



# **Midstream Commercial Food Service Pilot Impact Evaluation Report**

**Energy Efficiency Plan Year 2020  
(1/1/2020-12/31/2020)**

**Prepared for:**

**Peoples Gas and North Shore Gas  
Final**

May 24, 2021

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## 1. Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2020 Midstream Commercial Food Service Pilot (MCFS). It summarizes the total energy impacts for the pilot broken out by relevant measure and pilot structure details. The appendices provide the impact analysis methodology and details of the total resource cost (TRC) inputs. Program year 2020 covers January 1, 2020 through December 31, 2020.

## 2. Program Description

The MCFS Pilot incentivizes energy efficient commercial food service equipment for food service operators through a midstream approach. The MCFS Pilot launched in September 2019 and recruited 22 participating suppliers through December 31, 2020. GTI and Frontier Energy implement this pilot on behalf of ComEd, Nicor Gas, PGL and NSG. The implementers work with manufacturers and distributors by offering point-of-sale customer rebates, midstream incentives, and a simplified administrative process for cooking, sanitizing, and ventilation measures. The program's goal is to reduce barriers on food service operators for using energy efficient equipment, and to reduce energy usage in the commercial food service sector.

The PGL portion of the program had 29 participants in 2020 and completed 30 projects as shown in Table 2-1.

**Table 2-1. 2020 Volumetric Summary for PGL**

| Participation           | Total |
|-------------------------|-------|
| Participants *          | 29    |
| Installed Projects †    | 30    |
| Measure Types Installed | 3     |

\* Participants are defined as the count of unique Customer Business Names and addresses if necessary.

† Installed Projects are defined as the count of unique Project IDs

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 2-2 summarizes the installed measure quantities that are the basis for verified energy savings.

**Table 2-2. 2020 Installed Measure Quantities for PGL**

| Measure                     | Quantity Unit | Installed Quantity |
|-----------------------------|---------------|--------------------|
| ENERGY STAR Convection Oven | Each          | 4                  |
| ENERGY STAR Dishwasher      | Each          | 1                  |
| ENERGY STAR Fryer           | Each          | 45                 |

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

The NSG portion of the program had 2 participants in 2020 and completed 2 projects as shown in Table 2-3.

**Table 2-3. 2020 Volumetric Summary for NSG**

| Participation           | Total |
|-------------------------|-------|
| Participants *          | 2     |
| Installed Projects †    | 2     |
| Measure Types Installed | 2     |

\* Participants are defined as the count of unique Customer Business Names

† Installed Projects are defined as the count of unique Project IDs

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

Table 2-4 summarizes the installed measure quantities that are the basis for verified energy savings.

**Table 2-4. 2020 Installed Measure Quantities for NSG**

| Measure           | Quantity Unit | Installed Quantity |
|-------------------|---------------|--------------------|
| Combination Oven  | Each          | 1                  |
| ENERGY STAR Fryer | Each          | 3                  |

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

### 3. Program Savings Detail

Table 3-1 summarizes the energy savings the PGL MCFS Pilot achieved in 2020.

**Table 3-1. 2020 Annual Energy Savings Summary for PGL**

| Program Path                     | Ex Ante Gross Savings (Therms) | Verified Gross RR* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
|----------------------------------|--------------------------------|--------------------|---------------------------------|------|-------------------------------|
| <b>Total or Weighted Average</b> | 24,850                         | 114%               | 28,233                          | 0.80 | 22,586                        |

\* Realization Rate (RR) is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.

† A deemed value. Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 3-2 summarizes the energy savings the NSG MCFS Pilot achieved by path in 2020.

**Table 3-2. 2020 Annual Energy Savings Summary for NSG**

| Program Path                     | Ex Ante Gross Savings (Therms) | Verified Gross RR* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
|----------------------------------|--------------------------------|--------------------|---------------------------------|------|-------------------------------|
| <b>Total or Weighted Average</b> | 1,895                          | 112%               | 2,130                           | 0.80 | 1,704                         |

\* Realization Rate (RR) is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.

† A deemed value. Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

## 4. Program Savings by Measure

The PGL program includes 3 measure types as shown in Table 4-1. The ENERGY STAR Fryer measure contributed the most savings. It consists of both standard and large vat fryers.

