Appendix B – Adjustable Goals Template

The adjustable goals template provides the measure and program savings summary in the SAG generated format.

Adjustable Savings Goals Policy Guidelines
Draft: Updated 08/01/16

Background:

The Commission's December 16, 2015 Final Order in ICC Docket No. 15-0487 approved and adopted the Illinois Energy Efficiency Policy Manual Version 1.0 ("Policy Manual"), which includes an Adjustable Savings Goals policy set forth in Subsection 6.2. During initial Policy Manual Subcommittee Version 2.0 discussions in early 2016, several parties proposed updates to this policy. However, Policy Manual Version 2.0 discussions were put on hold in spring 2016 to complete the Portfolio Planning Process.

Prior to the Energy Efficiency Plan ("Plan") filings required by Sections 8-103 and 8-104 of the Illinois Public Utilities Act in fall 2016, Policy Manual Subcommittee participants agreed to draft guideline language to interpret the approved Version 1.0 Adjustable Savings Goal policy, including a template on how to calculate adjustable savings goals.

Note: Capitalized terms are defined in Policy Manual Section 1: Glossary.

Adjustable Savings Goals Policy:

See Illinois Energy Efficiency Policy Manual Version 1.0, Section 6, Program Administration and Reporting, Subsection 6.2: Adjustable Savings Goals.

Program Administrator and/or IPA annual energy savings goals will be adjusted to align them with changes to IL-TRM values.

In addition, Program Administrator and/or IPA annual energy savings goals will be adjusted to align them with the Evaluator's recommended Net-to-Gross values for the entire Plan period prior to the start of the first Plan Year of an approved Plan or Section 16-111.5B Program.

Within sixty (60) days after Commission approval of the annual IL-TRM values, each Program Administrator will file adjusted energy savings goals reflecting updated IL-TRM values applicable to the Program Year commencing June 1.

Policy Guidelines – Adjustable Savings Goals for Section 16-111.5B Programs:

· Once a Section 16-111.5B Program is approved by the Commission, the vendor has the opportunity to negotiate different participation rates and/or Measure levels. Once the contract is signed, those Measures / participation rates will be fixed for the life of the contract for the purpose of setting annual savings goals. However, the vendor and the utility may negotiate a change in the Measure mix, for Program implementation and goal attainment purposes.
· Changes to the Illinois Statewide Technical Reference Manual for Energy Efficiency ("IL-TRM") will be applied on an annual basis to the gross unit savings values for the applicable Program Year. This will set the energy savings goal for the applicable Program Year.
· If the independent Evaluator recommends an updated Net-to-Gross ("NTG") value for a Section 16-111.5B Program, the energy savings goal can be adjusted during the contract negotiation process, prior to the first Program Year of the contract. After contract execution of the approved Program, the energy savings goal will not be adjusted due to NTG changes in later Program Years.

Policy Guidelines – Adjustable Savings Goals for Section 8-103 and 8-104 Programs:

· After Commission approval of a Section 8-103 and/or 8-104 Plan the Measure participation levels identified in the approved Plan to derive the energy savings goals will be fixed for the entirety of the Plan for the purpose of calculating the adjusted energy savings goals.[1]
· Prior to the start of the first Program Year of an approved Plan, the Program Administrator's energy savings goal will be adjusted for respective Program Years over the entire Plan period in cases where the Evaluator's final recommended Net-to-Gross ("NTG") value for a Program, Sub-Program, or Measure differs from the NTG value used to calculate energy savings goals in the Program Administrator's approved Plan. The Program Administrator's energy savings goals will not be adjusted due to a change in the NTG value during the second and third Program Years of an approved Plan.[2]

· Changes to the Illinois Statewide Technical Reference Manual for Energy Efficiency ("IL-TRM") will be applied on an annual basis to the gross unit savings values for the applicable Program Year, consistent with the EEPS Adjustable Savings Goal Template and guidelines. This will produce the adjusted energy savings goals.

EEPS Adjustable Savings Goal Template

Illinois Program Administrators will file the completed EEPS Adjustable Savings Goal Template for Section 8-103/8-104 Programs and Measures in the Electric Plan 4 (covering Electric Program Years 10-12) and Gas Plan 3 (covering Gas Program Years 7-9) dockets. The Excel version of the completed EEPS Adjustable Savings Goal Template will also be posted on the Illinois Energy Efficiency Stakeholder Advisory Group ("SAG") website.

Following Commission approval of the Plan, the completed EEPS Adjustable Savings Goal Template will be used for the remainder of the approved Plan, with annual updates. As specified in Subsection 6.2 of the Policy Manual, Adjustable Savings Goals, Program Administrators will file adjusted energy savings goals reflecting updated IL-TRM values applicable to the Program Year commencing June 1, within sixty (60) days after Commission approval of the annual IL-TRM update. The updated EEPS Adjustable Savings Goal Template will be filed with the Commission to show the adjusted energy savings goals. The Excel versions of the completed and updated EEPS Adjustable Savings Goal Templates will also be posted on the SAG website.

The information below describes steps to complete the EEPS Adjustable Savings Goal Template for Section 8-103 and 8-104 Programs. As a general principle, when completing the EEPS Adjustable Savings Goal Template, Program Administrators should follow the calculation instructions specified in the comment boxes as well as the column headers and column labels (*row 7*) in the EEPS Adjustable Savings Goal Template. Note: The *Measure-Level Adjustments Tab* should be completed first before completing the *Program-Level Adjustments Tab*.

EEPS Adjustable Savings Goal Template – *Program-Level Adjustments Tab*

1. After completing the *Measure-Level Adjustments Tab*, Program Administrators will complete *columns (a), (b), (f), (j), (n), and (q)*, listing the names of the Energy Efficiency Programs and forecasted Plan savings and fuel type (kWh or Therms) for the respective Program Years and Plan period, and file the completed EEPS Adjustable Savings Goal Template with the Commission in the Plan docket. The Program names listed in *column (a)* should correspond with the names of the Programs specified in *column (a)* of the *Measure-Level Adjustments Tab*. If there are gas and electric Measures in a Program, include a separate row for gas and electric for the Program so that all adjustments are included in one template. Program Administrators have the flexibility to create a separate tab or section for the other fuel, if applicable. Below the list of Programs, include the *Portfolio Total (kWh or Therms)* savings by calculating the sum of the rows of Program savings for the respective fuel type (kWh or Therms) for *columns (b), (f), (j), and (n)*. The resulting value contained in *column (n)* in the row, *Portfolio Total (kWh or Therms)*, should be equal to the value of the Program Administrator's energy savings goal specified in its approved Plan from the Plan docket, and this value should also be equal to the value contained in *column (u)* in the row, *Portfolio Total (kWh or Therms)*, of the *Measure-Level Adjustments Tab*.

a. Note: The values contained in the row, *Portfolio Total (kWh or Therms)*, in the *Program-Level Adjustments Tab* for *columns (b), (f), (j), and (n)* should be equal to the values contained in the row, *Portfolio Total (kWh or Therms),* of the *Measure-Level Adjustments Tab* for *columns (r), (s), (t), and (u)*, respectively.
b. The value contained in *column (b) – EPY10/GPY7 Plan Energy Savings Goal* for the "Program A" row of the *Program-Level Adjustments Tab* should be calculated by taking the sum of the values set forth in *column (r) – EPY10/GPY7 Plan Goal* for the rows associated with "Program A" Measures (Program designation specified in *column (a)*) and the same fuel type (kWh or Therms designation specified in *column (c)*) of the *Measure-Level Adjustments Tab*.

2. **Adjustments:** After completing the *Measure-Level Adjustments Tab* to reflect the updated IL-TRM values for the applicable Program Year(s), Program Administrators will calculate the adjusted energy savings goal at the Program and Portfolio level for the relevant Program Year(s) – *columns (c), (g), and (k)* – and the entire Plan period – *column (o).* Template guidelines to support the adjusted energy savings goal calculation include the following:

a. Complete *columns (c), (g), (k) and (o) – Adjusted Energy Savings Goal.* Note: The value contained in *column (c) – EPY10/GPY7 Adjusted Energy Savings Goal* for the "Program A" row of the *Program-Level Adjustments Tab* should be calculated by taking the sum of the values set forth in *column (aw) – EPY10/GPY7 Final Goal* for the rows associated with "Program A" Measures (as listed in *column (a)*) and the same fuel type (kWh or Therms designation specified in *column (c)*) of the *Measure-Level Adjustments Tab* .

b. Complete *columns (d), (h), (l), and (p) – Energy Savings Adjustment to Plan Goal* by following the calculation instructions specified in the header row containing column labels to calculate the savings differential between the *Adjusted Energy Savings Goal* and the *Plan Energy Savings Goal* for the applicable Program Year and the Plan period; *column (d)=(c-b), column (h)=(g-f), column (l)=(k-j), and column (p)=(o-n)* .

c. Briefly describe the main cause of the significant savings goal adjustments in *columns (e), (i), and (m) – Brief Explanation of Significant Adjustments* .

EEPS Adjustable Savings Goal Template – *Measure-Level Adjustments Tab*

1. Program Administrators will complete *columns (a) – (u) and (ba) – (bb)* and file the completed EEPS Adjustable Savings Goal Template with the Commission in the Plan docket. If there are gas and electric Measures, include a separate row for gas and electric so that all adjustments are included in one template. Program Administrators have the flexibility to create a separate tab or section for the other fuel, if applicable. Template guidelines to support completing the *Measure-Level Adjustments Tab* include the following:

a. *Column (a) – Program:* List the name of the Energy Efficiency Program. The name of the Program should correspond with one of the Program names specified in *column (a)* of the *Program-Level Adjustments Tab* .

b. *Column (b) – Measure:* List the detailed name of the Energy Efficiency Measure, including the efficiency level, where applicable. For example, Gas High Efficiency Furnace 95% AFUE Early Replacement.

c. *Column (c) – Energy Savings: kWh or Therms?* : List whether the Measure is a gas or electric Measure by specifying whether the savings are kWh or Therms.

d. *Column (d) – IL-TRM Adjustable? (1 if yes; 0 if no)* : For Measures that are not significant to the overall Portfolio-level savings, recognizing the time and effort needed to provide information related to adjustable savings goals, Program Administrators will specify, prior to the start of the Plan, any Measures that will not be adjusted by annual IL-TRM changes for purposes of adjusting savings goals. Note that this flexibility is intended for Measures where the time and effort to make them adjustable per the Adjustable Savings Goals policy is high, and the Measures are not impactful to the Portfolio of Programs. Answer "1" if a Measure will adjust the savings goal based upon IL-TRM changes. Answer "0" if a Measure is not covered by the IL-TRM Version 5.0 and/or if the Program Administrator will not adjust the savings goal for a low-impact Measure based upon IL-TRM changes. Note: Once a decision is made concerning whether the Measure is *IL-TRM Adjustable* , that decision is effective for the entirety of the Plan period and it cannot be changed in subsequent Program Years of the Plan, unless consensus is reached at SAG that the extenuating circumstance warrants such a change.

i. For those Measures that are not *IL-TRM Adjustable* (*column (d)* =0), these "non-adjustable" rows should be shaded gray for *columns (ae) – (av) and (ba) – (bb)* and no calculations should be performed for these shaded gray cells, leave them blank. For those rows with Measures that are not *IL-TRM Adjustable* , the values contained in *columns (aw), (ax), and (ay)* should be set equal to the values contained in *columns (z), (aa), and (ab)* , respectively, in calculating the *Final Adjusted Net Energy Savings Goals* .

ii. For those rows with Measures that are *IL-TRM Adjustable* (*column (d)* =1), the values contained in *columns (aw), (ax), and (ay)* should be set equal to the values contained in *columns (ai), (ao), and (au)* , respectively, in calculating the *Final Adjusted Net Energy Savings Goals* .

iii. Note: The Custom Program is not adjustable under the IL-TRM, but there is a one-time savings goal NTG adjustment allowed for the Plan period if the Evaluator's final recommended NTG values for the Custom Program that are provided prior to the start of the first Program Year of the Plan (*columns (w), (x), and (y)*) differ from the NTG values used to calculate energy savings goals for the Custom Program in the Program Administrator's approved Plan (*columns (o), (p), and (q)*).

e. *Column (e) – IL-TRM Section / Custom:* If the Measure is using the IL-TRM to calculate savings, insert the IL-TRM section number that corresponds to this Measure. For example, 5.3.16 is the IL-TRM section number for Advanced Thermostats. If savings are calculated on a custom basis, insert the word "Custom".

f. *Column (f) – Unit of Participation:* Describe the unit of participation for the Measure. For example, is participation calculated on a per home basis?

g. *Columns (g), (h), and (i) – Plan Number of Units (Fixed Parameters for Calculating Adjustable Savings Goals):* Complete the forecasted Measure participation levels for the relevant Program Years used to derive the *Plan Energy Savings Goals* set forth in *columns (r), (s), (t), and (u)* .

i. Note: These Measure participation levels identified in the approved Plan and in *columns (g), (h), and (i)* that are used to derive the *Plan Energy Savings Goals* set forth in *columns (r), (s), (t), and (u)* will be fixed for the entirety of the Plan period for the purpose of calculating the *Final Adjusted Net Energy Savings Goals* set forth in *columns (aw), (ax), (ay), and (az)* .

h. *Column (j) – IL-TRM Measure Code from IL-TRMv5.0:* List the applicable IL-TRM Measure Code from the IL-TRM Version 5.0, dated February 11, 2016. The IL-TRM Measure Code can be found at the end of each Measure characterization in the IL-TRM and is structured using five parts: Code Structure = Market + End-use Category + Measure + Version # + Effective Date. The IL-TRM Measure Codes are used to uniquely identify each Measure in the IL-TRM through the use of abbreviations for the major organizational elements of the IL-TRM. When these abbreviations are combined and delimited by a dash ('-') a unique, approximately 18-character alphanumeric code is formed that can be used for tracking the Measures and their associated savings estimates. For example, RS-HVC-ADTH-V01-160601 is the IL-TRM Measure Code for Advanced Thermostats. Leave blank for Measures not covered by the IL-TRM Version 5.0.

i. *Column (k) – Reference Document Explaining Gross Unit Savings Calculation Details:* Provide the name of the document, and date and tab name if applicable, where the supporting calculation details and *Key Custom and IL-TRM Input Assumptions* for calculating the *Plan Gross Unit Savings* values contained in *columns (l), (m), and (n)* can be found for the relevant Measure.

j. *Columns (l), (m), and (n) – Plan Gross Unit Savings* : Complete the gross kWh or Therm savings per unit of participation, for the applicable Program Years, used to derive the *Plan Energy Savings Goals* set forth in *columns (r), (s), (t), and (u)* . Program Administrators will specify the calculation details associated with these *Plan Gross Unit Savings* values within the reference document cited in *column (k),* and Program Administrators will outline the *Key Custom and IL-TRM Input Assumptions* and values used in the calculation for the *IL-TRM Adjustable* Measures (*column (d)* =1) within the reference document and in *columns (ba) and (bb)* , or in another location as allowed for per the provisions described in *columns (ba) and (bb)* .

k. *Columns (o), (p), and (q) – Plan NTG* : Insert the assumed NTG values for the applicable Program Years used to derive the *Plan Energy Savings Goals* set forth in *columns (r), (s), (t), and (u)* .

l. *Columns (r), (s), and (t) – Plan Goal* : Calculate the Plan energy savings goals for the applicable Program Years referenced in *columns (r), (s), and (t)* by following the calculation instructions specified in the header row containing column labels for each column*; column (r)=(g x l x o), column (s)=(h x m x p), and column (t)=(i x n x q)* .

i. The value contained in *column (r) – EPY10/GPY7 Plan Goal* should be calculated by taking the product of the values contained in *column (g) – EPY10/GPY7 Plan Number of Units (Fixed), column (l) – EPY10/GPY7 Plan Gross Unit Savings, and column (o) – EPY10/GPY7 Plan NTG* .

ii. The value contained in *column (s) – EPY11/GPY8 Plan Goal* should be calculated by taking the product of the values contained in *column (h) – EPY11/GPY8 Plan Number of Units (Fixed), column (m) – EPY11/GPY8 Plan Gross Unit Savings, and column (p) – EPY11/GPY8 Plan NTG* .

iii. The value contained in *column (t) – EPY12/GPY9 Plan Goal* should be calculated by taking the product of the values contained in *column (i) – EPY12/GPY9 Plan Number of Units (Fixed), column (n) – EPY12/GPY9 Plan Gross Unit Savings, and column (q) – EPY12/GPY9 Plan NTG* .

m. *Column (u) – Total Electric Plan 4/Gas Plan 3 Goal* : Calculate the total Plan energy savings goal; *column (u)=(r+s+t)* . The value contained in *column (u) – Total Electric Plan 4/Gas Plan 3 Goal* should be calculated by taking the sum of the values contained in *column (r) – EPY10/GPY7 Plan Goal, column (s) – EPY11/GPY8 Plan Goal, and column (t) – EPY12/GPY9 Plan Goal.*

n. *Column (ba) – Key Custom Input Assumptions (if none, specify NA):* Assumptions in savings estimates that are custom and are not derived from values in the IL-TRM, and therefore will not necessitate a change in savings goals if the IL-TRM is updated, unless consensus is reached at SAG that the extenuating circumstance warrants an adjustment. List any custom assumptions selected by the Program Administrator to calculate the *Plan Gross Unit Savings* for the *IL-TRM Adjustable* Measure in the Plan and specified in *columns (l), (m), and (n)* . Answer "NA" if there are no custom assumptions selected by the Program Administrator to calculate the *Plan Gross Unit Savings* for the *IL-TRM Adjustable* Measure. The assumptions listed in *column (ba)* should be consistent with and clearly outlined in the reference document specified in *column (k) – Reference Document Explaining Gross Unit Savings Calculation Details* . Program Administrators have the flexibility to specify the custom assumptions selected by the Program Administrator within a separate tab or across multiple columns of the *Measure-Level Adjustments Tab* . In cases where the custom assumptions are provided within a separate tab, the name of the tab where the custom assumptions can be found should be clearly specified in *column (ba)* .

i. Note: In general, if a custom input assumption specified in this *column (ba)* is changed by the Program Administrator during Program implementation and tracking of the Measure savings during the Plan period, given such a change to the custom input assumptions during Program implementation of the Measure is not the result of a change to the IL-TRM, the changed custom input assumption should not be used to adjust the Program Administrator's energy savings goals. In other words, the custom input assumptions selected by the Program Administrator in its Plan filing (as specified in *column (ba)*) should remain fixed over the Plan period when calculating the *Gross Unit Savings* for the applicable Program Years set forth in *columns (ag), (am), and (as)* and the *Final Adjusted Net Energy Savings Goals* set forth in *columns (aw), (ax), (ay), and (az)* , unless consensus is reached at SAG that the extenuating circumstance warrants an adjustment.

o. *Column (bb) – Key IL-TRM Input Assumptions:* Assumptions derived from the IL-TRM that, if changed in the IL-TRM in the future, would necessitate a savings goal adjustment, unless consensus is reached at SAG that the extenuating circumstance warrants no adjustment. List the specific assumptions and values from the IL-TRM relied upon to calculate the *Plan Gross Unit Savings* for the Measure specified in *columns (l), (m), and (n)* . The assumptions listed in *column (bb)* should be consistent with and clearly outlined in the reference document specified in *column (k) – Reference Document Explaining Gross Unit Savings Calculation Details.* Program Administrators have the flexibility to specify the assumptions and values derived from the IL-TRM to calculate the *Plan Gross Unit Savings* for the Measure within a separate tab or across multiple columns of the *Measure-Level Adjustments Tab* . In cases where the assumptions and values derived from the IL-TRM are provided within a separate tab, the name of the tab where the assumptions and values derived from the IL-TRM can be found should be clearly specified in *column (bb)* .

i. *Examples of Key IL-TRM Input Assumptions: 1) Cooling_Reduction = 8.0% for 5.3.16 Advanced Thermostats Measure; or 2) Hours (Unknown Installation Location) = 847 for 5.5.8 LED Screw Based Omnidirectional Bulbs Measure.*

2. The reference documents cited in *columns (k), (af), (al), and (ar) – Reference Document Explaining Gross Unit Savings Calculation Details and column (v) – Reference Document Explaining Evaluator's Recommended NTG Values* will be posted on the SAG website and provided in the Plan docket.

3. Below the list of Measures in the row, *Portfolio Total (kWh or Therms),* calculate a total summation of all the Measure savings within a column for the respective fuel type savings (kWh or Therms) to determine the Portfolio savings goals and adjustments for *columns (r) – (u), (z), (aa) – (ad), (aj), (ap), and (av) – (az)* .

a. Note: The values contained in the row, *Portfolio Total (kWh or Therms),* of the *Measure-Level Adjustments Tab* for *columns (r), (s), (t), and (u) – Plan Energy Savings Goals, and columns (aw), (ax), (ay), and (az) – Final Adjusted Net Energy Savings Goals,* should be equal to the values contained in the row, *Portfolio Total (kWh or Therms),* in the *Program-Level Adjustments Tab* for *columns (b), (f), (j), and (n) – Plan Energy Savings Goal, and columns (c), (g), (k), and (o) – Adjusted Energy Savings Goal,* respectively.

b. The value contained in the row, *Portfolio Total (kWh or Therms),* in *column (u)* of the *Measure-Level Adjustments Tab* should be equal to the value contained in the row, *Portfolio Total (kWh or Therms),* in *column (n)* of the *Program-Level Adjustments Tab* , and this value should also be equal to the value of the Program Administrator's energy savings goal specified in its approved Plan from the Plan docket.

4. **NTG Adjustment:** Energy savings goals will be adjusted once based upon the independent Evaluator's final recommended NTG values for the entire Plan period that are provided prior to the start of Electric Program Year 10/Gas Program Year 7 ("EPY10/GPY7"). Template guidelines to support the NTG-adjusted energy savings goal calculation include the following:

a. Complete *columns (w), (x), and (y) – Evaluator's NTG (Fixed)* with the Evaluator's final recommended NTG values for the respective Program Years that are provided prior to the start of EPY10/GPY7, and specify the name of the reference document containing and explaining those values in *column (v) – Reference Document Explaining Evaluator's Recommended NTG Values* .

b. Complete *columns (z), (aa), (ab), and (ac) – NTG-Adjusted Goal* for the respective Program Years and the Plan period by following the calculation instructions specified in the header row containing column labels (*row 7*); *column (z)=(g x l x w), column (aa)=(h x m x x), column (ab)=(i x n x y), and column (ac)=(z+aa+ab)* .

i. For example, for *column (z)* the header row containing column labels specifies: *(z)=(g x l x w)* . Thus, the resulting value contained in *column (z) – EPY10/GPY7 NTG-Adjusted Goal* should be calculated by taking the product of the values contained in *column (g) – EPY10/GPY7 Plan Number of Units (Fixed), column (l) – EPY10/GPY7 Plan Gross Unit Savings, and column (w) – EPY10/GPY7 Evaluator's NTG (Fixed)* .

c. Complete *column (ad) – Electric Plan 4/Gas Plan 3 NTG Adjustment* by calculating the savings differential as a result of the one-time NTG adjustment to the savings goal; *column (ad)=(ac-u)* .

