned] What are the goals of the program? How are they set? [PROBE: segment targets, measure targets, energy efficiency savings, geographic targets, customer satisfaction, etc.]
2. What metrics do you use to measure the success of the program?
   1. Are there any metrics you would like to see incorporated into measuring and reporting on this program?
3. How is the program currently progressing against its goals? How have they performed historically?
   1. Are you considering any revision to program goals?
4. How are program tracking metrics shared? What is the frequency and format of this reporting?
5. What data tracking systems are used for tracking program outreach? Participation? Savings? Project status? How are those integrated, if at all?
6. How, if at all, has the COVID-19 pandemic affected participation in the program? (PROBE: Effects on participation, marketing, deployment of program specifics, events/engagement)

Program Process

1. [FOR REBATES] Can you describe the participation process for the program from the customer’s perspective, from first contact through rebate payment (or program completion)? At what stage of participation/customer decision making do you typically get involved?
2. Have you received any feedback on the participation process from customers?
3. How do you decide what energy savings measures are included in the program?
4. What other measures, if any, have you thought about including in the program?

Marketing and Outreach

1. How is the program currently marketed? What types of outreach activities does your team do?
2. Do you conduct any community outreach or engagement? What do you do? [PROBES: how do they elicit input, WHO do they elicit it from, do they make any special efforts to engage LI or minorities (certain programs target LI customers)?]
3. How do you measure/judge the effectiveness of program marketing? What metrics does the team capture and how are they used? Do you have specific goals?
4. Is there any cross marketing between other programs?
5. What do you believe are the most persuasive marketing messages/themes for your program? How is this different for different customers and measures?
6. Is there a particular time/event that is the most effective moment to market your program? How is this different for different customers and measures?

Barriers to participation

1. What do you see as some of the main barriers to getting a customer to participate in the program?
   1. Do you have any plans on how to address these barriers?

Opportunities

1. Are there any interesting trends you’ve encountered in how the program is implemented, or what kinds of feedback customers provide about their experience?
2. Do you see other opportunities for program growth? If there was one thing you would add or change about the program, what would it be?

###### NJNG ENGINEERED SOLUTIONS PROGRAM PROCESS OVERVIEW

**STEP 1:** Submit Customer Application with Attachment A - Customer Access Consent Agreement

**STEP 2:** Upon the approval of the Application, NJNG will send the Master Customer Agreement (MCA) via DocuSign to client for execution.

**STEP 3:** Upon the execution of the MCA, NJNG will schedule a Pre-Audit site visit to address any missing application information and assign an engineering firm to perform the appropriate ASHRAE Level Audit of the facilities. NJNG covers 100% on the audit cost.

**STEP 4:** At the conclusion of the audit, with the customer’s input, NJNG will screen the Energy Conservation Measures (ECMs) identified in the audit report for cost effectiveness. Those measures that meet the cost effectiveness requirements will then be presented to the customer’s management team along with a Limited Notice to Proceed document (LNTP) that contains the estimated engineering services cost. Upon the execution on the LNTP, NJNG will assign an engineering firm to perform the design, construction administration and commissioning phases of the project. The execution of the Limited Notice to Proceed marks the point when the customer becomes responsible for a share of the project cost, although no payments are required until the conclusion of the project. NJNG will continue to make progress payments directly to the engineering firm during the design, construction administration and commissioning phases. NJNG will also continue to monitor any project changes to ensure the project remains cost effective.

**STEP 5:** Upon the completion of the design phase and the creation of the construction contractor bid package, the design engineer will work with the customer to develop the construction contractor RFP which will include the NJNG bonding addendum. The customer will manage the RFP with the support of the design engineer and contract directly with the construction contractors. Following the execution of the construction contracts, NJNG will prepare the “Repayment Agreement”, which shows the project costs that will compromise the OBRP loan. Once executed, NJNG will process the initial project funding stage payment of 30% of the total construction cost. During the construction phase, NJNG will make progress payments to the customer to keep the project moving. The customer will be responsible for paying the contractors with these funds.

**STEP 6:** Upon the completion of the commissioning phase and final inspections, a project true up will be performed to determine the final loan amount.

**STEP 7:** The loan will be processed, and the customer will begin making the on-bill loan payments which will be added to their monthly NJNG bill. The On-Bill Repayment Program (OBRP) may also be leveraged by the customer to secure funding.

###### FACILITY TYPE

Table 6‑1. Facility types[[9]](#footnote-10)

|  |
| --- |
| Facility Type |
| Assembly |
| Dormitory |
| Hospital |
| Office – Large |
| Office – Small |
| Other |
| Religious Worship |
| School – Community College |
| School – Postsecondary |
| School – Primary |
| School – Secondary |

###### BOILER TYPE

Table 6‑2. Boiler types

|  |
| --- |
| Boiler Type |
| Hot Water – Gas Fired |
| Hot Water – Oil Fired |
| Steam – Gas Fired |
| Steam – Gas Fired, All Except Natural Draft |
| Steam – Gas fired, Natural Draft |
| Steam – Oil Fired |

DNV

DNV is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas, power and renewables industries. We also provide certification, supply chain and data management services to customers across a wide range of industries. Operating in more than 100 countries, our experts are dedicated to helping customers make the world safer, smarter and greener

1. Demand savings are not defined for gas (therm) projects. [↑](#footnote-ref-2)
2. The SAVEGREEN Project Program Plan (NJNG) -12/21/2020 (approved in 3/22. [↑](#footnote-ref-3)
3. .Count based on number of applications/projects completed, not account number [↑](#footnote-ref-4)
4. Administration of New Construction programs remained with the Office of Clean Energy, per NJNG program staff, June 28, 2022. [↑](#footnote-ref-5)
5. https://www.ashrae.org/File%20Library/Technical%20Resources/Technical%20FAQs/TC-07.06-FAQ-95.pdf [↑](#footnote-ref-6)
6. http://www.allianceforaction.com/ [↑](#footnote-ref-7)
7. For PY1 filing, the utilities have been given an extension of 30 days and the annual progress report was filed on October 17, 2022. [↑](#footnote-ref-8)
8. Demand savings are not defined for gas (therm) projects. [↑](#footnote-ref-9)
9. Note, not all facility types noted are relevant to the Engineered Solutions program. [↑](#footnote-ref-10)