**Table 4-1. 2020 Annual Energy Savings by Measure for PGL**

| Research Category                | Ex Ante Gross Savings (Therms) | Verified Gross RR* | Verified Gross Savings (Therms) | NTG†        | Verified Net Savings (Therms) |
|----------------------------------|--------------------------------|--------------------|---------------------------------|-------------|-------------------------------|
| ENERGY STAR Convection Oven      | 1,408                          | 149%               | 2,102                           | 0.80        | 1,681                         |
| ENERGY STAR Dishwasher           | 675                            | 100%               | 676                             | 0.80        | 541                           |
| ENERGY STAR Fryer                | 22,767                         | 112%               | 25,455                          | 0.80        | 20,364                        |
| <b>Total or Weighted Average</b> | <b>24,850</b>                  | <b>114%</b>        | <b>28,233</b>                   | <b>0.80</b> | <b>22,586</b>                 |

\* Realization Rate (RR) is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.

† A deemed value. Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

The NSG program includes 2 measures as shown in Table 4-2. The ENERGY STAR® Fryer measure again contributed the most savings. There are only standard fryers in the NSG program.

**Table 4-2. 2020 Annual Energy Savings by Measure for NSG**

| Research Category                | Ex Ante Gross Savings (Therms) | Verified Gross RR* | Verified Gross Savings (Therms) | NTG†        | Verified Net Savings (Therms) |
|----------------------------------|--------------------------------|--------------------|---------------------------------|-------------|-------------------------------|
| Combination Oven                 | 371                            | 102%               | 379                             | 0.80        | 303                           |
| ENERGY STAR Fryer                | 1,524                          | 115%               | 1,751                           | 0.80        | 1,401                         |
| <b>Total or Weighted Average</b> | <b>1,895</b>                   | <b>112%</b>        | <b>2,130</b>                    | <b>0.80</b> | <b>1,704</b>                  |

\* Realization Rate (RR) is the ratio of verified gross savings to ex ante gross savings, based on evaluation research findings.

† A deemed value. Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

Source: North Shore Gas tracking data and Guidehouse team analysis.

## 5. Impact Analysis Findings and Recommendations

### 5.1 Impact Parameter Estimates

Table 5-1 shows the unit therm savings and realization rate findings by measure from the evaluation team's review. The realization rate is the ratio of the verified savings to the ex ante savings. Following the table are any findings and recommendations, including discussions, of all measures with realization rates other than 100%. Appendix A provides a description of the impact analysis methodology. Appendix B provides the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report for PG and NSG separately.

**Table 5-1. Verified Gross Savings Parameters**

| Measure                     | Unit Basis | Ex Ante Gross (therms/unit) | Verified Gross (therms/unit) | Realization Rate | Data Source(s)   |
|-----------------------------|------------|-----------------------------|------------------------------|------------------|--|
| Combination Oven            | Each       | 371.00                      | 378.53                       | 102%             | PGL/NSG Program Tracking Data (PTD*), TRM v8.0†<br>Section 4.2.1; ENERGY STAR‡ |
| ENERGY STAR Convection Oven | Each       | 352.00                      | Varies                       | 149%             | PTD, TRM v8.0 Section 4.2.5;<br>ENERGY STAR                                    |
| ENERGY STAR Dishwasher      | Each       | 675.00                      | 676.00                       | 100%             | PTD, TRM v8.0 Section 4.2.6;<br>ENERGY STAR                                    |
| ENERGY STAR Fryer           | Each       | Varies                      | Varies                       | 112%             | PTD, TRM v8.0 Section 4.2.7;<br>ENERGY STAR                                    |

\* Program Tracking Data (PTD) provided by Peoples Gas and North Shore Gas, data extracted on April 9, 2021.

† State of Illinois Technical Reference Manual version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>.

‡ ENERGY STAR® Certified Product Data Sets are available at <https://www.energystar.gov/productfinder/advanced>

### 5.2 Findings and Recommendations

#### 5.2.1 Annual Reported Therms 2020

The evaluation team found the program's reported therms from February 16, 2021 did not match the totals in the provided tracking data. The values matched the data as of October 31, 2020, which did not include approximately 3,600 therms from 6 ENERGY STAR Fryer measures and one ENERGY STAR Dishwasher measure. The evaluation team used tracking data through December 31, 2020 extracted on April 9, 2021 in the analysis.