5. **IL-TRM Adjustments:** Energy savings goals will be adjusted annually based upon the updated IL-TRM values, where applicable. Program Administrators will file the updated EEPS Adjustable Savings Goal Template showing the adjusted energy savings goals within sixty (60) days after Commission approval of the annual IL-TRM update. If the updated IL-TRM identifies errata that are applicable to a previous Program Year, the EEPS Adjustable Savings Goal Template will need to be updated for all Program Years impacted by the errata. Template guidelines to support the IL-TRM adjusted energy savings goal calculation include the following:

a. Complete the IL-TRM adjustment for the first Program Year of the Plan, namely the *EPY10/GPY7 Adjustment* , by completing *columns (ae)* , *(af)* , *(ag), (ah), (ai), (aj), and (aw)* , by following the calculation instructions specified in the headers of these columns within the *Measure-Level Adjustments Tab* and as described below. As described in the provisions contained in these guidelines for *column (d)* , the rows of Measures that are not *IL-TRM Adjustable* (*column (d)* =0) should be left blank and shaded gray for *columns (ae) – (av) and (ba) – (bb)* . The value contained in *column (aw) – EPY10/GPY7 Final Goal* should be set equal to the value contained in *column (z) – EPY10/GPY7 NTG-Adjusted Goal* for the rows of Measures that are not *IL-TRM Adjustable* (*column (d)* =0). Template guidelines to support completing *columns (ae) – (aj) and (aw)* for the *IL-TRM Adjustable* Measures (rows with the value in *column (d)* being equal to 1) include the following:

i. *Column (ae) – IL-TRM Measure Code from IL-TRMv6.0 or errata applicable to EPY10/GPY7* : List the applicable IL-TRM Measure Code from the IL-TRM Version 6.0 or errata applicable to EPY10/GPY7. The IL-TRM Measure Code can be found at the end of each Measure characterization in the IL-TRM.

1. If the IL-TRM Measure Code is identical to the one contained in the IL-TRM Version 5.0, responses in *column (ae) – IL-TRM Measure Code from IL-TRMv6.0 or errata applicable to EPY10/GPY7 and column (ag) – EPY10/GPY7 Gross Unit Savings* should be the same as the approved Plan assumptions specified in *column (j) – IL-TRM Measure Code from IL-TRMv5.0 and column (l) – EPY10/GPY7 Plan Gross Unit Savings* , respectively.

2. If the IL-TRM Measure Code is different from the one contained in the IL-TRM Version 5.0 and the IL-TRM Measure change warrants a savings goal adjustment and IL-TRM adjustment to the *Gross Unit Savings* calculated for the Measure due to a change to one of the *Key IL-TRM Input Assumptions* specified in *column (bb)* (see provisions contained in these guidelines for *columns (ba) and (bb)*), provide the IL-TRM adjusted *Gross Unit Savings* calculated for the Measure from applying the updated applicable IL-TRM assumptions in *column (ag) – EPY10/GPY7 Gross Unit Savings.* The details and specific changes to the *Key IL-TRM Input Assumptions* underlying this IL-TRM adjusted *Gross Unit Savings* calculation for the Measure should be clearly specified in the document listed in *column (af) – Reference Document Explaining Gross Unit Savings Calculation Details.*

ii. *Column (af) – Reference Document Explaining Gross Unit Savings Calculation Details* : Provide the name of the document, and date and tab name if applicable, where the supporting calculation details, *Key Custom Input Assumptions* , any necessary adjustments made to the *Key IL-TRM Input Assumptions* based upon IL-TRM updates, and any SAG consensus extenuating circumstance adjustment notes and documentation (see provisions contained in these guidelines for *columns (ba) and (bb)*), are specified for calculating the *EPY10/GPY7 Gross Unit Savings* values contained in *column (ag)* for the relevant Measure.

iii. *Column (ag) – EPY10/GPY7 Gross Unit Savings* : Complete the gross kWh or Therm savings per unit of participation for EPY10/GPY7 by applying the applicable IL-TRM provisions contained in the IL-TRM Version 6.0 or errata document applicable to EPY10/GPY7 as described below. In cases where the IL-TRM Measure Code change also results in a change to one of the *Key IL-TRM Input Assumptions* specified in *column (bb)* , the *Key IL-TRM Input Assumptions* should be adjusted to align with the updated applicable IL-TRM assumptions when calculating the *EPY10/GPY7 Gross Unit Savings* for the Measure. The calculation details and specific changes to *Key IL-TRM Input Assumptions* associated with the *EPY10/GPY7 Gross Unit Savings* calculation for the Measure should be clearly specified in the document listed in *column (af) – Reference Document Explaining Gross Unit Savings Calculation Details.*

1. Note: If the IL-TRM Measure Code specified in *column (ae)* is identical to the one contained in *column (j)* , the resulting value contained in *column (ag) – EPY10/GPY7 Gross Unit Savings* should be set equal to the approved Plan value specified in *column (l) – EPY10/GPY7 Plan Gross Unit Savings* .

iv. *Column (ah) – Gross Unit Savings Adjustment Explanation* : Briefly describe the cause of the adjusted *Gross Unit Savings* reflected in *column (ag) – EPY10/GPY7 Gross Unit Savings* . Note: Where applicable, document in both *column (ah)* and the reference document specified in *column (af)* if the adjustment is the result of SAG consensus concerning an extenuating circumstance as contemplated in the provisions contained in these guidelines for *columns (ba) and (bb)* .

v. *Column (ai) – EPY10/GPY7 Adjusted Goal*: Calculate the adjusted energy savings goal for EPY10/GPY7 by taking the product of the values contained in *column (g) – EPY10/GPY7 Plan Number of Units (Fixed), column (ag) – EPY10/GPY7 Gross Unit Savings, and column (w) – EPY10/GPY7 Evaluator's NTG (Fixed); column (ai)=(g x ag x w).*

vi. *Column (aj) – EPY10/GPY7 IL-TRM Adjustment*: Calculate the savings differential between the *EPY10/GPY7 Adjusted Goal* and the *EPY10/GPY7 NTG-Adjusted Goal* by following the calculation instructions specified in the header row containing column labels; *column (aj)=(ai-z)*.

vii. *Column (aw) – EPY10/GPY7 Final Goal*: Set equal to the value contained in *column (ai) – EPY10/GPY7 Adjusted Goal* for the rows containing Measures designated as *IL-TRM Adjustable* (*column (d)* =1).

b. Complete the IL-TRM adjustment for the second Program Year of the Plan, namely the *EPY11/GPY8 Adjustment*, by completing the following columns: *column (ak) – IL-TRM Measure Code from IL-TRMv7.0 or errata applicable to EPY11/GPY8*, *column (al) – Reference Document Explaining Gross Unit Savings Calculation Details*, *column (am) – EPY11/GPY8 Gross Unit Savings, column (an) – Gross Unit Savings Adjustment Explanation, column (ao) – EPY11/GPY8 Adjusted Goal, column (ap) – EPY11/GPY8 IL-TRM Adjustment, and column (ax) – EPY11/GPY8 Final Goal*, by following the calculation instructions specified in the headers of these columns within the *Measure-Level Adjustments Tab*.

i. Note: Complete *column (al) – Reference Document Explaining Gross Unit Savings Calculation Details* by providing the name of the document, and date and tab name if applicable, where the supporting calculation details, *Key Custom Input Assumptions*, any necessary adjustments made to the *Key IL-TRM Input Assumptions* based upon IL-TRM updates, and any SAG consensus extenuating circumstance adjustment notes and documentation (see provisions contained in these guidelines for *columns (ba) and (bb)*), are specified for calculating the *EPY11/GPY8 Gross Unit Savings* values contained in *column (am)* for the relevant Measure.

ii. As described in the provisions contained in these guidelines for *column (d)*, the rows of Measures that are <u>not</u> *IL-TRM Adjustable* (*column (d)* =0) should be left blank and shaded gray for *columns (ae) – (av) and (ba) – (bb)*. The value contained in *column (ax) – EPY11/GPY8 Final Goal* should be set equal to the value contained in *column (aa) – EPY11/GPY8 NTG-Adjusted Goal* for each row with a Measure that is <u>not</u> *IL-TRM Adjustable* (*column (d)* =0).

iii. The value contained in *column (ax) – EPY11/GPY8 Final Goal* should be set equal to the value contained in *column (ao) – EPY11/GPY8 Adjusted Goal* for each row with a Measure designated as *IL-TRM Adjustable* (*column (d)* =1).

c. Complete the IL-TRM adjustment for the third Program Year of the Plan, namely the *EPY12/GPY9 Adjustment*, by completing the following columns: *column (aq) – IL-TRM Measure Code from IL-TRMv8.0 or errata applicable to EPY12/GPY9*, *column (ar) – Reference Document Explaining Gross Unit Savings Calculation Details*, *column (as) – EPY12/GPY9 Gross Unit Savings, column (at) – Gross Unit Savings Adjustment Explanation, column (au) – EPY12/GPY9 Adjusted Goal, column (av) – EPY12/GPY9 IL-TRM Adjustment, and column (ay) – EPY12/GPY9 Final Goal*, by following the calculation instructions specified in the headers of these columns within the *Measure-Level Adjustments Tab*.

i. Note: Complete *column (ar) – Reference Document Explaining Gross Unit Savings Calculation Details* by providing the name of the document, and date and tab name if applicable, where the supporting calculation details, *Key Custom Input Assumptions*, any necessary adjustments made to the *Key IL-TRM Input Assumptions* based upon IL-TRM updates, and any SAG consensus extenuating circumstance adjustment notes and documentation (see provisions contained in these guidelines for *columns (ba) and (bb)*), are specified for calculating the *EPY12/GPY9 Gross Unit Savings* values contained in *column (as)* for the relevant Measure.

ii. As described in the provisions contained in these guidelines for *column (d)*, the rows of Measures that are <u>not</u> *IL-TRM Adjustable* (*column (d)* =0) should be left blank and shaded gray for *columns (ae) – (av) and (ba) – (bb)*. The value contained in *column (ay) – EPY12/GPY9 Final Goal* should be set equal to the value contained in *column (ab) – EPY12/GPY9 NTG-Adjusted Goal* for each row with a Measure that is <u>not</u> *IL-TRM Adjustable* (*column (d)* =0).

iii. The value contained in *column (ay) – EPY12/GPY9 Final Goal* should be set equal to the value contained in *column (au) – EPY12/GPY9 Adjusted Goal* for each row with a Measure designated as *IL-TRM Adjustable* (*column (d)* =1).

d. Calculate an estimate of the Electric Plan 4/Gas Plan 3 *Final Adjusted Net Energy Savings Goal* by completing *column (az) – Electric Plan 4/Gas Plan 3 Final Goal* for all Measures by following the calculation instructions specified in the header row of the column: *column (az)=(aw+ax+ay)*; and then below the list of Measures, include the *Portfolio Total (kWh or Therms)* savings by calculating the sum of the rows of Measure savings for the respective fuel type (kWh or Therms) for *column (az)* to determine an estimate of the Portfolio *Final Adjusted Net Energy Savings Goal* for Electric Plan 4/Gas Plan 3.

i. Note: Each Program Administrator's actual Portfolio *Final Adjusted Net Energy Savings Goal* for Electric Plan 4/Gas Plan 3 may not be known until after the Commission approves the IL-TRM Version 9.0, which may include IL-TRM updates specified as errata Measures applicable to EPY12/GPY9 that might necessitate additional energy savings goal adjustments to be made for the last Program Year to obtain an accurate calculation of the *Final Adjusted Net Energy Savings Goal* for Electric Plan 4/Gas Plan 3.

[1] In general, Program Administrators are not expected to meet the individual Measure goals or participation levels specified in the EEPS Adjustable Savings Goal Template.
[2] See Policy Manual Version 1.0, Subsection 7.2, Net-to-Gross Policy.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	EEPS Adjustable Savings Goal Template - *Program-Level Adjustments Tab*																
2	*Updated 9/1/16*																
3	Program Administrator: Nicor Gas																
4		June 1, 2017 - May 31, 2018, EPY10/GPY7				June 1, 2018 - May 31, 2019, EPY11/GPY8				June 1, 2019 - May 31, 2020, EPY12/GPY9				June 1, 2017 - May 31, 2020, Electric Plan 4/Gas Plan 3			
5		Plan Energy Savings Goal	Adjusted Energy Savings Goal	Energy Savings Adjustment to Plan Goal	Brief Explanation of Significant Adjustments	Plan Energy Savings Goal	Adjusted Energy Savings Goal	Energy Savings Adjustment to Plan Goal	Brief Explanation of Significant Adjustments	Plan Energy Savings Goal	Adjusted Energy Savings Goal	Energy Savings Adjustment to Plan Goal	Brief Explanation of Significant Adjustments	Plan Energy Savings Goal	Adjusted Energy Savings Goal	Energy Savings Adjustment to Plan Goal	Energy Savings
6	**Program**	EPY10/GPY7	EPY10/GPY7	EPY10/GPY7	EPY10/GPY7	EPY11/GPY8	EPY11/GPY8	EPY11/GPY8	EPY11/GPY8	EPY12/GPY9	EPY12/GPY9	EPY12/GPY9	EPY12/GPY9	Electric Plan 4/Gas Plan 3	Electric Plan 4/Gas Plan 3	Electric Plan 4/Gas Plan 3	kWh or Therms?
7	*(a)*	*(b)*	*(c)*	*(d)=(c-b)*	*(e)*	*(f)*	*(g)*	*(h)=(g-f)*	*(i)*	*(j)*	*(k)*	*(l)=(k-j)*	*(m)*	*(n)=(b+f+j)*	*(o)=(c+g+k)*	*(p)=(o-n)*	*(q)*
8																	
9	Business_AssessmentDI_Track	85,977				85,977				85,977				257,931			Therms
10	Business_EducationOptimization_Track	1,095,672				1,095,672				1,095,672				3,287,015			Therms
11	Business_NewConstruction_Track	426,291				426,291				426,291				1,278,872			Therms
12	Business_Rebate_Track	5,349,422				5,349,422				5,349,422				16,048,265			Therms
13	Residential_AssessmentDI_Track	232,196				232,196				232,196				696,587			Therms
14	Residential_EducationOutreach_Track	702,206				702,206				702,206				2,106,619			Therms
15	Residential_NewConstruction_Track	270,270				270,270				270,270				810,810			Therms
16	Residential_Rebate_Track	4,238,443				4,238,443				4,238,443				12,715,329			Therms
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27	**Portfolio Total (kWh)**																kWh
28	**Portfolio Total (Therms)**	12,400,476	0	0		12,400,476	0	0		12,400,476	0	0		37,201,428	0	0	Therms

	A	B	C	D	E	F	G	H	I
1	EEPS Adjustable Savings Goal Template - *Measure-Level Adjustments Tab*								
2	*9/1/2016*								
3	Program Administrator: Nicor Gas								
4						**Approved Energy Efficiency Plan Key Assumptions - Plan Participation**			
5						**Plan Number of Units (Fixed Parameters for Calculating Adjustable Savings Goals)**			
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	IL-TRM Adjustable? (1 if yes; 0 if no)	IL-TRM Section / Custom	Unit of Participation	**EPY10/GPY7 Plan Number of Units (Fixed)**	**EPY11/GPY8 Plan Number of Units (Fixed)**	**EPY12/GPY9 Plan Number of Units (Fixed)**
7	*(a)*	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*	*(g)*	*(h)*	*(i)*
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms	0	Custom	Unit	97	97	97
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms	0	Custom	Unit	70	70	70
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms	0	Custom	Unit	300	300	300
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms	1	4.2.11	Unit	81	81	81
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms	1	4.2.11	Unit	65	65	65
13	Business_AssessmentDI_Track	Salon Sprayer	Therms	0	Custom	Unit	43	43	43
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms	1	4.3.2	Project	337	337	337
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms	1	4.3.2	Project	1,996	1,996	1,996
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms	1	4.3.3	Project	609	609	609
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms	0	Custom	LN FT	115	115	115
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms	0	Custom	Unit	24	24	24
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms	0	Custom	Unit	8	8	8
20	Business_AssessmentDI_Track	RCx Assessments	Therms	0	Custom	Unit	7	7	7
21	Business_AssessmentDI_Track	Building Assessment MF	Therms	0	Custom	Unit	38	38	38
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms	0	Custom	LN FT	60	60	60
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms	1	4.2.11	Unit	13	13	13
24	Business_AssessmentDI_Track	Laminar Flow	Therms	1	4.3.2	Project	1,500	1,500	1,500
25	Business_EducationOptimization_Track	RCx Project	Therms	0	Custom	Unit	9	9	9
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms	0	Custom	Unit	6	6	6
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms	0	Custom	Participant	15	15	15
28	Business_EducationOptimization_Track	SEM Healthcare	Therms	0	Custom	Participant	15	15	15
29	Business_NewConstruction_Track	Business New Construction	Therms	0	Custom	SQ FT	16,778,343	16,778,343	16,778,343
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms	1	4.4.4	Project	21	21	21
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms	1	4.4.2	Project	135	135	135
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms	1	4.4.3	Project	40	40	40
33	Business_Rebate_Track	Steam Trap, Commercial	Therms	1	4.4.16	Unit	689	689	689
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms	1	4.4.16	Unit	8	8	8
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms	1	4.4.16	Unit	10	10	10
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms	1	4.4.16	Unit	250	250	250
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms	1	4.4.16	Unit	115	115	115
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms	1	4.4.16	Unit	55	55	55
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms	1	4.4.16	Unit	17	17	17
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms	1	4.4.16	Unit	484	484	484
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms	0	Custom	Unit	116	116	116
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms	1	4.4.10	Unit	42	42	42
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms	1	4.4.10	Unit	38	38	38
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms	1	4.4.10	Unit	22	22	22
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms	1	4.4.10	Unit	10	10	10
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms	1	4.4.10	Unit	7	7	7
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms	1	4.4.10	Unit	8	8	8
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms	1	4.4.10	Unit	22	22	22
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms	1	4.4.10	Unit	19	19	19
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms	1	4.4.10	Unit	6	6	6
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms	1	4.4.10	Unit	6	6	6
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms	1	4.4.11	Unit	62	62	62
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms	1	4.4.11	Unit	174	174	174
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms	1	4.4.5	Unit	3	3	3
55	Business_Rebate_Track	Infrared Heaters	Therms	1	4.4.12	Unit	64	64	64
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms	1	4.3.1	Unit	21	21	21
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms	1	4.3.1	Unit	5	5	5
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms	1	4.4.14	LN FT	11,629	11,629	11,629
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms	1	4.4.14	LN FT	4,582	4,582	4,582
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms	1	4.4.14	LN FT	2,538	2,538	2,538
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms	1	4.4.14	LN FT	2,352	2,352	2,352
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms	1	4.4.14	LN FT	9,261	9,261	9,261
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms	1	4.4.14	LN FT	1,176	1,176	1,176
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms	1	4.4.14	LN FT	1,176	1,176	1,176
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms	1	4.4.14	LN FT	1,176	1,176	1,176
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms	1	4.4.14	LN FT	2,205	2,205	2,205
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms	1	4.4.14	LN FT	2,205	2,205	2,205
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms	1	4.4.14	LN FT	2,205	2,205	2,205
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms	1	4.4.14	LN FT	2,205	2,205	2,205
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms	1	4.4.14	LN FT	1,103	1,103	1,103
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms	1	4.4.14	LN FT	1,103	1,103	1,103
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms	1	4.4.14	LN FT	1,103	1,103	1,103
73	Business_Rebate_Track	Indoor Pool Covers	Therms	1	4.3.4	Unit	3	3	3
74	Business_Rebate_Track	Outdoor Pool Covers	Therms	1	4.3.4	Unit	3	3	3
75	Business_Rebate_Track	Infrared Upright Broiler	Therms	1	4.2.15	Unit	1	1	1
76	Business_Rebate_Track	Infrared Charbroiler	Therms	1	4.2.12	Unit	1	1	1
77	Business_Rebate_Track	Pasta Cooker	Therms	1	4.2.17	Unit	1	1	1
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms	1	4.2.13	Unit	1	1	1
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms	1	4.2.14	Unit	1	1	1
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms	1	4.2.11	Unit	1	1	1
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms	1	4.2.3	Unit	1	1	1
82	Business_Rebate_Track	Convection Oven, E >44%	Therms	1	4.2.5	Unit	1	1	1
83	Business_Rebate_Track	Combination Oven	Therms	1	4.2.1	Unit	1	1	1
84	Business_Rebate_Track	Rack Oven - Single	Therms	0	Custom	Unit	1	1	1
85	Business_Rebate_Track	Rack Oven - Double	Therms	1	4.2.18	Unit	1	1	1
86	Business_Rebate_Track	Fryer - Large Vat	Therms	0	Custom	Unit	4	4	4
87	Business_Rebate_Track	Fryer - E >50%	Therms	1	4.2.7	Unit	2	2	2
88	Business_Rebate_Track	Griddle	Therms	1	4.2.8	Unit	1	1	1
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms	1	4.2.4	Unit	2	2	2
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms	0	Custom	Unit	1	1	1
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms	0	Custom	Unit	2	2	2
92	Business_Rebate_Track	Ozone Laundry	Therms	1	4.3.6	Unit	6	6	6
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms	0	Custom	LN FT	16,374	16,374	16,374
94	Business_Rebate_Track	Convection Oven, E >44%	Therms	1	4.2.5	Unit	70	70	70
95	Business_Rebate_Track	Fryer - E >50%	Therms	1	4.2.7	Unit	40	40	40
96	Business_Rebate_Track	Griddle	Therms	1	4.2.8	Unit	40	40	40
97	Business_Rebate_Track	Combination Oven	Therms	1	4.2.1	Unit	40	40	40
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms	1	4.2.18	Unit	40	40	40