**Recommendation 1.** As a quality control check, ensure the year-end ex ante therms summary provided for the portfolio summary matches the program-specific year-end tracking data.

#### 5.2.2 Combination Oven

The TRM v8.0 algorithm for Combination Ovens includes many variables with guidance to use custom inputs or if unknown use TRM default values. The evaluation team used the equipment-

specific tracking data for Pan Capacity, Steam Cooking Efficiency, and Convection Cooking Efficiency in the verified savings calculations. These values differ slightly from the TRM v8.0 default values that were used in the ex ante calculations. This resulted in a gross realization rate of 102%.

**Recommendation 2.** Use equipment-specific algorithm inputs in the tracking data for savings calculations unless the values are unknown, as instructed by the TRM.

### 5.2.3 ENERGY STAR Convection Oven

The evaluation team used the tracked input values for Cooking Efficiency and Idle Consumption Rate in the verified savings calculations. The implementation contractor used the deemed values in TRM v8.0 for the ex ante calculations, which resulted in a realization rate of 149%. The discrepancies between the inputs can be seen in Table 5-2.

Projects 46, 66, and 76 had reported Cooking Efficiency and Idle Consumption Rate inputs that differed from the values listed in the ENERGY STAR Certified Product Data Set (“Certified Product List, CPL”). The evaluation team updated these and the CPL values were used in the verified savings calculations, which resulted in 3% increase of the realization rate. The differences in the inputs can be seen in Table 5-2.

**Table 5-2. ENERGY STAR Convection Oven Savings Input Discrepancies**

| Project ID | Reported Cooking Efficiency (%) | CPL Cooking Efficiency (%) | TRM Deemed Cooking Efficiency (%) | Reported Idle Consumption Rate | CPL Idle Consumption Rate | TRM Deemed Idle Consumption Rate |
|------------|---------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------------------|----------------------------------|
| 25         | 51                              | 51                         | 46                                | 6798                           | 6798                      | 12000                            |
| 46         | 53                              | 54                         | 46                                | 7179                           | 7620                      | 12000                            |
| 66         | 49                              | 52                         | 46                                | 12000                          | 10517                     | 12000                            |
| 76         | 53                              | 54                         | 46                                | 7179                           | 7620                      | 12000                            |

Source: Peoples Gas and North Shore Gas tracking data and Guidehouse evaluation team analysis.

**Recommendation 3.** Use the savings inputs in the tracking data for savings calculation unless these are unknown, as instructed by the TRM. The implementation contractor should verify these inputs match the specifications on the ENERGY STAR Certified Products List.

### 5.2.4 ENERGY STAR Fryer

The evaluation team used the values for Cooking Efficiency and Idle Consumption Rate supplied in the tracking data in verified savings calculations. TRM v8.0 deemed values were used for these inputs in the ex ante calculations. This approach resulted in the 112% realization rate.

Projects 69, 96, and 110 had reported values for Cooking Efficiency and Idle Consumption Rate that differed from what was listed in the model number’s specifications on the ENERGY STAR Certified Products List (CPL). These values were updated and the CPL values were used in the



verified savings calculations. The differences between the reported and Certified Products List values can be seen in Table 5-3.

**Table 5-3. ENERGY STAR Fryer Savings Input Discrepancies**

| Project ID | Reported Cooking Efficiency (%) | CPL Cooking Efficiency (%) | Reported Idle Consumption Rate | CPL Idle Consumption Rate |
|------------|---------------------------------|----------------------------|--------------------------------|---------------------------|
| 69         | 50                              | 50                         | 7349                           | 7639                      |
| 110        | 54                              | 53                         | 9953                           | 9631                      |
| 96         | 50                              | 52                         | 7040                           | 7259                      |

*Source: Peoples Gas and North Shore Gas tracking data and Guidehouse evaluation team analysis.*

**Recommendation 4.** Use equipment-specific algorithm inputs in the tracking data for savings calculations unless the values are unknown, as instructed by the TRM. The implementation contractor should verify these inputs match the specifications on the ENERGY STAR Certified Products List.