	A	B	C	D	E	F	G	H	I
4						Approved Energy Efficiency Plan Key Assumptions - Plan Participation			
5						Plan Number of Units (Fixed Parameters for Calculating Adjustable Savings Goals)			
6	Program	Measure	Energy Savings: kWh or Therms?	IL-TRM Adjustable? (1 if yes; 0 if no)	IL-TRM Section / Custom	Unit of Participation	EPY10/GPY7 Plan Number of Units (Fixed)	EPY11/GPY8 Plan Number of Units (Fixed)	EPY12/GPY9 Plan Number of Units (Fixed)
7	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
99	Business Rebate Track	Infrared Upright Broiler Upstream	Therms	1	4.2.15	Unit	75	75	75
100	Business Rebate Track	Infrared Charbroiler Upstream	Therms	1	4.2.12	Unit	75	75	75
101	Business Rebate Track	Pasta Cooker Upstream	Therms	1	4.2.17	Unit	330	330	330
102	Business Rebate Track	Infrared Rotisserie Oven Upstream	Therms	1	4.2.13	Unit	75	75	75
103	Business Rebate Track	Infrared Salamander Broiler Upstream	Therms	1	4.2.14	Unit	75	75	75
104	Business Rebate Track	Commercial Steamer, E ≥38%	Therms	1	4.2.3	Unit	40	40	40
105	Business Rebate Track	Large Conveyor Oven, >=25 in	Therms	1	4.2.4	Unit	100	100	100
106	Business Rebate Track	Boiler Reset Controls, 400 MBH	Therms	1	4.4.4	Project	5	5	5
107	Business Rebate Track	Boiler Tune Up, 400 MBH	Therms	1	4.4.2	Project	48	48	48
108	Business Rebate Track	CDHW Controls	Therms	1	4.3.8	Project	4	4	4
109	Business Rebate Track	IU	Therms	0	Custom	Unit	16	16	16
110	Business Rebate Track	CA	Therms	0	Custom	Unit	16	16	16
111	Business Rebate Track	IU	Therms	0	Custom	Unit	16	16	16
112	Business Rebate Track	CA	Therms	0	Custom	Unit	16	16	16
113	Business Rebate Track	Steam Trap, Commercial	Therms	1	4.4.16	Unit	140	140	140
114	Business Rebate Track	<300 MBH	Therms	1	4.4.10	Unit	8	8	8
115	Business Rebate Track	499 MBH	Therms	1	4.4.10	Unit	1	1	1
116	Business Rebate Track	999 MBH	Therms	1	4.4.10	Unit	1	1	1
117	Business Rebate Track	1000-1700 MBH	Therms	1	4.4.10	Unit	1	1	1
118	Business Rebate Track	1701-2000 MBH	Therms	1	4.4.10	Unit	1	1	1
119	Business Rebate Track	MBH	Therms	1	4.4.10	Unit	9	9	9
120	Business Rebate Track	499 MBH	Therms	1	4.4.10	Unit	2	2	2
121	Business Rebate Track	999 MBH	Therms	1	4.4.10	Unit	1	1	1
122	Business Rebate Track	1700 MBH	Therms	1	4.4.10	Unit	1	1	1
123	Business Rebate Track	2000 MBH	Therms	1	4.4.10	Unit	1	1	1
124	Business Rebate Track	Furnace, >92% AFUE - CA	Therms	1	4.4.11	Unit	11	11	11
125	Business Rebate Track	Furnace, >95% AFUE - CA	Therms	1	4.4.11	Unit	5	5	5
126	Business Rebate Track	Space Heat	Therms	1	4.4.14	LN FT	10,954	10,954	10,954
127	Business Rebate Track	Space Heat	Therms	1	4.4.14	LN FT	19,196	19,196	19,196
128	Business Rebate Track	Space Heat	Therms	1	4.4.14	LN FT	2,504	2,504	2,504
129	Business Rebate Track	Pipe Insulation, Indoor DHW	Therms	1	4.4.14	LN FT	11,267	11,267	11,267
130	Business Rebate Track	Indoor Space Heat	Therms	1	4.4.24	LN FT	3,547	3,547	3,547
131	Business Rebate Track	Indoor Space Heat	Therms	1	4.4.24	LN FT	3,756	3,756	3,756
132	Business Rebate Track	Indoor DHW	Therms	1	4.4.24	LN FT	3,338	3,338	3,338
133	Business Rebate Track	Indoor DHW	Therms	1	4.4.24	LN FT	3,756	3,756	3,756
134	Custom Incentive Track	Custom 2,500-7,500 therms	Therms	0	Custom	Project	40	40	40
135	Custom Incentive Track	Custom > 7,500 therms	Therms	0	Custom	Unit	33	33	33
136	Custom Incentive Track	MF Custom 2,500-7,500 therms	Therms	0	Custom	Project	6	6	6
137	Custom Incentive Track	MF Custom >7500 therms	Therms	0	Custom	Project	6	6	6
138	Residential AssessmentDI Track	Bathroom Aerator SF (DI)	Therms	1	5.4.4	Project	1,835	1,835	1,835
139	Residential AssessmentDI Track	Kitchen Aerator SF (DI)	Therms	1	5.4.4	Project	612	612	612
140	Residential AssessmentDI Track	Showerhead (DI) SF	Therms	1	5.4.5	Project	1,093	1,093	1,093
141	Residential AssessmentDI Track	Handheld Showerhead (DI) SF	Therms	1	5.4.5	Project	26	26	26
142	Residential AssessmentDI Track	WH Set Back - SF	Therms	1	5.4.6	Project	258	258	258
143	Residential AssessmentDI Track	HW Pipe Insulation (3 ft.) (DI)	Therms	1	5.4.1	Unit	556	556	556
144	Residential AssessmentDI Track	Assessment (HES) - joint	Therms	0	Custom	Project	3,595	3,595	3,595
145	Residential AssessmentDI Track	HW Pipe Insulation (3 ft.) (DI)	Therms	1	5.4.1	Unit	77	77	77
146	Residential AssessmentDI Track	Thermostat Education (DI)	Therms	1	5.3.11	Project	154	154	154
147	Residential AssessmentDI Track	Assessment (HES)	Therms	0	Custom	Unit	130	130	130
148	Residential AssessmentDI Track	Residential Deep Assessment	Therms	0	Custom	Unit	245	245	245
149	Residential AssessmentDI Track	Advanced Thermostat (DI)	Therms	1	5.3.16	Unit	85	85	85
150	Residential AssessmentDI Track	HW Insulation (1) DI CA	Therms	0	Custom	LN FT	650	650	650
151	Residential AssessmentDI Track	Low Flow Aerator - Bath (DI) MF-IU	Therms	1	5.4.4	Project	5,331	5,331	5,331
152	Residential AssessmentDI Track	Low Flow Aerator - Bath (DI) MF-CA	Therms	1	5.4.4	Project	341	341	341
153	Residential AssessmentDI Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms	1	5.4.4	Project	5,331	5,331	5,331
154	Residential AssessmentDI Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms	1	5.4.4	Project	43	43	43
155	Residential AssessmentDI Track	Showerhead (DI) MF-IU	Therms	1	5.4.5	Project	4,689	4,689	4,689
156	Residential AssessmentDI Track	Showerhead (DI) MF-CA	Therms	1	5.4.5	Project	129	129	129
157	Residential AssessmentDI Track	Showerhead (DI) MF-IU	Therms	1	5.4.5	Project	1,563	1,563	1,563
158	Residential AssessmentDI Track	Showerhead (DI) MF-CA	Therms	1	5.4.5	Project	43	43	43
159	Residential AssessmentDI Track	Programmable Thermostat (DI) MF-IU	Therms	1	5.3.11	Unit	345	345	345
160	Residential AssessmentDI Track	WH Set Back - MF	Therms	1	5.4.6	Project	109	109	109
161	Residential AssessmentDI Track	Unit Assessment MF - Joint	Therms	0	Custom	Unit	4,090	4,090	4,090
162	Residential AssessmentDI Track	Building Assessment MF - joint	Therms	0	Custom	Unit	128	128	128
163	Residential AssessmentDI Track	Programmable Thermostat (DI) MF-IU	Therms	1	5.3.11	Unit	283	283	283
164	Residential AssessmentDI Track	Re-Program Thermostat (DI) MF-IU	Therms	1	5.3.11	Project	7	7	7
165	Residential AssessmentDI Track	Unit Assessment MF	Therms	0	Custom	Unit	1,574	1,574	1,574
166	Residential EducationOutreach Track	Home Reports	Therms	0	Custom	Unit	32,400	32,400	32,400
167	Residential EducationOutreach Track	Kit 1	Therms	1	5.4.4; 5.4.5	Unit	2,500	2,500	2,500
168	Residential EducationOutreach Track	Kit 2	Therms	1	5.4.4; 5.4.5	Unit	11,000	11,000	11,000
169	Residential EducationOutreach Track	EEE Kit - Gas Only	Therms	1	5.4.4; 5.4.5; 5.4.6	Unit	300	300	300
170	Residential EducationOutreach Track	EEE Kit	Therms	1	5.4.4; 5.4.5; 5.4.6	Unit	8,306	8,306	8,306
171	Residential NewConstruction Track	RNC Home	Therms	0	Custom	Project	849	849	849
172	Residential NewConstruction Track	RNC Home	Therms	0	Custom	Project	152	152	152
173	Residential Rebate Track	Boilers, >95% AFUE <300 MBH - SF	Therms	1	5.3.6	Unit	62	62	62
174	Residential Rebate Track	Furnace, >95% AFUE	Therms	1	5.3.7	Unit	12,673	12,673	12,673
175	Residential Rebate Track	Furnace, >97% AFUE	Therms	1	5.3.7	Unit	3,177	3,177	3,177
176	Residential Rebate Track	Furnace, >95% AFUE - Early Retire	Therms	1	5.3.7	Unit	700	700	700
177	Residential Rebate Track	Furnace, >97% AFUE - Early Retire	Therms	1	5.3.7	Unit	139	139	139
178	Residential Rebate Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms	0	Custom	Unit	83	83	83
179	Residential Rebate Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms	0	Custom	Unit	19	19	19
180	Residential Rebate Track	Advanced Thermostat (TOS)	Therms	1	5.3.16	Unit	2,302	2,302	2,302
181	Residential Rebate Track	Advanced Thermostat (TOS)	Therms	1	5.3.16	Unit	256	256	256
182	Residential Rebate Track	Furnace, >92% AFUE - MF IU	Therms	1	5.3.7	Unit	131	131	131
183	Residential Rebate Track	Furnace, >95% AFUE - MF IU	Therms	1	5.3.7	Unit	72	72	72
184	Residential Rebate Track	Air Sealing SF	Therms	1	5.6.1	Project	82	82	82
185	Residential Rebate Track	Attic Insulation (R5 to R19) SF	Therms	1	5.6.4	Project	10	10	10
186	Residential Rebate Track	Attic Insulation (<R19 to R38) SF	Therms	1	5.6.4	Project	41	41	41
187	Residential Rebate Track	Attic Insulation (<R19 to R49) SF	Therms	1	5.6.4	Project	30	30	30
188	Residential Rebate Track	Attic Insulation (>R19 to R49) SF	Therms	1	5.6.4	Project	4	4	4
189	Residential Rebate Track	Duct Sealing SF Unconditioned	Therms	1	5.3.4	Project	65	65	65
190	Residential Rebate Track	Wall Insulation SF	Therms	1	5.6.4	Project	1	1	1
191	Residential Rebate Track	Basement/Sidewall Insulation SF	Therms	1	5.6.2	Project	4	4	4
192	Residential Rebate Track	Air Sealing SF	Therms	1	5.6.1	Project	608	608	608
193	Residential Rebate Track	Attic Insulation (R5 to R19) SF	Therms	1	5.6.4	Project	69	69	69
194	Residential Rebate Track	Attic Insulation (<R19 to R38) SF	Therms	1	5.6.4	Project	301	301	301
195	Residential Rebate Track	Attic Insulation (<R19 to R49) SF	Therms	1	5.6.4	Project	218	218	218
196	Residential Rebate Track	Attic Insulation (>R19 to R49) SF	Therms	1	5.6.4	Project	29	29	29
197	Residential Rebate Track	Duct Sealing SF Joint	Therms	1	5.3.4	Project	481	481	481
198	Residential Rebate Track	Wall Insulation SF	Therms	1	5.6.4	Project	12	12	12
199	Residential Rebate Track	Basement/Sidewall Insulation SF	Therms	1	5.6.2	Project	31	31	31
200	Residential Rebate Track	Wx - Whole House Retrofit	Therms	0	Custom	Project	71	71	71
201	Residential Rebate Track	Advanced Thermostat (TOS)	Therms	1	5.3.16	Unit	2,000	2,000	2,000
202	Residential Rebate Track	Advanced Thermostat (TOS)	Therms	1	5.3.16	Unit	17,500	17,500	17,500
203	Residential Rebate Track	Wx - Income Qualified	Therms	0	Custom	Project	325	325	325
204									
205									
206									
207									
208	**Portfolio Total (kWh)**		kWh						
209	**Portfolio Total (Therms)**		Therms						

	A	B	C	J	K	L	M	N	O	P	Q	R	S	T	U
1	EEPS Adjustable Savings Goal Template - *Measure-Level Adjustments*														
2	*9/1/2016*														
3	Program Administrator: Nicor Gas														
4				**Approved Energy Efficiency Plan Key Assumptions**					**Approved Energy Efficiency Plan Key Assumptions**						
5				**Plan Gross Unit Savings**					**Plan Net-to-Gross Values**			**Plan Energy Savings Goals**			
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv5.0	Reference Document Explaining Gross Unit Savings Calculation Details	EPY10/GPY7 Plan Gross Unit Savings	EPY11/GPY8 Plan Gross Unit Savings	EPY12/GPY9 Plan Gross Unit Savings	EPY10/GPY7 Plan NTG	EPY11/GPY8 Plan NTG	EPY12/GPY9 Plan NTG	EPY10/GPY7 Plan Goal	EPY11/GPY8 Plan Goal	EPY12/GPY9 Plan Goal	Total Electric Plan 4/Gas Plan 3 Goal
7	*(a)*	*(b)*	*(c)*	*(j)*	*(k)*	*(l)*	*(m)*	*(n)*	*(o)*	*(p)*	*(q)*	*(r)=(g x l x o)*	*(s)=(h x m x p)*	*(t)=(i x n x q)*	*(u)=(r+s+t)*
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms	CI-FSE-SPRY-V03-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.11	9,284	9,284	9,284	93%	93%	93%	8,633.9	8,633.9	8,633.9	25,902
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms	CI-FSE-SPRY-V03-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.11	11,175	11,175	11,175	93%	93%	93%	10,392.6	10,392.6	10,392.6	31,178
13	Business_AssessmentDI_Track	Salon Sprayer	Therms			4,400	4,400	4,400	68%	68%	68%	2,992.2	2,992.2	2,992.2	8,977
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms	CI-HWE-LFFA-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.2	2,191	2,191	2,191	95%	95%	95%	2,081.5	2,081.5	2,081.5	6,244
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms	CI-HWE-LFFA-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.2	10,644	10,644	10,644	95%	95%	95%	10,112.2	10,112.2	10,112.2	30,337
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms	CI-HW -LFSH-V03-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.3	13,176	13,176	13,176	95%	95%	95%	12,516.9	12,516.9	12,516.9	37,551
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6" - DI	Therms			713	713	713	95%	95%	95%	677.4	677.4	677.4	2,032
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
20	Business_AssessmentDI_Track	RCx Assessments	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
21	Business_AssessmentDI_Track	Building Assessment MF	Therms			0	0	0	73%	73%	73%	0.0	0.0	0.0	0
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms			372	372	372	73%	73%	73%	271.6	271.6	271.6	815
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms	CI-FSE-SPRY-V03-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.11	2,272	2,272	2,272	95%	95%	95%	2,158.6	2,158.6	2,158.6	6,476
24	Business_AssessmentDI_Track	Laminar Flow	Therms	CI-HWE-LFFA-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.2	53,147	53,147	53,147	68%	68%	68%	36,140.0	36,140.0	36,140.0	108,420
25	Business_EducationOptimization_Track	RCx Project	Therms			225,000	225,000	225,000	102%	102%	102%	229,500.0	229,500.0	229,500.0	688,500
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms			11,250	11,250	11,250	102%	102%	102%	11,475.0	11,475.0	11,475.0	34,425
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms			629,697	629,697	629,697	100%	100%	100%	629,696.8	629,696.8	629,696.8	1,889,090
28	Business_EducationOptimization_Track	SEM Healthcare	Therms			225,000	225,000	225,000	100%	100%	100%	225,000.0	225,000.0	225,000.0	675,000
29	Business_NewConstruction_Track	Business New Construction	Therms			819,790	819,790	819,790	52%	52%	52%	426,290.7	426,290.7	426,290.7	1,278,872
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms	CI-HVC-BLRC-V03-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.4	10,256	10,256	10,256	68%	68%	68%	6,974.1	6,974.1	6,974.1	20,922
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms	CI-HVC-BLRT-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.2	12,385	12,385	12,385	68%	68%	68%	8,422.1	8,422.1	8,422.1	25,266
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms	CI-HVC-PBTU-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.3	18,794	18,794	18,794	68%	68%	68%	12,779.9	12,779.9	12,779.9	38,340
33	Business_Rebate_Track	Steam Trap, Commercial	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	61,640	61,640	61,640	68%	68%	68%	41,915.0	41,915.0	41,915.0	125,745
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	5,114	5,114	5,114	68%	68%	68%	3,477.2	3,477.2	3,477.2	10,432
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	22,136	22,136	22,136	68%	68%	68%	15,052.7	15,052.7	15,052.7	45,158
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	998,054	998,054	998,054	68%	68%	68%	678,676.5	678,676.5	678,676.5	2,036,030
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	622,450	622,450	622,450	68%	68%	68%	423,266.3	423,266.3	423,266.3	1,269,799
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	391,151	391,151	391,151	68%	68%	68%	265,983.0	265,983.0	265,983.0	797,949
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	151,047	151,047	151,047	68%	68%	68%	102,712.1	102,712.1	102,712.1	308,136
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.16	249,397	249,397	249,397	68%	68%	68%	169,589.7	169,589.7	169,589.7	508,769
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms			3,975	3,975	3,975	68%	68%	68%	2,703.2	2,703.2	2,703.2	8,109
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	18,796	18,796	18,796	68%	68%	68%	12,781.6	12,781.6	12,781.6	38,345
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	28,287	28,287	28,287	68%	68%	68%	19,235.2	19,235.2	19,235.2	57,706
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	32,786	32,786	32,786	68%	68%	68%	22,294.7	22,294.7	22,294.7	66,884
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	25,360	25,360	25,360	68%	68%	68%	17,245.0	17,245.0	17,245.0	51,735
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	20,885	20,885	20,885	68%	68%	68%	14,201.7	14,201.7	14,201.7	42,605
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	1,343	1,343	1,343	68%	68%	68%	913.0	913.0	913.0	2,739
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	6,141	6,141	6,141	68%	68%	68%	4,176.1	4,176.1	4,176.1	12,528
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	10,618	10,618	10,618	68%	68%	68%	7,220.4	7,220.4	7,220.4	21,661
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	5,706	5,706	5,706	68%	68%	68%	3,880.1	3,880.1	3,880.1	11,640
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.10	6,713	6,713	6,713	68%	68%	68%	4,564.8	4,564.8	4,564.8	13,695
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms	CI-HVC-FRNC-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.11	23,998	23,998	23,998	68%	68%	68%	16,318.8	16,318.8	16,318.8	48,956
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms	CI-HVC-FRNC-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.11	79,822	79,822	79,822	68%	68%	68%	54,279.1	54,279.1	54,279.1	162,837
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms	CI-HVC-CUHT-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.5	798	798	798	68%	68%	68%	542.6	542.6	542.6	1,628
55	Business_Rebate_Track	Infrared Heaters	Therms	CI-HVC-IRHT-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.12	28,864	28,864	28,864	68%	68%	68%	19,627.5	19,627.5	19,627.5	58,883
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms	CI-HW -STWH-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.1	603	603	603	68%	68%	68%	410.3	410.3	410.3	1,231
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms	CI-HW -STWH-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.1	327	327	327	68%	68%	68%	222.5	222.5	222.5	668
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	19,591	19,591	19,591	68%	68%	68%	13,321.6	13,321.6	13,321.6	39,965
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	19,922	19,922	19,922	68%	68%	68%	13,546.7	13,546.7	13,546.7	40,640
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	15,920	15,920	15,920	68%	68%	68%	10,825.5	10,825.5	10,825.5	32,476
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	19,280	19,280	19,280	68%	68%	68%	13,110.6	13,110.6	13,110.6	39,332
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	19,016	19,016	19,016	68%	68%	68%	12,930.6	12,930.6	12,930.6	38,792
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	8,784	8,784	8,784	68%	68%	68%	5,973.3	5,973.3	5,973.3	17,920
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	12,673	12,673	12,673	68%	68%	68%	8,617.7	8,617.7	8,617.7	25,853
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	16,562	16,562	16,562	68%	68%	68%	11,262.1	11,262.1	11,262.1	33,786
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	52,258	52,258	52,258	68%	68%	68%	35,535.7	35,535.7	35,535.7	106,607
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	91,496	91,496	91,496	68%	68%	68%	62,217.5	62,217.5	62,217.5	186,653
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	116,530	116,530	116,530	68%	68%	68%	79,240.2	79,240.2	79,240.2	237,720
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	141,563	141,563	141,563	68%	68%	68%	96,262.8	96,262.8	96,262.8	288,788
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	71,837	71,837	71,837	68%	68%	68%	48,848.9	48,848.9	48,848.9	146,547
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	91,491	91,491	91,491	68%	68%	68%	62,213.8	62,213.8	62,213.8	186,642
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.4.14	111,145	111,145	111,145	68%	68%	68%	75,578.8	75,578.8	75,578.8	226,736
73	Business_Rebate_Track	Indoor Pool Covers	Therms	CI-HW -PLCV-V01-130601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.4	7,830	7,830	7,830	68%	68%	68%	5,324.4	5,324.4	5,324.4	15,973
74	Business_Rebate_Track	Outdoor Pool Covers	Therms	CI-HW -PLCV-V01-130601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.4	3,030	3,030	3,030	68%	68%	68%	2,060.4	2,060.4	2,060.4	6,181
75	Business_Rebate_Track	Infrared Upright Broiler	Therms	CI-FSE-IRUB-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.15	1,089	1,089	1,089	68%	68%	68%	740.5	740.5	740.5	2,222
76	Business_Rebate_Track	Infrared Charbroiler	Therms	CI-FSE-IRCB-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.12	661	661	661	68%	68%	68%	449.5	449.5	449.5	1,348
77	Business_Rebate_Track	Pasta Cooker	Therms	CI-FSE-PCOK-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.17	1,380	1,380	1,380	68%	68%	68%	938.4	938.4	938.4	2,815
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms	CI-FSE-IROV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.13	554	554	554	68%	68%	68%	376.7	376.7	376.7	1,130
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms	CI-FSE-IRBL-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.14	239	239	239	68%	68%	68%	162.5	162.5	162.5	488
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms	CI-FSE-SPRY-V03-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.11	111	111	111	68%	68%	68%	75.2	75.2	75.2	225
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms	CI-FSE-STMC-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.3	752	752	752	68%	68%	68%	511.4	511.4	511.4	1,534
82	Business_Rebate_Track	Convection Oven, E >44%	Therms	CI-FSE-ESCV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.5	306	306	306	68%	68%	68%	208.1	208.1	208.1	624
83	Business_Rebate_Track	Combination Oven	Therms	CI-FSE-CBOV-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.1	364	364	364	68%	68%	68%	247.3	247.3	247.3	742
84	Business_Rebate_Track	Rack Oven - Single	Therms			1,034	1,034	1,034	68%	68%	68%	703.1	703.1	703.1	2,109
85	Business_Rebate_Track	Rack Oven - Double	Therms	CI-FSE-RKOV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.18	2,064	2,064	2,064	68%	68%	68%	1,403.5	1,403.5	1,403.5	4,211
86	Business_Rebate_Track	Fryer - Large Vat	Therms			2,312	2,312	2,312	68%	68%	68%	1,572.2	1,572.2	1,572.2	4,716
87	Business_Rebate_Track	Fryer - E >50%	Therms	CI-FSE-ESFR-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.7	1,010	1,010	1,010	68%	68%	68%	687.0	687.0	687.0	2,061
88	Business_Rebate_Track	Griddle	Therms	CI-FSE-ESGR-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.8	149	149	149	68%	68%	68%	101.1	101.1	101.1	303
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms	CI-FSE-CVOV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.4	1,466	1,466	1,466	68%	68%	68%	996.9	996.9	996.9	2,991
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms			733	733	733	68%	68%	68%	498.4	498.4	498.4	1,495
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms			102	102	102	68%	68%	68%	69.2	69.2	69.2	208
92	Business_Rebate_Track	Ozone Laundry	Therms	CI-HW-OZLD-V01-140601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.3.6	27,630	27,630	27,630	68%	68%	68%	18,788.4	18,788.4	18,788.4	56,365
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms			71,776	71,776	71,776	68%	68%	68%	48,807.9	48,807.9	48,807.9	146,424
94	Business_Rebate_Track	Convection Oven, E >44%	Therms	CI-FSE-ESCV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.5	21,426	21,426	21,426	68%	68%	68%	14,569.5	14,569.5	14,569.5	43,709
95	Business_Rebate_Track	Fryer - E >50%	Therms	CI-FSE-ESFR-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.7	20,206	20,206	20,206	68%	68%	68%	13,740.3	13,740.3	13,740.3	41,221
96	Business_Rebate_Track	Griddle	Therms	CI-FSE-ESGR-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.8	5,946	5,946	5,946	68%	68%	68%	4,043.0	4,043.0	4,043.0	12,129
97	Business_Rebate_Track	Combination Oven	Therms	CI-FSE-CBOV-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.1	14,548	14,548	14,548	68%	68%	68%	9,892.8	9,892.8	9,892.8	29,678
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms	CI-FSE-RKOV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template_2016-09-01, Tab 4.2.18	82,560	82,560	82,560	68%	68%	68%	56,140.8	56,140.8	56,140.8	168,422

	A	B	C	J	K	L	M	N	O	P	Q	R	S	T	U
4				Approved Energy Efficiency Plan Key Assumptions					Approved Energy Efficiency Plan Key Assumptions						
5				Plan Gross Unit Savings					Plan Net-to-Gross Values			Plan Energy Savings Goals			
6	Program	Measure	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv5.0	Reference Document Explaining Gross Unit Savings Calculation Details	EPY10/GPY7 Plan Gross Unit Savings	EPY11/GPY8 Plan Gross Unit Savings	EPY12/GPY9 Plan Gross Unit Savings	EPY10/GPY7 Plan NTG	EPY11/GPY8 Plan NTG	EPY12/GPY9 Plan NTG	EPY10/GPY7 Plan Goal	EPY11/GPY8 Plan Goal	EPY12/GPY9 Plan Goal	Total Electric Plan 4/Gas Plan 3 Goal
7	(a)	(b)	(c)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)=(g x l x o)	(s)=(h x m x p)	(t)=(i x n x q)	(u)=(r+s+t)
99	Business Rebate Track	Infrared Upright Broiler Upstream	Therms	CI-FSE-IRUB-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.15	81,675	81,675	81,675	68%	68%	68%	55,539.0	55,539.0	55,539.0	166,617
100	Business Rebate Track	Infrared Charbroiler Upstream	Therms	CI-FSE-IRCB-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.12	49,575	49,575	49,575	68%	68%	68%	33,711.0	33,711.0	33,711.0	101,133
101	Business Rebate Track	Pasta Cooker Upstream	Therms	CI-FSE-PCOK-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.17	455,400	455,400	455,400	68%	68%	68%	309,672.0	309,672.0	309,672.0	929,016
102	Business Rebate Track	Infrared Rotisserie Oven Upstream	Therms	CI-FSE-IROV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.13	41,550	41,550	41,550	68%	68%	68%	28,254.0	28,254.0	28,254.0	84,762
103	Business Rebate Track	Infrared Salamander Broiler Upstream	Therms	CI-FSE-IRBL-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.14	17,925	17,925	17,925	68%	68%	68%	12,189.0	12,189.0	12,189.0	36,567
104	Business Rebate Track	Commercial Steamer, E ≥38%	Therms	CI-FSE-STMC-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.3	30,080	30,080	30,080	68%	68%	68%	20,454.7	20,454.7	20,454.7	61,364
105	Business Rebate Track	Large Conveyor Oven, >=25 in	Therms	CI-FSE-CVOV-V01-120601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.2.4	73,300	73,300	73,300	68%	68%	68%	49,844.0	49,844.0	49,844.0	149,532
106	Business Rebate Track	Boiler Reset Controls, 400 MBH	Therms	CI-HVC-BLRC-V03-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.4	2,442	2,442	2,442	94%	94%	94%	2,295.4	2,295.4	2,295.4	6,886
107	Business Rebate Track	Boiler Tune Up, 400 MBH	Therms	CI-HVC-BLRT-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.2	5,872	5,872	5,872	94%	94%	94%	5,519.3	5,519.3	5,519.3	16,558
108	Business Rebate Track	CDHW Controls	Therms	CI-HW_ CDHW-V01-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.3.8	8,944	8,944	8,944	94%	94%	94%	8,407.4	8,407.4	8,407.4	25,222
109	Business Rebate Track	IU	Therms			261	261	261	94%	94%	94%	244.9	244.9	244.9	735
110	Business Rebate Track	CA	Therms			168	168	168	94%	94%	94%	157.6	157.6	157.6	473
111	Business Rebate Track	IU	Therms			335	335	335	94%	94%	94%	315.2	315.2	315.2	946
112	Business Rebate Track	CA	Therms			447	447	447	94%	94%	94%	419.8	419.8	419.8	1,259
113	Business Rebate Track	Steam Trap, Commercial	Therms	CI-HVC-STRE-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.16	12,525	12,525	12,525	94%	94%	94%	11,773.3	11,773.3	11,773.3	35,320
114	Business Rebate Track	<300 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	3,580	3,580	3,580	94%	94%	94%	3,365.5	3,365.5	3,365.5	10,096
115	Business Rebate Track	499 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	744	744	744	94%	94%	94%	699.7	699.7	699.7	2,099
116	Business Rebate Track	999 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	1,490	1,490	1,490	94%	94%	94%	1,400.9	1,400.9	1,400.9	4,203
117	Business Rebate Track	1000-1700 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	2,536	2,536	2,536	94%	94%	94%	2,383.9	2,383.9	2,383.9	7,152
118	Business Rebate Track	1701-2000 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	2,984	2,984	2,984	94%	94%	94%	2,804.5	2,804.5	2,804.5	8,414
119	Business Rebate Track	MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	1,510	1,510	1,510	94%	94%	94%	1,419.8	1,419.8	1,419.8	4,259
120	Business Rebate Track	499 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	558	558	558	94%	94%	94%	524.8	524.8	524.8	1,574
121	Business Rebate Track	999 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	559	559	559	94%	94%	94%	525.3	525.3	525.3	1,576
122	Business Rebate Track	1700 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	951	951	951	94%	94%	94%	893.9	893.9	893.9	2,682
123	Business Rebate Track	2000 MBH	Therms	CI-HVC-BOIL-V05-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.10	1,119	1,119	1,119	94%	94%	94%	1,051.7	1,051.7	1,051.7	3,155
124	Business Rebate Track	Furnace, >92% AFUE - CA	Therms	CI-HVC-FRNC-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.11	4,392	4,392	4,392	94%	94%	94%	4,128.2	4,128.2	4,128.2	12,384
125	Business Rebate Track	Furnace, >95% AFUE - CA	Therms	CI-HVC-FRNC-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.11	2,366	2,366	2,366	94%	94%	94%	2,223.9	2,223.9	2,223.9	6,672
126	Business Rebate Track	Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.14	18,453	18,453	18,453	94%	94%	94%	17,346.2	17,346.2	17,346.2	52,039
127	Business Rebate Track	Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.14	83,460	83,460	83,460	94%	94%	94%	78,452.5	78,452.5	78,452.5	235,358
128	Business Rebate Track	Space Heat	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.14	20,526	20,526	20,526	94%	94%	94%	19,294.7	19,294.7	19,294.7	57,884
129	Business Rebate Track	Pipe Insulation, Indoor DHW	Therms	CI-HVC-PINS-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.14	23,135	23,135	23,135	94%	94%	94%	21,746.5	21,746.5	21,746.5	65,240
130	Business Rebate Track	Indoor Space Heat	Therms	CI-HVC-SPIN-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.24	423	423	423	94%	94%	94%	397.7	397.7	397.7	1,193
131	Business Rebate Track	Indoor Space Heat	Therms	CI-HVC-SPIN-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.24	544	544	544	94%	94%	94%	510.9	510.9	510.9	1,533
132	Business Rebate Track	Indoor DHW	Therms	CI-HVC-SPIN-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.24	773	773	773	94%	94%	94%	726.9	726.9	726.9	2,181
133	Business Rebate Track	Indoor DHW	Therms	CI-HVC-SPIN-V02-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 4.4.24	1,056	1,056	1,056	94%	94%	94%	992.4	992.4	992.4	2,977
134	Custom_Incentive_Track	Custom 2,500-7,500 therms	Therms			167,495	167,495	167,495	73%	73%	73%	122,271.5	122,271.5	122,271.5	366,815
135	Custom_Incentive_Track	Custom > 7,500 therms	Therms			2,465,348	2,465,348	2,465,348	73%	73%	73%	1,799,703.8	1,799,703.8	1,799,703.8	5,399,111
136	Custom_Incentive_Track	MF Custom 2,500-7,500 therms	Therms			30,000	30,000	30,000	73%	73%	73%	21,900.0	21,900.0	21,900.0	65,700
137	Custom_Incentive_Track	MF Custom >7500 therms	Therms			60,000	60,000	60,000	73%	73%	73%	43,800.0	43,800.0	43,800.0	131,400
138	Residential_AssessmentDI_Track	Bathroom Aerator SF (DI)	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	1,273	1,273	1,273	105%	105%	105%	1,336.4	1,336.4	1,336.4	4,009
139	Residential_AssessmentDI_Track	Kitchen Aerator SF (DI)	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	3,426	3,426	3,426	105%	105%	105%	3,597.7	3,597.7	3,597.7	10,793
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	15,349	15,349	15,349	105%	105%	105%	16,116.9	16,116.9	16,116.9	48,351
141	Residential_AssessmentDI_Track	Handheld Showerhead (DI) SF	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	365	365	365	105%	105%	105%	383.4	383.4	383.4	1,150
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms	RS-HWE-TMPS-V04-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.6	902	902	902	105%	105%	105%	947.2	947.2	947.2	2,842
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms	RS-HWE-PINS-V02-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.1	1,767	1,767	1,767	105%	105%	105%	1,855.1	1,855.1	1,855.1	5,565
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms			0	0	0	105%	105%	105%	0.0	0.0	0.0	0
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms	RS-HWE-PINS-V02-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.1	245	245	245	105%	105%	105%	256.9	256.9	256.9	771
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms	RS-HVC-PROG-V03-140601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.11	9,596	9,596	9,596	105%	105%	105%	10,075.5	10,075.5	10,075.5	30,227
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms			0	0	0	105%	105%	105%	0.0	0.0	0.0	0
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms			20,335	20,335	20,335	105%	105%	105%	21,351.8	21,351.8	21,351.8	64,055
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms	RS-HVC-ADTH-V01-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.16	6,320	6,320	6,320	100%	100%	100%	6,319.6	6,319.6	6,319.6	18,959
150	Residential_AssessmentDI_Track	HW Insulation (1) DI CA	Therms			3,131	3,131	3,131	95%	95%	95%	2,974.2	2,974.2	2,974.2	8,923
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	6,662	6,662	6,662	95%	95%	95%	6,329.1	6,329.1	6,329.1	18,987
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	426	426	426	95%	95%	95%	404.8	404.8	404.8	1,215
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	27,352	27,352	27,352	95%	95%	95%	25,984.5	25,984.5	25,984.5	77,954
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms	RS-HWE-LFFA-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4	221	221	221	95%	95%	95%	209.6	209.6	209.6	629
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	83,902	83,902	83,902	95%	95%	95%	79,706.5	79,706.5	79,706.5	239,120
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	2,308	2,308	2,308	95%	95%	95%	2,192.8	2,192.8	2,192.8	6,578
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	27,967	27,967	27,967	95%	95%	95%	26,568.8	26,568.8	26,568.8	79,707
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms	RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.5	769	769	769	95%	95%	95%	730.9	730.9	730.9	2,193
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms	RS-HVC-PROG-V03-140601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.11	13,973	13,973	13,973	95%	95%	95%	13,274.4	13,274.4	13,274.4	39,823
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms	RS-HWE-TMPS-V04-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.6	444	444	444	95%	95%	95%	421.5	421.5	421.5	1,265
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms			0	0	0	95%	95%	95%	0.0	0.0	0.0	0
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms			0	0	0	95%	95%	95%	0.0	0.0	0.0	0
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms	RS-HVC-PROG-V03-140601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.11	11,462	11,462	11,462	95%	95%	95%	10,888.8	10,888.8	10,888.8	32,666
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms	RS-HVC-PROG-V03-140601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.11	284	284	284	95%	95%	95%	269.3	269.3	269.3	808
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms			0	0	0	95%	95%	95%	0.0	0.0	0.0	0
166	Residential_EducationOutreach_Track	Home Reports	Therms			401,331	401,331	401,331	100%	100%	100%	401,331.1	401,331.1	401,331.1	1,203,993
167	Residential_EducationOutreach_Track	Kit 1	Therms	RS-HWE-LFFA-V05-160601; RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4; 5.4.5	28,390	28,390	28,390	84%	84%	84%	23,847.4	23,847.4	23,847.4	71,542
168	Residential_EducationOutreach_Track	Kit 2	Therms	RS-HWE-LFFA-V05-160601; RS-HWE-LFSH-V04-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4; 5.4.5	203,932	203,932	203,932	84%	84%	84%	171,302.8	171,302.8	171,302.8	513,908
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms	RS-HWE-LFFA-V05-160601; RS-HWE-LFSH-V04-160601; RS-HWE-TMPS-V04-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4; 5.4.5; 5.4.6	3,510	3,510	3,510	105%	105%	105%	3,685.5	3,685.5	3,685.5	11,057
170	Residential_EducationOutreach_Track	EEE Kit	Therms	RS-HWE-LFFA-V05-160601; RS-HWE-LFSH-V04-160601; RS-HWE-TMPS-V04-150601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.4.4; 5.4.5; 5.4.6	97,181	97,181	97,181	105%	105%	105%	102,039.6	102,039.6	102,039.6	306,119
171	Residential_NewConstruction_Track	RNC Home	Therms			229,230	229,230	229,230	100%	100%	100%	229,230.0	229,230.0	229,230.0	687,690
172	Residential_NewConstruction_Track	RNC Home	Therms			41,040	41,040	41,040	100%	100%	100%	41,040.0	41,040.0	41,040.0	123,120
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms	RS-HVC-GHEB-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.6	12,602	12,602	12,602	79%	79%	79%	9,955.7	9,955.7	9,955.7	29,867
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	2,086,043	2,086,043	2,086,043	79%	79%	79%	1,647,973.6	1,647,973.6	1,647,973.6	4,943,921
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	580,458	580,458	580,458	79%	79%	79%	458,561.5	458,561.5	458,561.5	1,375,684
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	111,497	111,497	111,497	79%	79%	79%	88,082.5	88,082.5	88,082.5	264,248
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	24,656	24,656	24,656	79%	79%	79%	19,478.3	19,478.3	19,478.3	58,435
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms			21,198	21,198	21,198	79%	79%	79%	16,746.7	16,746.7	16,746.7	50,240
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms			5,197	5,197	5,197	79%	79%	79%	4,105.3	4,105.3	4,105.3	12,316
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	RS-HVC-ADTH-V01-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.16	171,149	171,149	171,149	79%	79%	79%	135,207.4	135,207.4	135,207.4	405,622
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	RS-HVC-ADTH-V01-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.16	19,033	19,033	19,033	79%	79%	79%	15,036.1	15,036.1	15,036.1	45,108
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	11,579	11,579	11,579	94%	94%	94%	10,883.8	10,883.8	10,883.8	32,652
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms	RS-HVC-GHEF-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.7	7,704	7,704	7,704	94%	94%	94%	7,241.3	7,241.3	7,241.3	21,724
184	Residential_Rebate_Track	Air Sealing SF	Therms	RS-SHL-AIRS-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.1	6,882	6,882	6,882	105%	105%	105%	7,225.7	7,225.7	7,225.7	21,677
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	1,694	1,694	1,694	105%	105%	105%	1,778.8	1,778.8	1,778.8	5,336
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	3,730	3,730	3,730	105%	105%	105%	3,916.6	3,916.6	3,916.6	11,750
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	2,933	2,933	2,933	105%	105%	105%	3,079.7	3,079.7	3,079.7	9,239
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	112	112	112	105%	105%	105%	117.8	117.8	117.8	354
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms	RS-HVC-DINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.4	10,821	10,821	10,821	105%	105%	105%	11,361.8	11,361.8	11,361.8	34,085
190	Residential_Rebate_Track	Wall Insulation SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	177	177	177	105%	105%	105%	185.9	185.9	185.9	558
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms	RS-SHL-BINS-V07-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.2	496	496	496	105%	105%	105%	520.8	520.8	520.8	1,562
192	Residential_Rebate_Track	Air Sealing SF	Therms	RS-SHL-AIRS-V05-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.1	51,024	51,024	51,024	105%	105%	105%	53,575.6	53,575.6	53,575.6	160,727
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	11,689	11,689	11,689	105%	105%	105%	12,273.9	12,273.9	12,273.9	36,822
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	27,384	27,384	27,384	105%	105%	105%	28,753.2	28,753.2	28,753.2	86,260
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	21,313	21,313	21,313	105%	105%	105%	22,379.1	22,379.1	22,379.1	67,137
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	814	814	814	105%	105%	105%	854.4	854.4	854.4	2,563
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms	RS-HVC-DINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.4	56,051	56,051	56,051	105%	105%	105%	58,854.0	58,854.0	58,854.0	176,562
198	Residential_Rebate_Track	Wall Insulation SF	Therms	RS-SHL-AINS-V06-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.4	2,125	2,125	2,125	105%	105%	105%	2,231.4	2,231.4	2,231.4	6,694
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms	RS-SHL-BINS-V07-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.6.2	3,844	3,844	3,844	105%	105%	105%	4,035.9	4,035.9	4,035.9	12,108
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms			34,710	34,710	34,710	105%	105%	105%	36,446.0	36,446.0	36,446.0	109,338
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	RS-HVC-ADTH-V01-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.16	148,696	148,696	148,696	100%	100%	100%	148,695.6	148,695.6	148,695.6	446,087
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	RS-HVC-ADTH-V01-160601	Nicor Gas PY7-PY9 Adjustable Goals Template 2016-09-01, Tab 5.3.16	1,301,087	1,301,087	1,301,087	100%	100%	100%	1,301,086.5	1,301,086.5	1,301,086.5	3,903,260
203	Residential_Rebate_Track	Wx - Income Qualified	Therms			127,798	127,798	127,798	100%	100%	100%	127,798.1	127,798.1	127,798.1	383,394
204															
205															
206															
207															
208	**Portfolio Total (kWh)**		kWh												
209	**Portfolio Total (Therms)**		Therms									12,400,476	12,400,476	12,400,476	**37,201,428**