### 5.2.5 Net-to-Gross Value

The evaluation team calculated verified net therms using a default NTG of 0.80 for the MCFS Pilot for all utility partner projects. The 2020 deemed value<sup>1</sup> for Market Transformation Pilot Programs and Research Projects is deemed to be Pilot-Specific, with the following guidance:

*Pilot program-specific NTG values to be determined by evaluation early in each project. If that is not possible, default of 0.8 NTG to be used.*

The NTG value for MCFS projects are addressed in the 2021 NTG recommendations, where a value of 0.92 is recommended<sup>2</sup>.

**Recommendation 5.** Apply a NTG of 0.92 to determine ex ante net savings for the 2021 MCFS Pilot.

<sup>1</sup> Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

<sup>2</sup> Available on the SAG web site: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021/>.

### 5.3 Historical Realization Rates and NTG Values

Table 5-4 shows the historical gross realization rates and NTG values for the MCFS Pilot Program. 2020 is the first year Guidehouse is evaluating this program for PGL and NSG.

**Table 5-4. Historical Realization Rates and NTG Values**

| Program Year | PGL Verified Gross RR | NSG Verified Gross RR | PGL NTG | NSG NTG |
|--------------|-----------------------|-----------------------|---------|---------|
| 2020         | 114%                  | 112%                  | 0.80    | 0.80    |

*Source: Guidehouse evaluation research.*

## Appendix A. Impact Analysis Methodology

The evaluation team determined verified gross savings for each pilot measure by:

- Checking the reported measure names and algorithm inputs in the program tracking data for agreement with the Illinois Technical Reference Manual (TRM) v8.0 and adjusting accordingly.<sup>3</sup>
- Verifying measure specifications with the ENERGY STAR Certified Product Data Sets<sup>4</sup> for food service equipment and updating as needed.
- Validating savings algorithms were applied correctly.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The gross realization rates are calculated by dividing the verified ex post gross savings by the reported ex ante gross savings. The evaluation team calculated verified net therms using a deemed NTG value of 0.80 for all utility partners of the MCFS Pilot.<sup>5</sup>

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<sup>3</sup> Illinois Statewide Technical Reference Manual for Energy Efficiency Version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>

<sup>4</sup> ENERGY STAR Certified Product Data Sets are available at <https://www.energystar.gov/productfinder/advanced>

<sup>5</sup> Available on the SAG web site: [https://www.ilsag.info/ntg\\_2020](https://www.ilsag.info/ntg_2020).

## Appendix B. Program Specific Inputs for the Illinois TRC

Table B-1 and Table B-2 show the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in this table and will be provided to the evaluation team later. Guidehouse will include annual and lifetime water savings and greenhouse gas reductions in the end of year summary report.

**Table B-1. Verified Cost Effectiveness Inputs – PGL**

| Research Category                | Units | Quantity  | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
|----------------------------------|-------|-----------|-----------------------|--------------------------------|---------------------------------|-------------------------------|
| ENERGY STAR Convection Oven      | Each  | 4         | 12.0                  | 1,408                          | 2,102                           | 1,681                         |
| ENERGY STAR Dishwasher           | Each  | 1         | 15.0                  | 675                            | 676                             | 541                           |
| ENERGY STAR Fryer                | Each  | 45        | 12.0                  | 22,767                         | 25,455                          | 20,364                        |
| <b>Total or Weighted Average</b> |       | <b>50</b> | <b>12.1</b>           | <b>24,850</b>                  | <b>28,233</b>                   | <b>22,586</b>                 |

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

**Table B-2. Verified Cost Effectiveness Inputs – NSG**

| Research Category                | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
|----------------------------------|-------|----------|-----------------------|--------------------------------|---------------------------------|-------------------------------|
| Combination Oven                 | Each  | 1        | 12.0                  | 371                            | 379                             | 303                           |
| ENERGY STAR Fryer                | Each  | 3        | 12.0                  | 1,524                          | 1,751                           | 1,401                         |
| <b>Total or Weighted Average</b> |       | <b>4</b> | <b>12.0</b>           | <b>1,895</b>                   | <b>2,130</b>                    | <b>1,704</b>                  |

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.