	A	B	C	V	W	X	Y	Z	AA	AB	AC	AD
1	EEPS Adjustable Savings Goal	Template - *Measure-Level Adjustments*										
2	*9/1/2016*											
3	Program Administrator: Nicor Gas											
4				**Net-to-Gross Adjustment Based Upon the Evaluator's Final Recommended NTG Values Provided Prior to the Start of EPY10/GPY7**								
5				**Evaluator's Recommended Net-to-Gross Values**				**NTG-Adjusted Energy Savings Goals**				**Savings NTG-Adjustment to Plan Goal**
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	Reference Document Explaining Evaluator's Recommended NTG Values	**EPY10/GPY7 Evaluator's NTG (Fixed)**	**EPY11/GPY8 Evaluator's NTG (Fixed)**	**EPY12/GPY9 Evaluator's NTG (Fixed)**	EPY10/GPY7 NTG-Adjusted Goal	EPY11/GPY8 NTG-Adjusted Goal	EPY12/GPY9 NTG-Adjusted Goal	Electric Plan 4/Gas Plan 3 NTG-Adjusted Goal	Electric Plan 4/Gas Plan 3 NTG Adjustment
7	***(a)***	***(b)***	***(c)***	***(v)***	***(w)***	***(x)***	***(y)***	***(z)=(g x l x w)***	***(aa)=(h x m x x)***	***(ab)=(i x n x y)***	***(ac)=(z+aa+ab)***	***(ad)=(ac-u)***
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms									
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms									
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms									
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms									
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms									
13	Business_AssessmentDI_Track	Salon Sprayer	Therms									
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms									
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms									
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms									
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms									
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms									
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms									
20	Business_AssessmentDI_Track	RCx Assessments	Therms									
21	Business_AssessmentDI_Track	Building Assessment MF	Therms									
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms									
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms									
24	Business_AssessmentDI_Track	Laminar Flow	Therms									
25	Business_EducationOptimization_Track	RCx Project	Therms									
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms									
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms									
28	Business_EducationOptimization_Track	SEM Healthcare	Therms									
29	Business_NewConstruction_Track	Business New Construction	Therms									
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms									
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms									
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms									
33	Business_Rebate_Track	Steam Trap, Commercial	Therms									
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms									
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms									
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms									
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms									
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms									
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms									
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms									
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms									
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms									
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms									
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms									
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms									
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms									
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms									
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms									
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms									
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms									
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms									
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms									
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms									
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms									
55	Business_Rebate_Track	Infrared Heaters	Therms									
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms									
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms									
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms									
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms									
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms									
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms									
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms									
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms									
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms									
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms									
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms									
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms									
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms									
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms									
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms									
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms									
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms									
73	Business_Rebate_Track	Indoor Pool Covers	Therms									
74	Business_Rebate_Track	Outdoor Pool Covers	Therms									
75	Business_Rebate_Track	Infrared Upright Broiler	Therms									
76	Business_Rebate_Track	Infrared Charbroiler	Therms									
77	Business_Rebate_Track	Pasta Cooker	Therms									
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms									
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms									
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms									
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms									
82	Business_Rebate_Track	Convection Oven, E >44%	Therms									
83	Business_Rebate_Track	Combination Oven	Therms									
84	Business_Rebate_Track	Rack Oven - Single	Therms									
85	Business_Rebate_Track	Rack Oven - Double	Therms									
86	Business_Rebate_Track	Fryer - Large Vat	Therms									
87	Business_Rebate_Track	Fryer - E >50%	Therms									
88	Business_Rebate_Track	Griddle	Therms									
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms									
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms									
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms									
92	Business_Rebate_Track	Ozone Laundry	Therms									
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms									
94	Business_Rebate_Track	Convection Oven, E >44%	Therms									
95	Business_Rebate_Track	Fryer - E >50%	Therms									
96	Business_Rebate_Track	Griddle	Therms									
97	Business_Rebate_Track	Combination Oven	Therms									
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms									

	A	B	C	V	W	X	Y	Z	AA	AB	AC	AD
4				Net-to-Gross Adjustment Based Upon the Evaluator's Final Recommended NTG Values Provided Prior to the Start of EPY10/GPY7								
5				Evaluator's Recommended Net-to-Gross Values				NTG-Adjusted Energy Savings Goals				Savings NTG-Adjustment to Plan Goal
6	Program	Measure	Energy Savings: kWh or Therms?	Reference Document Explaining Evaluator's Recommended NTG Values	EPY10/GPY7 Evaluator's NTG (Fixed)	EPY11/GPY8 Evaluator's NTG (Fixed)	EPY12/GPY9 Evaluator's NTG (Fixed)	EPY10/GPY7 NTG-Adjusted Goal	EPY11/GPY8 NTG-Adjusted Goal	EPY12/GPY9 NTG-Adjusted Goal	Electric Plan 4/Gas Plan 3 NTG-Adjusted Goal	Electric Plan 4/Gas Plan 3 NTG Adjustment
7	(a)	(b)	(c)	(v)	(w)	(x)	(y)	(z)=(g x l x w)	(aa)=(h x m x x)	(ab)=(i x n x y)	(ac)=(z+aa+ab)	(ad)=(ac-u)
99	Business_Rebate_Track	Infrared Upright Broiler Upstream	Therms									
100	Business_Rebate_Track	Infrared Charbroiler Upstream	Therms									
101	Business_Rebate_Track	Pasta Cooker Upstream	Therms									
102	Business_Rebate_Track	Infrared Rotisserie Oven Upstream	Therms									
103	Business_Rebate_Track	Infrared Salamander Broiler Upstream	Therms									
104	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms									
105	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms									
106	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms									
107	Business_Rebate_Track	Boiler Tune Up, 400 MBH	Therms									
108	Business_Rebate_Track	CDHW Controls	Therms									
109	Business_Rebate_Track	IU	Therms									
110	Business_Rebate_Track	CA	Therms									
111	Business_Rebate_Track	IU	Therms									
112	Business_Rebate_Track	CA	Therms									
113	Business_Rebate_Track	Steam Trap, Commercial	Therms									
114	Business_Rebate_Track	<300 MBH	Therms									
115	Business_Rebate_Track	499 MBH	Therms									
116	Business_Rebate_Track	999 MBH	Therms									
117	Business_Rebate_Track	1000-1700 MBH	Therms									
118	Business_Rebate_Track	1701-2000 MBH	Therms									
119	Business_Rebate_Track	MBH	Therms									
120	Business_Rebate_Track	499 MBH	Therms									
121	Business_Rebate_Track	999 MBH	Therms									
122	Business_Rebate_Track	1700 MBH	Therms									
123	Business_Rebate_Track	2000 MBH	Therms									
124	Business_Rebate_Track	Furnace, >92% AFUE - CA	Therms									
125	Business_Rebate_Track	Furnace, >95% AFUE - CA	Therms									
126	Business_Rebate_Track	Space Heat	Therms									
127	Business_Rebate_Track	Space Heat	Therms									
128	Business_Rebate_Track	Space Heat	Therms									
129	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms									
130	Business_Rebate_Track	Indoor Space Heat	Therms									
131	Business_Rebate_Track	Indoor Space Heat	Therms									
132	Business_Rebate_Track	Indoor DHW	Therms									
133	Business_Rebate_Track	Indoor DHW	Therms									
134	Custom_Incentive_Track	Custom 2,500-7,500 therms	Therms									
135	Custom_Incentive_Track	Custom > 7,500 therms	Therms									
136	Custom_Incentive_Track	MF Custom 2,500-7,500 therms	Therms									
137	Custom_Incentive_Track	MF Custom >7500 therms	Therms									
138	Residential_AssessmentDI_Track	Bathroom Aerator SF (DI)	Therms									
139	Residential_AssessmentDI_Track	Kitchen Aerator SF (DI)	Therms									
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms									
141	Residential_AssessmentDI_Track	Handheld Showerhead (DI) SF	Therms									
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms									
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms									
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms									
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms									
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms									
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms									
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms									
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms									
150	Residential_AssessmentDI_Track	HW Insulation (1) DI CA	Therms									
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms									
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms									
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms									
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms									
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms									
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms									
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms									
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms									
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms									
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms									
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms									
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms									
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms									
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms									
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms									
166	Residential_EducationOutreach_Track	Home Reports	Therms									
167	Residential_EducationOutreach_Track	Kit 1	Therms									
168	Residential_EducationOutreach_Track	Kit 2	Therms									
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms									
170	Residential_EducationOutreach_Track	EEE Kit	Therms									
171	Residential_NewConstruction_Track	RNC Home	Therms									
172	Residential_NewConstruction_Track	RNC Home	Therms									
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms									
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms									
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms									
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms									
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms									
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms									
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms									
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms									
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms									
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms									
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms									
184	Residential_Rebate_Track	Air Sealing SF	Therms									
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms									
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms									
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms									
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms									
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms									
190	Residential_Rebate_Track	Wall Insulation SF	Therms									
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms									
192	Residential_Rebate_Track	Air Sealing SF	Therms									
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms									
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms									
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms									
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms									
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms									
198	Residential_Rebate_Track	Wall Insulation SF	Therms									
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms									
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms									
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms									
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms									
203	Residential_Rebate_Track	Wx - Income Qualified	Therms									
204												
205												
206												
207												
208	**Portfolio Total (kWh)**		kWh									
209	**Portfolio Total (Therms)**		Therms					0	0	0	0	0

	A	B	C	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP
1	EEPS Adjustable Savings Goal	Template - *Measure-Level Adjustments*													
2	*9/1/2016*														
3	Program Administrator: Nicor Gas														
4				**EPY10/GPY7 Adjustment**						**EPY11/GPY8 Adjustment**					
5				**EPY10/GPY7 Gross Unit Savings, Effective June 1, 2017 - May 31, 2018**				**Adjusted Energy Savings Goal**	**Savings IL-TRM Adjustment to NTG-Adjusted Goal**	**EPY11/GPY8 Gross Unit Savings, Effective June 1, 2018 - May 31, 2019**				**Adjusted Energy Savings Goal**	**Savings IL-TRM Adjustment to NTG-Adjusted Goal**
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv6.0 or errata applicable to EPY10/GPY7	Reference Document Explaining Gross Unit Savings Calculation Details	EPY10/GPY7 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY10/GPY7 Adjusted Goal	EPY10/GPY7 IL-TRM Adjustment	IL-TRM Measure Code from IL-TRMv7.0 or errata applicable to EPY11/GPY8	Reference Document Explaining Gross Unit Savings Calculation Details	EPY11/GPY8 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY11/GPY8 Adjusted Goal	EPY11/GPY8 IL-TRM Adjustment
7	*(a)*	*(b)*	*(c)*	*(ae)*	*(af)*	*(ag)*	*(ah)*	*(ai)=(g x ag x w)*	*(aj)=(ai-z)*	*(ak)*	*(al)*	*(am)*	*(an)*	*(ao)=(h x am x x)*	*(ap)=(ao-aa)*
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms												
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms												
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms												
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms												
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms												
13	Business_AssessmentDI_Track	Salon Sprayer	Therms												
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms												
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms												
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms												
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms												
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms												
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms												
20	Business_AssessmentDI_Track	RCx Assessments	Therms												
21	Business_AssessmentDI_Track	Building Assessment MF	Therms												
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms												
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms												
24	Business_AssessmentDI_Track	Laminar Flow	Therms												
25	Business_EducationOptimization_Track	RCx Project	Therms												
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms												
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms												
28	Business_EducationOptimization_Track	SEM Healthcare	Therms												
29	Business_NewConstruction_Track	Business New Construction	Therms												
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms												
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms												
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms												
33	Business_Rebate_Track	Steam Trap, Commercial	Therms												
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms												
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms												
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms												
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms												
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms												
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms												
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms												
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms												
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms												
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms												
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms												
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms												
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms												
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms												
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms												
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms												
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms												
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms												
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms												
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms												
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms												
55	Business_Rebate_Track	Infrared Heaters	Therms												
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms												
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms												
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms												
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms												
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms												
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms												
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms												
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms												
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms												
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms												
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms												
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms												
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms												
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms												
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms												
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms												
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms												
73	Business_Rebate_Track	Indoor Pool Covers	Therms												
74	Business_Rebate_Track	Outdoor Pool Covers	Therms												
75	Business_Rebate_Track	Infrared Upright Broiler	Therms												
76	Business_Rebate_Track	Infrared Charbroiler	Therms												
77	Business_Rebate_Track	Pasta Cooker	Therms												
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms												
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms												
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms												
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms												
82	Business_Rebate_Track	Convection Oven, E >44%	Therms												
83	Business_Rebate_Track	Combination Oven	Therms												
84	Business_Rebate_Track	Rack Oven - Single	Therms												
85	Business_Rebate_Track	Rack Oven - Double	Therms												
86	Business_Rebate_Track	Fryer - Large Vat	Therms												
87	Business_Rebate_Track	Fryer - E >50%	Therms												
88	Business_Rebate_Track	Griddle	Therms												
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms												
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms												
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms												
92	Business_Rebate_Track	Ozone Laundry	Therms												
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms												
94	Business_Rebate_Track	Convection Oven, E >44%	Therms												
95	Business_Rebate_Track	Fryer - E >50%	Therms												
96	Business_Rebate_Track	Griddle	Therms												
97	Business_Rebate_Track	Combination Oven	Therms												
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms												

	A	B	C	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP
4				EPY10/GPY7 Adjustment						EPY11/GPY8 Adjustment					
5				EPY10/GPY7 Gross Unit Savings, Effective June 1, 2017 - May 31, 2018				Adjusted Energy Savings Goal	Savings IL-TRM Adjustment to NTG-Adjusted Goal	EPY11/GPY8 Gross Unit Savings, Effective June 1, 2018 - May 31, 2019				Adjusted Energy Savings Goal	Savings IL-TRM Adjustment to NTG-Adjusted Goal
6	Program	Measure	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv6.0 or errata applicable to EPY10/GPY7	Reference Document Explaining Gross Unit Savings Calculation Details	EPY10/GPY7 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY10/GPY7 Adjusted Goal	EPY10/GPY7 IL-TRM Adjustment	IL-TRM Measure Code from IL-TRMv7.0 or errata applicable to EPY11/GPY8	Reference Document Explaining Gross Unit Savings Calculation Details	EPY11/GPY8 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY11/GPY8 Adjusted Goal	EPY11/GPY8 IL-TRM Adjustment
7	(a)	(b)	(c)	(ae)	(af)	(ag)	(ah)	(ai)=(g x ag x w)	(aj)=(ai-z)	(ak)	(al)	(am)	(an)	(ao)=(h x am x x)	(ap)=(ao-aa)
99	Business_Rebate_Track	Infrared Upright Broiler Upstream	Therms												
100	Business_Rebate_Track	Infrared Charbroiler Upstream	Therms												
101	Business_Rebate_Track	Pasta Cooker Upstream	Therms												
102	Business_Rebate_Track	Infrared Rotisserie Oven Upstream	Therms												
103	Business_Rebate_Track	Infrared Salamander Broiler Upstream	Therms												
104	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms												
105	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms												
106	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms												
107	Business_Rebate_Track	Boiler Tune Up, 400 MBH	Therms												
108	Business_Rebate_Track	CDHW Controls	Therms												
109	Business_Rebate_Track	IU	Therms												
110	Business_Rebate_Track	CA	Therms												
111	Business_Rebate_Track	IU	Therms												
112	Business_Rebate_Track	CA	Therms												
113	Business_Rebate_Track	Steam Trap, Commercial	Therms												
114	Business_Rebate_Track	<300 MBH	Therms												
115	Business_Rebate_Track	499 MBH	Therms												
116	Business_Rebate_Track	999 MBH	Therms												
117	Business_Rebate_Track	1000-1700 MBH	Therms												
118	Business_Rebate_Track	1701-2000 MBH	Therms												
119	Business_Rebate_Track	MBH	Therms												
120	Business_Rebate_Track	499 MBH	Therms												
121	Business_Rebate_Track	999 MBH	Therms												
122	Business_Rebate_Track	1700 MBH	Therms												
123	Business_Rebate_Track	2000 MBH	Therms												
124	Business_Rebate_Track	Furnace, >92% AFUE - CA	Therms												
125	Business_Rebate_Track	Furnace, >95% AFUE - CA	Therms												
126	Business_Rebate_Track	Space Heat	Therms												
127	Business_Rebate_Track	Space Heat	Therms												
128	Business_Rebate_Track	Space Heat	Therms												
129	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms												
130	Business_Rebate_Track	Indoor Space Heat	Therms												
131	Business_Rebate_Track	Indoor Space Heat	Therms												
132	Business_Rebate_Track	Indoor DHW	Therms												
133	Business_Rebate_Track	Indoor DHW	Therms												
134	Custom_Incentive_Track	Custom 2,500-7,500 therms	Therms												
135	Custom_Incentive_Track	Custom > 7,500 therms	Therms												
136	Custom_Incentive_Track	MF Custom 2,500-7,500 therms	Therms												
137	Custom_Incentive_Track	MF Custom >7500 therms	Therms												
138	Residential_AssessmentDI_Track	Bathroom Aerator SF (DI)	Therms												
139	Residential_AssessmentDI_Track	Kitchen Aerator SF (DI)	Therms												
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms												
141	Residential_AssessmentDI_Track	Handheld Showerhead (DI) SF	Therms												
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms												
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms												
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms												
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms												
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms												
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms												
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms												
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms												
150	Residential_AssessmentDI_Track	HW Insulation (1) DI CA	Therms												
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms												
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms												
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms												
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms												
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms												
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms												
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms												
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms												
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms												
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms												
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms												
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms												
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms												
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms												
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms												
166	Residential_EducationOutreach_Track	Home Reports	Therms												
167	Residential_EducationOutreach_Track	Kit 1	Therms												
168	Residential_EducationOutreach_Track	Kit 2	Therms												
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms												
170	Residential_EducationOutreach_Track	EEE Kit	Therms												
171	Residential_NewConstruction_Track	RNC Home	Therms												
172	Residential_NewConstruction_Track	RNC Home	Therms												
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms												
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms												
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms												
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms												
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms												
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms												
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms												
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms												
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms												
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms												
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms												
184	Residential_Rebate_Track	Air Sealing SF	Therms												
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms												
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms												
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms												
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms												
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms												
190	Residential_Rebate_Track	Wall Insulation SF	Therms												
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms												
192	Residential_Rebate_Track	Air Sealing SF	Therms												
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms												
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms												
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms												
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms												
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms												
198	Residential_Rebate_Track	Wall Insulation SF	Therms												
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms												
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms												
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms												
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms												
203	Residential_Rebate_Track	Wx - Income Qualified	Therms												
204															
205															
206															
207															
208	**Portfolio Total (kWh)**		kWh												
209	**Portfolio Total (Therms)**		Therms						0						0

	A	B	C	AQ	AR	AS	AT	AU	AV
1	EEPS Adjustable Savings Goal	Template - *Measure-Level Adjustments*							
2	*9/1/2016*								
3	Program Administrator: Nicor Gas								
4				**EPY12/GPY9 Adjustment**					
5				**EPY12/GPY9 Gross Unit Savings, Effective June 1, 2019 - May 31, 2020**				**Adjusted Energy Savings Goal**	**Savings IL-TRM Adjustment to NTG-Adjusted Goal**
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv8.0 or errata applicable to EPY12/GPY9	Reference Document Explaining Gross Unit Savings Calculation Details	EPY12/GPY 9 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY12/GPY9 Adjusted Goal	EPY12/GPY9 IL-TRM Adjustment
7	*(a)*	*(b)*	*(c)*	*(aq)*	*(ar)*	*(as)*	*(at)*	*(au)=(i x as x y)*	*(av)=(au-ab)*
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms						
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms						
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms						
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms						
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms						
13	Business_AssessmentDI_Track	Salon Sprayer	Therms						
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms						
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms						
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms						
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms						
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms						
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms						
20	Business_AssessmentDI_Track	RCx Assessments	Therms						
21	Business_AssessmentDI_Track	Building Assessment MF	Therms						
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms						
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms						
24	Business_AssessmentDI_Track	Laminar Flow	Therms						
25	Business_EducationOptimization_Track	RCx Project	Therms						
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms						
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms						
28	Business_EducationOptimization_Track	SEM Healthcare	Therms						
29	Business_NewConstruction_Track	Business New Construction	Therms						
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms						
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms						
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms						
33	Business_Rebate_Track	Steam Trap, Commercial	Therms						
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms						
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms						
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms						
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms						
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms						
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms						
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms						
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms						
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms						
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms						
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms						
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms						
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms						
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms						
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms						
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms						
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms						
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms						
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms						
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms						
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms						
55	Business_Rebate_Track	Infrared Heaters	Therms						
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms						
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms						
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms						
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms						
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms						
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms						
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms						
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms						
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms						
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms						
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms						
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms						
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms						
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms						
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms						
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms						
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms						
73	Business_Rebate_Track	Indoor Pool Covers	Therms						
74	Business_Rebate_Track	Outdoor Pool Covers	Therms						
75	Business_Rebate_Track	Infrared Upright Broiler	Therms						
76	Business_Rebate_Track	Infrared Charbroiler	Therms						
77	Business_Rebate_Track	Pasta Cooker	Therms						
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms						
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms						
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms						
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms						
82	Business_Rebate_Track	Convection Oven, E >44%	Therms						
83	Business_Rebate_Track	Combination Oven	Therms						
84	Business_Rebate_Track	Rack Oven - Single	Therms						
85	Business_Rebate_Track	Rack Oven - Double	Therms						
86	Business_Rebate_Track	Fryer - Large Vat	Therms						
87	Business_Rebate_Track	Fryer - E >50%	Therms						
88	Business_Rebate_Track	Griddle	Therms						
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms						
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms						
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms						
92	Business_Rebate_Track	Ozone Laundry	Therms						
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms						
94	Business_Rebate_Track	Convection Oven, E >44%	Therms						
95	Business_Rebate_Track	Fryer - E >50%	Therms						
96	Business_Rebate_Track	Griddle	Therms						
97	Business_Rebate_Track	Combination Oven	Therms						
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms						

	A	B	C	AQ	AR	AS	AT	AU	AV
4				EPY12/GPY9 Adjustment					
5				EPY12/GPY9 Gross Unit Savings, Effective June 1, 2019 - May 31, 2020				Adjusted Energy Savings Goal	Savings IL-TRM Adjustment to NTG-Adjusted Goal
6	Program	Measure	Energy Savings: kWh or Therms?	IL-TRM Measure Code from IL-TRMv8.0 or errata applicable to EPY12/GPY9	Reference Document Explaining Gross Unit Savings Calculation Details	EPY12/GPY 9 Gross Unit Savings	Gross Unit Savings Adjustment Explanation	EPY12/GPY9 Adjusted Goal	EPY12/GPY9 IL-TRM Adjustment
7	(a)	(b)	(c)	(aq)	(ar)	(as)	(at)	(au)=(i x as x y)	(av)=(au-ab)
99	Business_Rebate_Track	Infrared Upright Broiler Upstream	Therms						
100	Business_Rebate_Track	Infrared Charbroiler Upstream	Therms						
101	Business_Rebate_Track	Pasta Cooker Upstream	Therms						
102	Business_Rebate_Track	Infrared Rotisserie Oven Upstream	Therms						
103	Business_Rebate_Track	Infrared Salamander Broiler Upstream	Therms						
104	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms						
105	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms						
106	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms						
107	Business_Rebate_Track	Boiler Tune Up, 400 MBH	Therms						
108	Business_Rebate_Track	CDHW Controls	Therms						
109	Business_Rebate_Track	IU	Therms						
110	Business_Rebate_Track	CA	Therms						
111	Business_Rebate_Track	IU	Therms						
112	Business_Rebate_Track	CA	Therms						
113	Business_Rebate_Track	Steam Trap, Commercial	Therms						
114	Business_Rebate_Track	<300 MBH	Therms						
115	Business_Rebate_Track	499 MBH	Therms						
116	Business_Rebate_Track	999 MBH	Therms						
117	Business_Rebate_Track	1000-1700 MBH	Therms						
118	Business_Rebate_Track	1701-2000 MBH	Therms						
119	Business_Rebate_Track	MBH	Therms						
120	Business_Rebate_Track	499 MBH	Therms						
121	Business_Rebate_Track	999 MBH	Therms						
122	Business_Rebate_Track	1700 MBH	Therms						
123	Business_Rebate_Track	2000 MBH	Therms						
124	Business_Rebate_Track	Furnace, >92% AFUE - CA	Therms						
125	Business_Rebate_Track	Furnace, >95% AFUE - CA	Therms						
126	Business_Rebate_Track	Space Heat	Therms						
127	Business_Rebate_Track	Space Heat	Therms						
128	Business_Rebate_Track	Space Heat	Therms						
129	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms						
130	Business_Rebate_Track	Indoor Space Heat	Therms						
131	Business_Rebate_Track	Indoor Space Heat	Therms						
132	Business_Rebate_Track	Indoor DHW	Therms						
133	Business_Rebate_Track	Indoor DHW	Therms						
134	Custom_Incentive_Track	Custom 2,500-7,500 therms	Therms						
135	Custom_Incentive_Track	Custom > 7,500 therms	Therms						
136	Custom_Incentive_Track	MF Custom 2,500-7,500 therms	Therms						
137	Custom_Incentive_Track	MF Custom >7500 therms	Therms						
138	Residential_AssessmentDI_Track	Bathroom Aerator SF (DI)	Therms						
139	Residential_AssessmentDI_Track	Kitchen Aerator SF (DI)	Therms						
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms						
141	Residential_AssessmentDI_Track	Handheld Showerhead (DI) SF	Therms						
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms						
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms						
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms						
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms						
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms						
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms						
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms						
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms						
150	Residential_AssessmentDI_Track	HW Insulation (1') DI CA	Therms						
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms						
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms						
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms						
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms						
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms						
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms						
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms						
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms						
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms						
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms						
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms						
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms						
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms						
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms						
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms						
166	Residential_EducationOutreach_Track	Home Reports	Therms						
167	Residential_EducationOutreach_Track	Kit 1	Therms						
168	Residential_EducationOutreach_Track	Kit 2	Therms						
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms						
170	Residential_EducationOutreach_Track	EEE Kit	Therms						
171	Residential_NewConstruction_Track	RNC Home	Therms						
172	Residential_NewConstruction_Track	RNC Home	Therms						
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms						
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms						
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms						
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms						
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms						
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms						
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms						
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms						
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms						
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms						
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms						
184	Residential_Rebate_Track	Air Sealing SF	Therms						
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms						
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms						
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms						
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms						
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms						
190	Residential_Rebate_Track	Wall Insulation SF	Therms						
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms						
192	Residential_Rebate_Track	Air Sealing SF	Therms						
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms						
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms						
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms						
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms						
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms						
198	Residential_Rebate_Track	Wall Insulation SF	Therms						
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms						
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms						
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms						
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms						
203	Residential_Rebate_Track	Wx - Income Qualified	Therms						
204									
205									
206									
207									
208	**Portfolio Total (kWh)**		kWh						
209	**Portfolio Total (Therms)**		Therms						0

	A	B	C	AW	AX	AY	AZ
1	EEPS Adjustable Savings Goal	Template - *Measure-Level Adjustments*					
2	*9/1/2016*						
3	Program Administrator: Nicor Gas						
4				**Final Adjusted Net Energy Savings Goals**			
5	**Program**	**Measure**	Energy Savings: kWh or Therms?	**EPY10/GPY7 Final Goal**	**EPY11/GPY8 Final Goal**	**EPY12/GPY9 Final Goal**	**Electric Plan 4/Gas Plan 3 Final Goal**
6	***(a)***	***(b)***	***(c)***	***(aw)=(ai) [if (id)=1]; (aw)=(z) [if (id)=0]***	***(ax)=(ao) [if (id)=1]; (ax)=(aa) [if (id)=0]***	***(ay)=(au) [if (id)=1]; (ay)=(ab) [if (id)=0]***	***(az)=(aw+ax+ay)***
7	Business_AssessmentDI_Track	Mid Business - Drop In	Therms				
8	Business_AssessmentDI_Track	Mid Business Assessment	Therms				
9	Business_AssessmentDI_Track	Energy Assessment SB	Therms				
10	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms				
11	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms				
12	Business_AssessmentDI_Track	Salon Sprayer	Therms				
13	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms				
14	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms				
15	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms				
16	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms				
17	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms				
18	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms				
19	Business_AssessmentDI_Track	RCx Assessments	Therms				
20	Business_AssessmentDI_Track	Building Assessment MF	Therms				
21	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms				
22	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms				
23	Business_AssessmentDI_Track	Laminar Flow	Therms				
24	Business_EducationOptimization_Track	RCx Project	Therms				
25	Business_EducationOptimization_Track	Express Building Tune Up	Therms				
26	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms				
27	Business_EducationOptimization_Track	SEM Healthcare	Therms				
28	Business_NewConstruction_Track	Business New Construction	Therms				
29	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms				
30	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms				
31	Business_Rebate_Track	Boiler Tune Up, Process	Therms				
32	Business_Rebate_Track	Steam Trap, Commercial	Therms				
33	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms				
34	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms				
35	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms				
36	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms				
37	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms				
38	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms				
39	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms				
40	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms				
41	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms				
42	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms				
43	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms				
44	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms				
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms				
46	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms				
47	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms				
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms				
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms				
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms				
51	Business_Rebate_Track	Furnace, >92% AFUE	Therms				
52	Business_Rebate_Track	Furnace, >95% AFUE	Therms				
53	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms				
54	Business_Rebate_Track	Infrared Heaters	Therms				
55	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms				
56	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms				
57	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms				
58	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms				
59	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms				
60	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms				
61	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms				
62	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms				
63	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms				
64	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms				
65	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms				
66	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms				
67	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms				
68	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms				
69	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms				
70	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms				
71	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms				
72	Business_Rebate_Track	Indoor Pool Covers	Therms				
73	Business_Rebate_Track	Outdoor Pool Covers	Therms				
74	Business_Rebate_Track	Infrared Upright Broiler	Therms				
75	Business_Rebate_Track	Infrared Charbroiler	Therms				
76	Business_Rebate_Track	Pasta Cooker	Therms				
77	Business_Rebate_Track	Infrared Rotisserie Oven	Therms				
78	Business_Rebate_Track	Infrared Salamander Broiler	Therms				
79	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms				
80	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms				
81	Business_Rebate_Track	Convection Oven, E >44%	Therms				
82	Business_Rebate_Track	Combination Oven	Therms				
83	Business_Rebate_Track	Rack Oven - Single	Therms				
84	Business_Rebate_Track	Rack Oven - Double	Therms				
85	Business_Rebate_Track	Fryer - Large Vat	Therms				
86	Business_Rebate_Track	Fryer - E >50%	Therms				
87	Business_Rebate_Track	Griddle	Therms				
88	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms				
89	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms				
90	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms				
91	Business_Rebate_Track	Ozone Laundry	Therms				
92	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms				
93	Business_Rebate_Track	Convection Oven, E >44%	Therms				
94	Business_Rebate_Track	Fryer - E >50%	Therms				
95	Business_Rebate_Track	Griddle	Therms				
96	Business_Rebate_Track	Combination Oven	Therms				
97	Business_Rebate_Track	Rack Oven - Double Upstream	Therms				

	A	B	C	AW	AX	AY	AZ
4				Final Adjusted Net Energy Savings Goals			
5							
6	Program	Measure	Energy Savings: kWh or Therms?	EPY10/GPY7 Final Goal	EPY11/GPY8 Final Goal	EPY12/GPY9 Final Goal	Electric Plan 4/Gas Plan 3 Final Goal
7	(a)	(b)	(c)	(aw)=(ai) [if (d)=1]; (aw)=(z) [if (d)=0]	(ax)=(ao) [if (d)=1]; (ax)=(aa) [if (d)=0]	(ay)=(au) [if (d)=1]; (ay)=(ab) [if (d)=0]	(az)=(aw+ax+ay)
99	Business_Rebate_Track	Infrared Upright Broiler Upstream	Therms				
100	Business_Rebate_Track	Infrared Charbroiler Upstream	Therms				
101	Business_Rebate_Track	Pasta Cooker Upstream	Therms				
102	Business_Rebate_Track	Infrared Rotisserie Oven Upstream	Therms				
103	Business_Rebate_Track	Infrared Salamander Broiler Upstream	Therms				
104	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms				
105	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms				
106	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms				
107	Business_Rebate_Track	Boiler Tune Up, 400 MBH	Therms				
108	Business_Rebate_Track	CDHW Controls	Therms				
109	Business_Rebate_Track	IU	Therms				
110	Business_Rebate_Track	CA	Therms				
111	Business_Rebate_Track	IU	Therms				
112	Business_Rebate_Track	CA	Therms				
113	Business_Rebate_Track	Steam Trap, Commercial	Therms				
114	Business_Rebate_Track	<300 MBH	Therms				
115	Business_Rebate_Track	499 MBH	Therms				
116	Business_Rebate_Track	999 MBH	Therms				
117	Business_Rebate_Track	1000-1700 MBH	Therms				
118	Business_Rebate_Track	1701-2000 MBH	Therms				
119	Business_Rebate_Track	MBH	Therms				
120	Business_Rebate_Track	499 MBH	Therms				
121	Business_Rebate_Track	999 MBH	Therms				
122	Business_Rebate_Track	1700 MBH	Therms				
123	Business_Rebate_Track	2000 MBH	Therms				
124	Business_Rebate_Track	Furnace, >92% AFUE - CA	Therms				
125	Business_Rebate_Track	Furnace, >95% AFUE - CA	Therms				
126	Business_Rebate_Track	Space Heat	Therms				
127	Business_Rebate_Track	Space Heat	Therms				
128	Business_Rebate_Track	Space Heat	Therms				
129	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms				
130	Business_Rebate_Track	Indoor Space Heat	Therms				
131	Business_Rebate_Track	Indoor Space Heat	Therms				
132	Business_Rebate_Track	Indoor DHW	Therms				
133	Business_Rebate_Track	Indoor DHW	Therms				
134	Custom_Incentive_Track	Custom 2,500-7,500 therms	Therms				
135	Custom_Incentive_Track	Custom > 7,500 therms	Therms				
136	Custom_Incentive_Track	MF Custom 2,500-7,500 therms	Therms				
137	Custom_Incentive_Track	MF Custom >7500 therms	Therms				
138	Residential_AssessmentDI_Track	Bathroom Aerator SF (DI)	Therms				
139	Residential_AssessmentDI_Track	Kitchen Aerator SF (DI)	Therms				
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms				
141	Residential_AssessmentDI_Track	Handheld Showerhead (DI) SF	Therms				
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms				
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms				
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms				
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms				
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms				
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms				
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms				
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms				
150	Residential_AssessmentDI_Track	HW Insulation (1) DI CA	Therms				
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms				
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms				
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms				
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms				
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms				
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms				
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms				
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms				
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms				
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms				
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms				
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms				
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms				
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms				
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms				
166	Residential_EducationOutreach_Track	Home Reports	Therms				
167	Residential_EducationOutreach_Track	Kit 1	Therms				
168	Residential_EducationOutreach_Track	Kit 2	Therms				
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms				
170	Residential_EducationOutreach_Track	EEE Kit	Therms				
171	Residential_NewConstruction_Track	RNC Home	Therms				
172	Residential_NewConstruction_Track	RNC Home	Therms				
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms				
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms				
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms				
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms				
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms				
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms				
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms				
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms				
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms				
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms				
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms				
184	Residential_Rebate_Track	Air Sealing SF	Therms				
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms				
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms				
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms				
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms				
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms				
190	Residential_Rebate_Track	Wall Insulation SF	Therms				
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms				
192	Residential_Rebate_Track	Air Sealing SF	Therms				
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms				
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms				
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms				
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms				
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms				
198	Residential_Rebate_Track	Wall Insulation SF	Therms				
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms				
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms				
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms				
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms				
203	Residential_Rebate_Track	Wx - Income Qualified	Therms				
204							
205							
206							
207							
208	**Portfolio Total (kWh)**		kWh				
209	**Portfolio Total (Therms)**		Therms	**0**	**0**	**0**	**0**

	A	B	C	BA	BB
1	EEPS Adjustable Savings Goal	Template - *Measure-Level Adjustments*			
2	*9/1/2016*				
3	Program Administrator: Nicor Gas				
4				**Approved Energy Efficiency Plan Key Assumptions - Measure-Level Algorithm Inputs**	
5				*Not derived from values in the IL-TRM, and therefore will not necessitate a change in savings goals if the IL-TRM is updated. Note: The Key Custom Input Assumptions specified in column (ba) should remain fixed over the Plan period when calculating the Gross Unit Savings for the Measure for the applicable Program Years set forth in columns (ag), (ani), and (ani), unless consensus is reached at SAG that the extenuating circumstance warrants an adjustment.*	*Derived from the IL-TRM that, if changed in the IL-TRM in the future, would therefore necessitate a savings goal adjustment, unless consensus is reached at SAG that the extenuating circumstance warrants no adjustment.*
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	**Key Custom Input Assumptions (if none, specify NA)**	**Key IL-TRM Input Assumptions**
7	*(a)*	*(b)*	*(c)*	*(ba)*	*(bb)*
8	Business_AssessmentDI_Track	Mid Business - Drop In	Therms		
9	Business_AssessmentDI_Track	Mid Business Assessment	Therms		
10	Business_AssessmentDI_Track	Energy Assessment SB	Therms		
11	Business_AssessmentDI_Track	Spray Valve (Small Restuarants)-DI	Therms	4.2.11	4.2.11
12	Business_AssessmentDI_Track	Spray Valve (Med Sized Restuarants)-DI	Therms	4.2.11	4.2.11
13	Business_AssessmentDI_Track	Salon Sprayer	Therms		
14	Business_AssessmentDI_Track	Faucet Aerators - Kitchen - DI	Therms	4.3.2	4.3.2
15	Business_AssessmentDI_Track	Faucet Aerators - Bath - DI	Therms	4.3.2	4.3.2
16	Business_AssessmentDI_Track	Low Flow Shower Heads - DI	Therms	4.3.3	4.3.3
17	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms		
18	Business_AssessmentDI_Track	Opportunity Assessments-Custom	Therms		
19	Business_AssessmentDI_Track	Facility Assessments-Custom	Therms		
20	Business_AssessmentDI_Track	RCx Assessments	Therms		
21	Business_AssessmentDI_Track	Building Assessment MF	Therms		
22	Business_AssessmentDI_Track	DHW WH Pipe Wrap - 6' - DI	Therms		
23	Business_AssessmentDI_Track	Pre-Rinse Spray Valves	Therms	4.2.11	4.2.11
24	Business_AssessmentDI_Track	Laminar Flow	Therms	4.3.2	4.3.2
25	Business_EducationOptimization_Track	RCx Project	Therms		
26	Business_EducationOptimization_Track	Express Building Tune Up	Therms		
27	Business_EducationOptimization_Track	SEM Industrial Process Efficiency	Therms		
28	Business_EducationOptimization_Track	SEM Healthcare	Therms		
29	Business_NewConstruction_Track	Business New Construction	Therms		
30	Business_Rebate_Track	Boiler Reset Controls, 400 MBH	Therms	4.4.4	4.4.4
31	Business_Rebate_Track	Boiler Tune Up, 300 MBH	Therms	4.4.2	4.4.2
32	Business_Rebate_Track	Boiler Tune Up, Process	Therms	4.4.3	4.4.3
33	Business_Rebate_Track	Steam Trap, Commercial	Therms	4.4.16	4.4.16
34	Business_Rebate_Track	Steam Trap, Indust MP 15-30 psig	Therms	4.4.16	4.4.16
35	Business_Rebate_Track	Steam Trap, Indust MP 30-75 psig	Therms	4.4.16	4.4.16
36	Business_Rebate_Track	Steam Trap, Indust HP 75-125 psig	Therms	4.4.16	4.4.16
37	Business_Rebate_Track	Steam Trap, Indust HP 125-175 psig	Therms	4.4.16	4.4.16
38	Business_Rebate_Track	Steam Trap, Indust HP 175-250 psig	Therms	4.4.16	4.4.16
39	Business_Rebate_Track	Steam Trap, Indust HP 250 psig	Therms	4.4.16	4.4.16
40	Business_Rebate_Track	Steam Trap, Dry Cleaner	Therms	4.4.16	4.4.16
41	Business_Rebate_Track	Programmable Thermostat - Commercial	Therms		
42	Business_Rebate_Track	Condensing Boilers, ≥90%, <300 MBH	Therms	4.4.10	4.4.10
43	Business_Rebate_Track	Condensing Boilers, ≥90% 300-499 MBH	Therms	4.4.10	4.4.10
44	Business_Rebate_Track	Condensing Boilers, ≥90% 500-999 MBH	Therms	4.4.10	4.4.10
45	Business_Rebate_Track	Condensing Boilers, ≥90% 1000-1700 MBH	Therms	4.4.10	4.4.10
46	Business_Rebate_Track	Condensing Boilers, ≥90% 1701-2000 MBH	Therms	4.4.10	4.4.10
47	Business_Rebate_Track	Hydronic Boilers, ≥85% <300 MBH	Therms	4.4.10	4.4.10
48	Business_Rebate_Track	Hydronic Boilers, ≥85% 300-499 MBH	Therms	4.4.10	4.4.10
49	Business_Rebate_Track	Hydronic Boilers, ≥85% 500-999 MBH	Therms	4.4.10	4.4.10
50	Business_Rebate_Track	Hydronic Boilers, ≥85% 1000-1700 MBH	Therms	4.4.10	4.4.10
51	Business_Rebate_Track	Hydronic Boilers, ≥85% 1701-2000 MBH	Therms	4.4.10	4.4.10
52	Business_Rebate_Track	Furnace, >92% AFUE	Therms	4.4.11	4.4.11
53	Business_Rebate_Track	Furnace, >95% AFUE	Therms	4.4.11	4.4.11
54	Business_Rebate_Track	Condensing Unit Heaters, >90% <300 MBH	Therms	4.4.5	4.4.5
55	Business_Rebate_Track	Infrared Heaters	Therms	4.4.12	4.4.12
56	Business_Rebate_Track	Storage Water Heater, >0.67 EF	Therms	4.3.1	4.3.1
57	Business_Rebate_Track	Storage Water Heater, >88% TE	Therms	4.3.1	4.3.1
58	Business_Rebate_Track	Pipe Insulation, Indoor HW Space Heat	Therms	4.4.14	4.4.14
59	Business_Rebate_Track	Pipe Insulation, Indoor LPS Space Heat	Therms	4.4.14	4.4.14
60	Business_Rebate_Track	Pipe Insulation, Indoor MPS Space Heat	Therms	4.4.14	4.4.14
61	Business_Rebate_Track	Pipe Insulation, Indoor HPS Space Heat	Therms	4.4.14	4.4.14
62	Business_Rebate_Track	Pipe Insulation, Indoor DHW	Therms	4.4.14	4.4.14
63	Business_Rebate_Track	Pipe Insulation, Indoor LPS Process Heat	Therms	4.4.14	4.4.14
64	Business_Rebate_Track	Pipe Insulation, Indoor MPS Process Heat	Therms	4.4.14	4.4.14
65	Business_Rebate_Track	Pipe Insulation, Indoor HPS Process Heat	Therms	4.4.14	4.4.14
66	Business_Rebate_Track	Pipe Insulation, Outdoor HW Space Heat	Therms	4.4.14	4.4.14
67	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Space Heat	Therms	4.4.14	4.4.14
68	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Space Heat	Therms	4.4.14	4.4.14
69	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Space Heat	Therms	4.4.14	4.4.14
70	Business_Rebate_Track	Pipe Insulation, Outdoor LPS Process Heat	Therms	4.4.14	4.4.14
71	Business_Rebate_Track	Pipe Insulation, Outdoor MPS Process Heat	Therms	4.4.14	4.4.14
72	Business_Rebate_Track	Pipe Insulation, Outdoor HPS Process Heat	Therms	4.4.14	4.4.14
73	Business_Rebate_Track	Indoor Pool Covers	Therms	4.3.4	4.3.4
74	Business_Rebate_Track	Outdoor Pool Covers	Therms	4.3.4	4.3.4
75	Business_Rebate_Track	Infrared Upright Broiler	Therms	4.2.15	4.2.15
76	Business_Rebate_Track	Infrared Charbroiler	Therms	4.2.12	4.2.12
77	Business_Rebate_Track	Pasta Cooker	Therms	4.2.17	4.2.17
78	Business_Rebate_Track	Infrared Rotisserie Oven	Therms	4.2.13	4.2.13
79	Business_Rebate_Track	Infrared Salamander Broiler	Therms	4.2.14	4.2.14
80	Business_Rebate_Track	Pre-Rinse Spray Valves DI CA	Therms	4.2.11	4.2.11
81	Business_Rebate_Track	Commercial Steamer, E ≥38%	Therms	4.2.3	4.2.3
82	Business_Rebate_Track	Convection Oven, E >44%	Therms	4.2.5	4.2.5
83	Business_Rebate_Track	Combination Oven	Therms	4.2.1	4.2.1
84	Business_Rebate_Track	Rack Oven - Single	Therms		
85	Business_Rebate_Track	Rack Oven - Double	Therms	4.2.18	4.2.18
86	Business_Rebate_Track	Fryer - Large Vat	Therms		
87	Business_Rebate_Track	Fryer - E >50%	Therms	4.2.7	4.2.7
88	Business_Rebate_Track	Griddle	Therms	4.2.8	4.2.8
89	Business_Rebate_Track	Large Conveyor Oven, >=25 in	Therms	4.2.4	4.2.4
90	Business_Rebate_Track	Large Conveyor Oven, <25 in	Therms		
91	Business_Rebate_Track	Finned-Bottom Stock Pots	Therms		
92	Business_Rebate_Track	Ozone Laundry	Therms	4.3.6	4.3.6
93	Business_Rebate_Track	Pipe Insulation - Dry Cleaner	Therms		
94	Business_Rebate_Track	Convection Oven, E >44%	Therms	4.2.5	4.2.5
95	Business_Rebate_Track	Fryer - E >50%	Therms	4.2.7	4.2.7
96	Business_Rebate_Track	Griddle	Therms	4.2.8	4.2.8
97	Business_Rebate_Track	Combination Oven	Therms	4.2.1	4.2.1
98	Business_Rebate_Track	Rack Oven - Double Upstream	Therms	4.2.18	4.2.18

	A	B	C	BA	BB
4				Approved Energy Efficiency Plan Key Assumptions - Measure-Level Algorithm Inputs	
5				*Not derived from values in the IL-TRM, and therefore will not necessitate a change in savings goals if the IL-TRM is updated. Note: The Key Custom Input Assumptions specified in column (ba) should remain fixed over the Plan period when calculating the Gross Unit Savings for the Measure for the applicable Program Years set forth in columns (ag), (am), and (as), unless consensus is reached at SAG that the extenuating circumstance warrants an adjustment.*	*Derived from the IL-TRM that, if changed in the IL-TRM in the future, would therefore necessitate a savings goal adjustment, unless consensus is reached at SAG that the extenuating circumstance warrants no adjustment.*
6	**Program**	**Measure**	Energy Savings: kWh or Therms?	**Key Custom Input Assumptions (if none, specify NA)**	**Key IL-TRM Input Assumptions**
7	***(a)***	***(b)***	***(c)***	***(ba)***	***(bb)***
99	Business Rebate Track	Infrared Upright Broiler Upstream	Therms	4.2.15	4.2.15
100	Business Rebate Track	Infrared Charbroiler Upstream	Therms	4.2.12	4.2.12
101	Business Rebate Track	Pasta Cooker Upstream	Therms	4.2.17	4.2.17
102	Business Rebate Track	Infrared Rotisserie Oven Upstream	Therms	4.2.13	4.2.13
103	Business Rebate Track	Infrared Salamander Broiler Upstream	Therms	4.2.14	4.2.14
104	Business Rebate Track	Commercial Steamer, E ≥38%	Therms	4.2.3	4.2.3
105	Business Rebate Track	Large Conveyor Oven, >=25 in	Therms	4.2.4	4.2.4
106	Business Rebate Track	Boiler Reset Controls, 400 MBH	Therms	4.4.4	4.4.4
107	Business Rebate Track	Boiler Tune Up, 400 MBH	Therms	4.4.2	4.4.2
108	Business Rebate Track	CDHW Controls	Therms	4.3.8	4.3.8
109	Business Rebate Track	IU	Therms		
110	Business Rebate Track	CA	Therms		
111	Business Rebate Track	IU	Therms		
112	Business Rebate Track	CA	Therms		
113	Business Rebate Track	Steam Trap, Commercial	Therms	4.4.16	4.4.16
114	Business Rebate Track	<300 MBH	Therms	4.4.10	4.4.10
115	Business Rebate Track	499 MBH	Therms	4.4.10	4.4.10
116	Business Rebate Track	999 MBH	Therms	4.4.10	4.4.10
117	Business Rebate Track	1000-1700 MBH	Therms	4.4.10	4.4.10
118	Business Rebate Track	1701-2000 MBH	Therms	4.4.10	4.4.10
119	Business Rebate Track	MBH	Therms	4.4.10	4.4.10
120	Business Rebate Track	499 MBH	Therms	4.4.10	4.4.10
121	Business Rebate Track	999 MBH	Therms	4.4.10	4.4.10
122	Business Rebate Track	1700 MBH	Therms	4.4.10	4.4.10
123	Business Rebate Track	2000 MBH	Therms	4.4.10	4.4.10
124	Business Rebate Track	Furnace, >92% AFUE - CA	Therms	4.4.11	4.4.11
125	Business Rebate Track	Furnace, >95% AFUE - CA	Therms	4.4.11	4.4.11
126	Business Rebate Track	Space Heat	Therms	4.4.14	4.4.14
127	Business Rebate Track	Space Heat	Therms	4.4.14	4.4.14
128	Business Rebate Track	Space Heat	Therms	4.4.14	4.4.14
129	Business Rebate Track	Pipe Insulation, Indoor DHW	Therms	4.4.14	4.4.14
130	Business Rebate Track	Indoor Space Heat	Therms	4.4.24	4.4.24
131	Business Rebate Track	Indoor Space Heat	Therms	4.4.24	4.4.24
132	Business Rebate Track	Indoor DHW	Therms	4.4.24	4.4.24
133	Business Rebate Track	Indoor DHW	Therms	4.4.24	4.4.24
134	Custom Incentive Track	Custom 2,500-7,500 therms	Therms		
135	Custom Incentive Track	Custom > 7,500 therms	Therms		
136	Custom Incentive Track	MF Custom 2,500-7,500 therms	Therms		
137	Custom Incentive Track	MF Custom >7500 therms	Therms		
138	Residential AssessmentDI Track	Bathroom Aerator SF (DI)	Therms	5.4.4	5.4.4
139	Residential AssessmentDI Track	Kitchen Aerator SF (DI)	Therms	5.4.4	5.4.4
140	Residential_AssessmentDI_Track	Showerhead (DI) SF	Therms	5.4.5	5.4.5
141	Residential AssessmentDI Track	Handheld Showerhead (DI) SF	Therms	5.4.5	5.4.5
142	Residential_AssessmentDI_Track	WH Set Back - SF	Therms	5.4.6	5.4.6
143	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms	5.4.1	5.4.1
144	Residential_AssessmentDI_Track	Assessment (HES) - joint	Therms		
145	Residential_AssessmentDI_Track	HW Pipe Insulation (3 ft.) (DI)	Therms	5.4.1	5.4.1
146	Residential_AssessmentDI_Track	Thermostat Education (DI)	Therms	5.3.11	5.3.11
147	Residential_AssessmentDI_Track	Assessment (HES)	Therms		
148	Residential_AssessmentDI_Track	Residential Deep Assessment	Therms		
149	Residential_AssessmentDI_Track	Advanced Thermostat (DI)	Therms	5.3.16	5.3.16
150	Residential_AssessmentDI_Track	HW Insulation (1') DI CA	Therms		
151	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-IU	Therms	5.4.4	5.4.4
152	Residential_AssessmentDI_Track	Low Flow Aerator - Bath (DI) MF-CA	Therms	5.4.4	5.4.4
153	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-IU	Therms	5.4.4	5.4.4
154	Residential_AssessmentDI_Track	Low Flow Aerator - Kitchen (DI) MF-CA	Therms	5.4.4	5.4.4
155	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms	5.4.5	5.4.5
156	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms	5.4.5	5.4.5
157	Residential_AssessmentDI_Track	Showerhead (DI) MF-IU	Therms	5.4.5	5.4.5
158	Residential_AssessmentDI_Track	Showerhead (DI) MF-CA	Therms	5.4.5	5.4.5
159	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms	5.3.11	5.3.11
160	Residential_AssessmentDI_Track	WH Set Back - MF	Therms	5.4.6	5.4.6
161	Residential_AssessmentDI_Track	Unit Assessment MF - Joint	Therms		
162	Residential_AssessmentDI_Track	Building Assessment MF - joint	Therms		
163	Residential_AssessmentDI_Track	Programmable Thermostat (DI) MF-IU	Therms	5.3.11	5.3.11
164	Residential_AssessmentDI_Track	Re-Program Thermostat (DI) MF-IU	Therms	5.3.11	5.3.11
165	Residential_AssessmentDI_Track	Unit Assessment MF	Therms		
166	Residential_EducationOutreach_Track	Home Reports	Therms		
167	Residential_EducationOutreach_Track	Kit 1	Therms	KITs Tab	KITs Tab
168	Residential_EducationOutreach_Track	Kit 2	Therms	KITs Tab	KITs Tab
169	Residential_EducationOutreach_Track	EEE Kit - Gas Only	Therms	KITs Tab	KITs Tab
170	Residential_EducationOutreach_Track	EEE Kit	Therms	KITs Tab	KITs Tab
171	Residential_NewConstruction_Track	RNC Home	Therms		
172	Residential_NewConstruction_Track	RNC Home	Therms		
173	Residential_Rebate_Track	Boilers, >95% AFUE <300 MBH - SF	Therms	5.3.6	5.3.6
174	Residential_Rebate_Track	Furnace, >95% AFUE	Therms	5.3.7	5.3.7
175	Residential_Rebate_Track	Furnace, >97% AFUE	Therms	5.3.7	5.3.7
176	Residential_Rebate_Track	Furnace, >95% AFUE - Early Retire	Therms	5.3.7	5.3.7
177	Residential_Rebate_Track	Furnace, >97% AFUE - Early Retire	Therms	5.3.7	5.3.7
178	Residential_Rebate_Track	BUNDLE #1 - 95% Furnace, WH, Tstat	Therms		
179	Residential_Rebate_Track	BUNDLE #2 - 97% Furnace, WH, Tstat	Therms		
180	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	5.3.16	5.3.16
181	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	5.3.16	5.3.16
182	Residential_Rebate_Track	Furnace, >92% AFUE - MF IU	Therms	5.3.7	5.3.7
183	Residential_Rebate_Track	Furnace, >95% AFUE - MF IU	Therms	5.3.7	5.3.7
184	Residential_Rebate_Track	Air Sealing SF	Therms	5.6.1	5.6.1
185	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms	5.6.4	5.6.4
186	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms	5.6.4	5.6.4
187	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms	5.6.4	5.6.4
188	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms	5.6.4	5.6.4
189	Residential_Rebate_Track	Duct Sealing SF Unconditioned	Therms	5.3.4	5.3.4
190	Residential_Rebate_Track	Wall Insulation SF	Therms	5.6.4	5.6.4
191	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms	5.6.2	5.6.2
192	Residential_Rebate_Track	Air Sealing SF	Therms	5.6.1	5.6.1
193	Residential_Rebate_Track	Attic Insulation (R5 to R19) SF	Therms	5.6.4	5.6.4
194	Residential_Rebate_Track	Attic Insulation (<R19 to R38) SF	Therms	5.6.4	5.6.4
195	Residential_Rebate_Track	Attic Insulation (<R19 to R49) SF	Therms	5.6.4	5.6.4
196	Residential_Rebate_Track	Attic Insulation (>R19 to R49) SF	Therms	5.6.4	5.6.4
197	Residential_Rebate_Track	Duct Sealing SF Joint	Therms	5.3.4	5.3.4
198	Residential_Rebate_Track	Wall Insulation SF	Therms	5.6.4	5.6.4
199	Residential_Rebate_Track	Basement/Sidewall Insulation SF	Therms	5.6.2	5.6.2
200	Residential_Rebate_Track	Wx - Whole House Retrofit	Therms		
201	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	5.3.16	5.3.16
202	Residential_Rebate_Track	Advanced Thermostat (TOS)	Therms	5.3.16	5.3.16
203	Residential_Rebate_Track	Wx - Income Qualified	Therms		
204					
205					
206					
207					
208	**Portfolio Total (kWh)**		kWh		
209	**Portfolio Total (Therms)**		Therms		

4.2.1										Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Componer	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Pan Size	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.2	Combination Oven (16 pans)	Combination Oven	Food service	TOS	12	$ 4,300.00		16				363.71		-	4,364.46
4.2.2	Combination Oven (16 pans) Upstream	Combination Oven	Food service	TOS	12	$ 4,300.00		16	Upstream			363.71		-	4,364.46

#	Savings Algorithm Inputs - Proposed TRM V5																							
	$\Delta CookingEnergy_{ConvGas}$	$\Delta CookingEnergy_{SteamGas}$	$\Delta IdleEnergy_{ConvGas}$	$\Delta IdleEnergy_{SteamGas}$	LB_{Gas}	$EFOOD_{ConvGas}$	GasEFFconvbase	GasEFFconvEE	GasEFFsteambase	GasEFFsteamEE	$EFOOD_{SteamGas}$	$GasIDLE_{ConvEE}$	100,000	$\%_{Conv}$	$\%_{Steam}$	HOURS	Days	$GasPCconv_{Base}$	$GasPCsteam_{Base}$	$GasIDLEconv_{Base}$	$GasIDLEsteam_{Base}$	$GasPCconv_{EE}$	$GasPCsteam_{EE}$
4.2.2	4,293	1,642	14,774	78,937	250	250	52%	56%	39%	41%	105	7825	100000	50%	50%	12	365	176	211	10788	24562	210	277
4.2.2	4,293	1,642	14,774	78,937	250	250	52%	56%	39%	41%	105	7825	100000	50%	50%	12	365	176	211	10788	24562	210	277

Proposed TRM Algorithm for TRM V5	
ΔTherms = (ΔCookingEnergyConvGas + ΔCookingEnergySteamGas + ΔIdleEnergyConvGas + ΔIdleEnergySteamGas) * Days / 100,000	
Date	2016-09-01
Measure Code	CI-FSE-CBOV-V02-160601

TRM Algorithm Inputs	Input Value	Notes
Measure Life	12	Deemed TRM Value
Incremental Cost	4300	This is a deemed TRM Value
$\Delta CookingEnergy_{ConvGas}$	Calculated Algorithm from TRM	Change in total daily cooking energy consumed by gas oven in convection mode Formula: LBGas * (EFOODConvGas / GasEFFConvBase - EFOODConvGas / GasEFFConvEE) * %Conv
$\Delta CookingEnergy_{SteamGas}$	Calculated Algorithm from TRM	Change in total daily cooking energy consumed by gas oven in steam mode Formula: LBGas * (EFOODSteamGas / GasEFFSteamBase – EFOODSteamGas / GasEFFSteamEE) * %steam
$\Delta IdleEnergy_{ConvGas}$	Calculated Algorithm from TRM	Change in total daily idle energy consumed by gas oven in convection mode Formula: [(GasIDLEConvBase * ((HOURS – LBGas/GasPCConvBase) * %Conv)) - (GasIDLEConvEE * ((HOURS - LBGas/GasPCConvEE) * %Conv))]
$\Delta IdleEnergy_{SteamGas}$	Calculated Algorithm from TRM	Change in total daily idle energy consumed by gas oven in convection mode Formula: [(GasIDLESteamBase * ((HOURS – LBGas/GasPCSteamBase) * %Steam)) - (GasIDLESteamEE * ((HOURS - LBGas/GasPCSteamEE) * %Steam))]
LB_{Gas}	Table of lookup values from TRM based on pan size	Estimated mass of food cooked per day for gas oven (lbs/day) Custom, or if unknown, use 200 lbs (If P <15), 250 lbs (If 15 <= P 30), or 400 lbs (If P = >30)
$EFOOD_{ConvGas}$	250	energy absorbed by food product for Natural gas Oven in : cooking by convection mode Custom, or if unknown, use = 250 Btu/lb8
GasEFF	Table of lookup values from TRM	cooking energy efficiency of gas oven Custom or if unknown, use values from table below
$EFOOD_{SteamGas}$	105	energy absorbed by food product for gas oven in steam mode Custom or if unknown, use 105 Btu/lb
$GasIDLE_{Base}$	Table of lookup values from TRM	Idle energy rate (Btu/hr) of baseline gas oven Custom or if unknown, use values from table belowEIdleBaseNG = idle energy rate of natural gas baseline unit
$GasIDLE_{ConvEE}$		idle energy rate of energy STAR gas oven in convection mode Formula '= 150*P + 5.425
$GasPC_{EE}$		Production capacity (lbs/hr) of ENERGY STAR gas oven Custom of if unknown, use values from table below: which is a table from TRM V5
$GasPC_{Base}$		Production capacity (lbs/hr) of baseline gas oven Custom of if unknown, use values from table below
$GasIDLE_{SteamEE}$		idle energy rate of energy STAR gas oven in steam modeEIdleSteamEENG = idle energy rate of natural gas efficient unit in steam mode Formula: = 200* P +6511
100 000	100000	Conversion factor from Btu to therms
$\%_{Conv}$	50%	Percentage of time in convection mode Custom , or if unknown, use = 50%; 50% is a value from TRM V5
$\%_{Steam}$	TRM Algorithm = 1-%conv	Percentage of time in steam mode Formula from TRM V5: = 1 - %conv
HOURS	12	Average daily hours of operation Custom , or if unknown, use = 12 hours
Days	365	Days of operation per year Custom, or if unknown, use 365 days per year as defined in TRM V5

Tables for Algorithm Inputs

Table for Variable $GasPC_{Base}$		
Pan Capacity	Convection Mode ($GasPC_{ConvBase}$)	Steam Mode (GasPC…
< 15	125	195
15-30	176	211
>30	392	579

Table for Variable $GasIDLE_{Base}$		
Pan Capacity	Convection Mode ($GasIDLE_{ConvBase}$)	Steam Mode (GasIDLE…
< 15	8,747	18,656
15-30	10,788	24,562
>30	13,000	43,300

Table for Variable $GasPC_{EE}$		
Pan Capacity	Convection Mode ($GasPC_{ConvEE}$)	Steam Mode (GasPC…
< 15	124	172
15-30	210	277
>30	394	640

Table for Variable GasEFF		
	Base	EE
$GasEFF_{Conv}$	52%	56%
$GasEFF_{Steam}$	39%	41%

Table for Variable Lbs	
<15	200
15-30	250
> 30	400

Number of Pans for Permutation	GasIDLESteamEE	Result for Algorithm
10	=200*P+6511	8511
16	=200*P+6511	9711
31	=200*P+6511	12711

Number of Pans for Permutation	GasIDLEConvEE	Result for Algorithm
10	=150*P+5425	6925
16	=150*P+5425	7825
31	=150*P+5425	10075

4.2.3	Commercial Steam Cooker													Annual Savings				Lifetime Savings				Algorithm Inputs																	
#	Measure	Short Measure Name	Measure Complete	Program Type	EE Measure Description	No. of Pans	Type of Food Service	CEE Tier	Rebate Ivose	Measure Life (Yrs)	Incremental Cost	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔwaterIrsaIkl	ΔkWh	ΔkW	ΔTherms	ΔwaterIrsaIkl	$CSM_{steam/cooking}$	$IDLE_{steam}$	PC_{steam}	$EFF_{steam/cooking}$	PRE_{steam}	Δ Pre...	Z	CF	W_{steam}	$W_{steam/cooking}$	$Days_{steam}$	Δkwhsteam
4.2.3.1	Commercial Steam Cooker- Natural Gas Steam Cooker. Ave Efficient. Unknown. 3 oans	Commercial Steamer. E ≥38%	Food service	TOS	Natural Gas Steam Cooker	3	Unknown	Ave Efficient		12	$ 998	CGS - Commercial Electric Cooking	-	-	752.01	65,745.00	-	-	9,024.15	788,940.00	90%	$1000	65	105	0.15	6	100	0%	6250	55	0.38	1.00	$1000	365.25	0.4	40	10	365.25	752.0123
4.2.3.2	Commercial Steam Cooker- Natural Gas Steam Cooker. Ave Efficient. Unknown Unstream. 3 oans	Commercial Steamer. E ≥38% Unstream	Food service	TOS	Natural Gas Steam Cooker	3	Unknown	Ave Efficient	Unstream	12	$ 998	CGS - Commercial Electric Cookine	-	-	752.01	65,745.00	-	-	9,024.15	788,940.00	90%	$1000	65	105	0.15	6	100	0%	6250	55	0.38	1.00	$1000	365.25	0.4	40	10	365.25	752.0123

TRM Algorithm

$\Delta Savings = (\Delta kWe\ Energy + \Delta Preheat\ Energy + \Delta Cooking\ Energy) * 2$

For a gas cooker: $\Delta Therms = \Delta kWh * 1/100{,}000 * 2$

For an electric steam cooker: $\Delta Savings = \Delta kWh * 2$

$\Delta kWe\ Energy = [((1 - CSM_{steam/cooking}) * IDLE_{steam} + CSM_{steam/cooking} * PC_{steam} * E_{steam} / EFF_{steam})*HOURS_{day} - (F / PC_{steam})] - (PRE_{steam} *0.25)]) - [(1 - CSM_{commercial}) * IDLE_{commercial} + CSM_{commercial} * PC_{cooker} * \Delta Preheat\ Energy = (PRE_{steam} * \Delta Pre...)$

$\Delta Cooking\ Energy = (Z / EFF\ RATE) - (Z / EFF\ ENERGY\ STAR*1) * F * E_{steam}$

$\Delta kW = (\Delta kWh/(HOURS\ Day *Days\ Year)) * CF$

$\Delta kWhr = (W_{steam} - W_{steam/cooking})*HOURS_{day} - *Days...$

Date	2010-05-03
Measure Code	CI-FSE-STMC-V04-160501

Algorithm Component	Input Values	Notes
$CSM_{steam/cooking}$	90%	Baseline Steamer Timer in Manual Steam Mode (% of time) Deemed TRM Value at 90%
$IDLE_{steam}$	Based on Table of Lookup Values	Idle Energy Rate of Base Steamer Deemed Table of Values from the TRMToolsand on the Number of Pans
PC_{steam}	Based on Table of Lookup Values	Production Capacity of Base Steamer Deemed Table of Values from the TRMToolsand on the Number of Pans
E_{steam}	35%	Amount of Energy Absorbed by the food during cooking known as ULPM Energy to Food (Btu/lb or kWh/lb) Deemed TRM Value based on whether it is a gas or electric steamer 35% Btu/lb (gas steamers) or 0.0288 (electric steamers)
EFF_{steam}	15%	Heavy Load Cooking Efficiency for Base Steamer Deemed TRM Value based on whether it is a gas or electric steamer 15% (gas steamers) or 26% (electric steamers)
$HOURS_{day}$	Based on Table of Lookup Values	Average Daily Operation (hours) Deemed Table of Values from the TRMToolsand on the Type of Food Service Industry
F	100	Food cooked per day (lbs/day) Deemed Value from TRM if unknown. If unknown, use 100 lbs/day
$CSM_{commercial}$	0%	ENERGY STAR Steamer's Time in Manual Steam Mode (% of time) Deemed Value from the TRMList 0%
$IDLE_{commercial}$	Based on Table of Lookup Values	Idle Energy Rate of ENERGY STAR Deemed Table of Values from the TRMToolsand on the number of pans
PC_{cooker}	Based on Table of Lookup Values	Production Capacity of ENERGY STAR® Steamer Deemed Table of Values from the TRMToolsand on the number of pans
$EFF_{commercial}$	26%	Heavy Load Cooking Efficiency for ENERGY STAR® Steamer(%) Deemed TRM Value based on whether it is a gas or electric steamer 26% (gas steamers) or 50% (electric steamer)
PRE_{cooker}	1.00	Number of preheats per day Deemed Value from TRM equal to 1 and if unknown, use 1
Δ Pre...	1000.00	Number of Preheats saved Gas * Preheat energy saved per preheat Deemed TRM Value based on whether it is a gas or electric steamer 11,000 Btu/preheat (gas steamers) or 0.5 kWh/preheat (electric steamer)
Z	365.25	days/yr steamer operating (use 365.25 days/yr if heavy use restaurant and exact number unknown)
CF	Based on Table of Lookup Values	Summer Peak Coincidence Factor for measure is provided below for different locations Deemed TRM Values based on location Value is deemed for Summer coincident peak demand savings. Does not have a Natural Gas implication
W_{steam}	40	Water Consumption Rate of Base Steamer (gal/hr) Deemed TRM value of 40
$W_{steam/cooking}$	Based on Table of Lookup Values	Water Consumption Rate of ENERGY STAR® Steamer look up Deemed Table of Values in the TRM based on CEE Tier
$Days_{steam}$	365.25	Deemed TRM value of 365.25 or custom value if known
Incremental Cost	998 2490	The incremental capital cost for this measure is $998 for a natural gas steam cooker The incremental capital cost for this measure is $2490 for an electric steam cooker The incremental costs are deemed values from the TRM
Measure Life	12	The expected measure life is assumed to be 12 years This is a deemed TRM value
Baseline Definition		The baseline condition is assumed to be a non-ENERGY STAR® commercial steamer at end of life. It is assumed that the efficient equipment and baseline equipment have the same number of pans.
Efficient Definition		Gas: ENERGY STAR® qualified with 38% minimum cooking energy efficiency at heavy load (potato) cooking capacity for gas steam cookers

Table for Algorithm Inputs

	Incremental Cost	E_{steam}	EFF_{steam}	$EFF_{commercial}$	Δ Pre...	
Natural Gas Steam Cooker	$ 998	105	15%	38%	11,000	
Electric Steam Cooker	$ 2,490	0.0288	26%	50%	0.5	

Number of Pans	$IDLE_{steam}$ - Gas, Btu/hr	$IDLE_{steam}$ - Electric, kw	PC_{steam} gas (lbs/hr)	PC_{steam} electric, lbs/hr	$IDLE_{commercial}$ gas, Btu/hr	$IDLE_{commercial}$ electric, (kW)	PC_{cooker} - gas(lbs/hr)	PC_{cooker} – electric (lbs/hr)
3	11,000	1	65	70	6250	0.6	55	52
4	14,667	1.33	87	93	8333	0.53	74	67
5	18,333	1.67	108	117	10417	0.67	92	83
6	22,000	2	130	140	12500	0.8	110	100

Type of Food Service	Hours/day	CF
Fast Food, limited menu	4	0.33
Fast Food, expanded menu	5	0.41
Pizza	8	0.46
Full Service, limited menu	6	0.51
Full Service, expanded menu	7	0.36
Cafeteria	7	0.36
Unknown	6	0.40
Custom	12	0

CEE Tier	gal/hr
Tier 1A	15
Tier 1B	4
Avg Efficient	10
Avg Most Efficient	5

4.2.4									Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.4.1	**Conveyor Oven**	**Large Conveyor Oven, >=25 in**	**Food service**	TOS	17	$ 1,800.00	N/A	N/A	-	-	733.00	-	-	12,461.00
4.2.4.2	**Conveyor Oven Upstream**	**Large Conveyor Oven, >=25 in Upstream**	**Food service**	TOS	17	$ 1,800.00	N/A	Upstream			733.00			12,461.00

TRM Assumptions	Input Values	Notes
Savings	733	This is a deemed TRM Value
Measure Life	17	This is a deemed TRM Value
Incremental Cost	1,800	This is a deemed TRM Value
Baseline Definition		The baseline equipment is an existing pizza deck oven at end of life.
Efficient Definition		To qualify for this measure the installed equipment must be a natural gas conveyor oven with a tested baking energy efficiency > 42% and an idle energy consumption rate < 57,000 Btu/hr utilizing ASTM standard F1817.

Date	2016-09-01
Measure Code	CI-FSE-CVOV-V01-120601

4.2.5										Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Com	Program Type	Measure Life (Yrs)	Incremental Cost	Cost source	Rebate Type	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.5.1	ENERGY STAR Convection Oven	Convection Oven, E >44%	Food service	TOS	12	$ 426.00	Actual		N/A	-	-	306.08	-	-	3,672.99
4.2.5.2	ENERGY STAR Convection Oven Upstream	Convection Oven, E >44% Upstream	Food service	TOS	12	$ 426.00	Actual	Upstream	N/A	-	-	306.08	-	-	3,672.99

TRM Algorithm
ΔTherms = (ΔDailyIdle Energy + ΔDailyPreheat Energy + ΔDailyCooking Energy) * Days /100000
ΔDailyIdleEnergy = (IdleBase* IdleBaseTime)- (IdleENERGYSTAR * IdleENERGYSTARTime)
ΔDailyPreheatEnergy = (PreHeatNumberBase * PreheatTimeBase / 60 * PreheatRateBase) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60 * PreheatRateENERGYSTAR)
ΔDailyCookingEnergy = (LB * EFOOD/ EffBase) - (LB * EFOOD/ EffENERGYSTAR)

Date	2016-09-01
Measure Code	CI-FSE-ESCV-V01-120601

Additional TRM Algorithm	
ΔDailyIdleEnergy	49,285.71
ΔDailyPreheatEnergy	8000
ΔDailyCookingEnergy	26515.15152

TRM Assumptions	Input Values	Notes
HOURSday	12	Average Daily Operation (Hrs) custom or if unknown, use TRM Value of 12 hours
Days	365.25	Annual days of operation custom or if unknown, use TRM Value of 365.25 days a year
LB	100	Food cooked per day custom or if unknown, use TRM Value of 100 pounds
EffENERGYSTAR	44%	Cooking Efficiency ENERGY STAR custom or if unknown, use TRM Value of 44%
EffBase	30%	Cooking Efficiency Baseline custom or if unknown, use TRM Value of 30%
PCENERGYSTAR	80	Production Capacity ENERGY STAR (lbs/hr) custom or if unknown, use TRM Value of 80 pounds/hr
PCBase	70	Production Capacity base custom or if unknown, use TRM Value of 70 pounds/hr
PreheatNumberENERGYSTAR	1	Number of preheats per day custom or if unknown, use TRM Value of 1
PreheatNumberBase	1	Number of preheats per day custom or if unknown, use TRM Value of 1
PreheatTimeENERGYSTAR	15	preheat length (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatTimeBase	15	preheat length (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatRateENERGYSTAR	44,000	preheat energy rate high efficiency (btu/h) custom or if unknown, use TRM Value of 44000 btu/h
PreheatRateBase	76,000	preheat energy rate baseline custom or if unknown, use TRM Value of 76000 btu/h
IdleENERGYSTAR	13,000	Idle energy rate (btu/h) custom or if unknown, use TRM Value 13000 btu/h
IdleBase	18,000	Idle energy rate (btu/h) custom or if unknown, use TRM Value 18000 btu/h
IdleENERGYSTARTime	10.5	ENERGY STAR Idle Time (Hrs) HOURsday-LB/PCENERGYSTAR –PreHeatTimeENERGYSTAR/60 Using the TRM Inputs it would be, the equation would equal this
IdleBaseTime	10.3	BASE Idle Time HOURsday-LB/PCbase –PreHeatTimeBase/60 Using the TRM Inputs it would be, the equation would equal this
EFOOD	250	ASTM energy to food (btu/lb) Deemed TRM Value
Measure Life	12	Deemed TRM Value
Incremental Cost		TRM Value is $50, otherwise can use a custom input from table below
Baseline Definition		The baseline equipment is a natural gas convection oven that is not ENERGY STAR certified and is at end of life.
Efficient Definition		To qualify for this measure the installed equipment must be a natural gas convection oven with a cooking efficiency ≥ 44% utilizing ASTM

Incremental Cost Lookup Table	
TRM	$50.00
Actual	$426

4.2.7									Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.7.1	**ENERGY STAR Fryer**	**Fryer - E >50%**	**Food service**	TOS	15	$ 1,200.00	N/A		-	-	505.16	-	-	7,577.38
4.2.7.2	**ENERGY STAR Fryer Upstream**	**Fryer - E >50% Upstream**	**Food service**	TOS	15	$ 1,200.00	N/A	Upstream	-	-	505.16	-	-	7,577.38

TRM Algorithm
ΔTherms = (ΔDailyIdle Energy + ΔDailyPreheat Energy + ΔDailyCooking Energy) * Days /100000
ΔDailyIdleEnergy =(IdleBase* IdleBaseTime) – (IdleENERGYSTAR * IdleENERGYSTARTime)
ΔDailyPreheatEnergy = (PreHeatNumberBase * PreheatTimeBase / 60 * PreheatRateBase) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60 * PreheatRateENERGYSTAR)
ΔDailyCookingEnergy = (LB * EFOOD/ EffBase) - (LB * EFOOD/ EffENERGYSTAR)

Date	2016-09-01
Measure Code	CI-FSE-ESFR-V01-120601

Additional TRM Algorithm	
ΔDailyIdleEnergy	64,519.23
ΔDailyPreheatEnergy	500.00
ΔDailyCookingEnergy	73,285.71

TRM Assumptions	Input Values	Notes
HOURSday	16	Average Daily Operation custom or if unknown, use TRM Value of 16 hours
Days	365.25	Annual days of operation custom or if unknown, use TRM Value of 365.25 days a year
LB	150	Food cooked per day custom or if unknown, use TRM Value of 150 pounds
EffENERGYSTAR	50%	Cooking Efficiency ENERGY STAR custom or if unknown, use TRM Value of 50%
EffBase	35%	Cooking Efficiency Baseline custom or if unknown, use TRM Value of 35%
PCENERGYSTAR	65	Production Capacity ENERGY STAR (lbs/hr) custom or if unknown, use TRM Value of 65 pounds/hr
PCBase	60	Production Capacity Baseline (lbs/hr) custom or if unknown, use TRM Value of 60 pounds/hr
PreheatNumberENERGYSTAR	1	Number of preheats per day EnergyStar custom or if unknown, use TRM Value of 1
PreheatNumberBase	1	Number of preheats per day baseline custom or if unknown, use TRM Value of 1
PreheatTimeENERGYSTAR	15	preheat length EnergyStar (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatTimeBase	15	preheat length Baseline (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatRateENERGYSTAR	62,000	preheat energy rate high efficiency (btu/hr) custom or if unknown, use TRM Value of 62000 btu/h
PreheatRateBase	64,000	preheat energy rate baseline (btu/hr) custom or if unknown, use TRM Value of 64000 btu/h
IdleENERGYSTAR	9,000	Idle energy rate EnergyStar (btu/hr) custom or if unknown, use TRM Value of 9000 btu/h
IdleBase	14,000	Idle energy rate Baseline (btu/hr) custom or if unknown, use TRM Value of 14000 btu/h
IdleENERGYSTARTime	13.4	ENERGY STAR Idle Time (HOURsday-LB/PCENERGYSTAR –PreHeatTimeENERGYSTAR/60) (hrs) Using the TRM Inputs it would be, the equation would equal this
IdleBaseTime	13.3	BASE Idle Time (HOURsday-LB/PCbase –PreHeatTimeBase/60) (hrs) Using the TRM Inputs it would be, the equation would equal this
EFOOD	570.0	ASTM energy to food (btu/lb) Deemed TRM Value of 570 btu/pound
Measure Life	15	Deemed TRM Value
Incremental Cost	1200	Deemed TRM Value
Baseline Definition		The baseline equipment is a natural gas fryer that is not ENERGY STAR certified at end of life.
Efficient Definition		To qualify for this measure the installed equipment must be a natural gas fryer with a heavy load cooking efficiency ≥ 50% utilizing ASTM standard F1361 or F2144.

4.2.8											Annual Savings			Lifetime Savings		
#	Measure	Short Measure N	Measure Compone	Program Type	Measure Life (Yrs)	Griddle Fuel Type	Location	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.8.1	ENERGY STAR Griddle	Griddle	Food service	TOS	12	Natural Gas	Fast Food Expanded Menu	$ 857.00	C01-Commercial Electric Cooking		-	-	148.64	-	-	1,783.70
4.2.8.2	ENERGY STAR Griddle Upstream	Griddle Upstream	Food service	TOS	12	Natural Gas	Fast Food Expanded Menu	$ 857.00	C01-Commercial Electric Cooking	Upstream	-	-	148.64	-	-	1,783.70

TRM Algorithm

ΔkWh = (ΔIdle Energy + ΔPreheat Energy + ΔCooking Energy) * Days /1000

ΔDailyIdleEnergy =[IdleBase * Width * Depth* (HOURSday-LB/ (PCBase*Width*Depth))) – (PreheatNumberBase* PreheatTimeBase/60)]- ((IdleENERGYSTAR * Width * Depth* (HOURSday-(LB/ PCENERGYSTAR*Width*Depth)) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60]

ΔDailyPreheatEnergy = (PreHeatNumberBase * PreheatTimeBase / 60 * PreheatRateBase * Width * Depth) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60 * PreheatRateENERGYSTAR * Width * Depth)

ΔDailyCookingEnergy = (LB * EFOOD/ EffBase) - (LB * EFOOD/ EffENERGYSTAR)

kW = ΔkWh/Hours * CF

ΔTherms = (ΔIdle Energy + ΔPreheat Energy + ΔCooking Energy) * Days /100000

ΔDailyIdleEnergy =[IdleBase * Width * Depth* (HOURSday-LB/ (PCBase*Width*Depth))) – (PreheatNumberBase* PreheatTimeBase/60)]- ((IdleENERGYSTAR * Width * Depth* (HOURSday-(LB/ PCENERGYSTAR*Width*Depth)) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60]

ΔDailyPreheatEnergy = (PreHeatNumberBase * PreheatTimeBase / 60 * PreheatRateBase * Width * Depth) – (PreheatNumberENERGYSTAR* PreheatTimeENERGYSTAR/60 * PreheatRateENERGYSTAR * Width * Depth)

ΔDailyCookingEnergy = (LB * EFOOD/ EffBase) - (LB * EFOOD/ EffENERGYSTAR)

Date	2016-09-01
Measure Code	CI-FSE-ESGR-V02-160601

Additional TRM Algorithm

	ΔkWh	ΔTherms
ΔDailyIdleEnergy	3,582.86	11,258.33
ΔDailyPreheatEnergy	2,000.00	6,000.00
ΔDailyCookingEnergy	1,527.47	23,437.50

TRM Assumptions	Input Values ΔkWh	Input Values ΔTherms	Notes
HOURSday	12		Average Daily Operation custom or if unknown, use TRM Value of 12 hours
Days	365.25		Annual days of operation custom or if unknown, use TRM Value of 365.25 days a year
LB	100		Food cooked per day (lb) custom or if unknown, use TRM Value of 100 pounds
Width	3		Griddle Width (ft) custom or if unknown, use TRM Value of 3 feet
Depth	2		Griddle Depth (ft) custom or if unknown, use TRM Value of 2 feet
EffENERGYSTAR	70%	38%	Cooking Efficiency ENERGY STAR custom or if unknown, use TRM Value for gas of 38%
EffBase	65%	32%	Cooking Efficiency Baseline custom or if unknown, use TRM Value for gas of 32%
PCENERGYSTAR	6.67	7.5	Production Capacity ENERGY STAR (lbs/hr) custom or if unknown, use TRM Value of 7.5 pounds/hr/sq ft
PCBase	5.83	4.17	Production Capacity Base (lbs/h) custom or if unknown, use TRM Value of 4.17 pounds/hr/sq ft
PreheatNumberENERGYSTAR	1		Number of preheats per day custom or if unknown, use TRM Value of 1
PreheatNumberBase	1		Number of preheats per day custom or if unknown, use TRM Value of 1
PreheatTimeENERGYSTAR	15		preheat length (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatTimeBase	15		preheat length (mins) custom or if unknown, use TRM Value of 15 minutes
PreheatRateENERGYSTAR	1,333	10,000	preheat energy rate high efficiency (Electric = W/sq ft) custom or if unknown, use TRM Value of 10000 btu/h/sq ft
PreheatRateBase	2,667	14,000	preheat energy rate baseline (Electric= W/sq ft) (Gas= btu/h/sf) custom or if unknown, use TRM Value of 14000 btu/h/sq ft
IdleENERGYSTAR	320	2,650	Idle energy rate (Electric= W/sq ft) custom or if unknown, use TRM Value of 2650 btu/h/sq ft
IdleBase	400	3,500	Idle energy rate (Electric= W/sq ft), (Gas= btu/h/sf) custom or if unknown, use TRM Value of 3500 btu/h/sq ft
EFOOD	139	475	ASTM energy to food (Electric= w/lb), (Gas= btu/lb) Deemed TRM Value if 475 for gas and 139 for electric
Measure Life	12	12	Deemed TRM Value
Incremental Cost			The incremental capital cost for this measure is $0 for and electric griddle and $60 for a gas griddle
		857	The incremental capital cost is based on Actuals
Baseline Definition			The baseline equipment is an existing natural gas or electric griddle that's not ENERGY STAR certified and is at end of use.
Efficient Definition			To qualify for this measure the installed equipment must be an ENERGY STAR natural gas or electric griddle with a tested heavy load cooking energy efficiency of 70 percent (electric) 38 percent (gas) or greater and an idle energy rate of 2,650 Btu/hr per square foot of cooking surface or less, utilizing ASTM F1275. The griddle must have an Idle Energy Consumption Rate < 2,600 Btu/hr per square foot of cooking surface.

Table for Algorithm Inputs

Location	CF
Fast Food Limited Menu	0.32
Fast Food Expanded Menu	0.41
Pizza	0.46
Full Service Limited Menu	0.51
Full Service Expanded Menu	0.36
Cafeteria	0.36

Lookup Table
Electric
Natural Gas

4.2.11	High Efficiency Pre-Rinse Spray Valve										Annual Savings				Lifetime Savings				Algorithm Inputs										
#	Measure	Short Measure Name	Measure Component	Program Type	Heating fuel	Application	Measure Life (Yrs)	Measure Cost	Cost source	Loadshape	ΔkWh	ΔkW	ΔTherms	Δwater (gals)	ΔkWh	ΔkW	ΔTherms	Δwater (gals)	ΔGallons	Tout	Tin	EFF....	Flue	EFF....	FLObase	FLOeff	HOURSdae	DAYSyear	FLAG
4.2.11.1	High Efficiency Pre-Rinse Spray Valve-Medium-sized casual dining restaurants - DI	Spray Valve (Med Sized Restuarants)-DI	Low-flow fixtures	DI	Gas	Medium-sized casual dining restaurants	5	$ 75	Actual-SBES	CD1 - Commercial Electric Cooking	-	-	171.92	23,587.20	-	-	859.61	117,936.00	23587.2	124.1	54.1	97%	0	80%	1.9	1.06	1.5	312	0
4.2.11.2	High Efficiency Pre-Rinse Spray Valve-Small, quick- service restaurants - DI	Spray Valve (Small Restaurants)-DI	Low-flow fixtures	DI	Gas	Small, quick- service restaurants	5	$ 75	Actual-SBES	CD1 - Commercial Electric Cooking	-	-	114.61	15,724.80	-	-	573.07	78,624.00	15724.8	124.1	54.1	97%	0	80%	1.9	1.06	1	312	0
4.2.11.4	High Efficiency Pre-Rinse Spray Valve-Medium-sized casual dining restaurants - TOS	Pre-Rinse Spray Valves DI CA	Low-flow fixtures	TOS	Gas	Medium-sized casual dining restaurants	5	$ 60	Actual-MF	CD1 - Commercial Electric Cooking	-	-	110.52	15,163.20	-	-	552.60	75,816.00	15163.2	124.1	54.1	97%	0	80%	1.6	1.06	1.5	312	0
	Special measures																		Notes										
4.2.11.5	High Efficiency Pre-Rinse Spray Valve-Average of all buildings - DI	Pre-Rinse Spray Valves	Low-flow fixtures	DI	Gas	Average of all buildings	5	$ 125	Actual-BEER	CD1 - Commercial Electric Cooking	-	-	174.79	23,980.32	-	-	873.93	119,901.60	This mreasure is an average of 4.2.11a-4.2.11c. Insert new measures above the thick black line to maintain workbook functionality										

TRM Algorithm

ΔkWH = ΔGallons x 8.33 x 1 x (Tout - Tin) x (1/EFF electric) /3,413 x FLAG
ΔTherms = ΔGallons x 8.33 x 1 x (Tout - Tin) x (1/EFFgas) /100,000 Btu
ΔGallons = (FLObase - FLOeff)gal/min x 60 min/hr x HOURSday x DAYSyear

Date	2016-09-01
Measure Code	CI-FSE-SPRY-V03-160601

TRM Assumptions	Input Values	Notes
ΔGallons	Formula	amount of water saved (FLObase - FLOeff)gal/min x 60 min/hr x HOURSday x DAYSyear
Tout	70	Water Heater Outlet Water Temperature custom, otherwise assume Tin = 70°F temperature rise from Tin formula where adding 70°F is a deemed value from the TRM
Tin	54.1	Inlet Water Temperature custom, otherwise assume 54.1 °F which is a deemed value in the TRM
EFF....	97%	Efficiency of electric water heater supplying hot water to pre-rinse spray valve custom, otherwise assume 97% which is a deemed value in the TRM
Flag	Dependent on whether gas or electric	1 if electric or 0 if gas
EFF....	80%	Efficiency of gas water heater supplying hot water to pre-rinse spray valve custom, otherwise assume 80% which is a deemed value in the TRM
FLObase	Lookup Value from TRM	Base case flow in gallons per minute Deemed Values based on Tablein TRM
FLOeff	Lookup Value from TRM	Efficient case flow in gallons per minute Deemed Values based on Tablein TRM
HOURSday	Lookup Value from TRM	Hours per day that the pre-rinse spray valve is used at the site, custom, otherwise
DAYSyear	312	Days per year pre-rinse spray valve is used at the site, custom, otherwise 312 days/yr based on assumed 6 days/wk x 52 wk/yr = 312 day/yr.
Flag		TRM Deemed values where =1 1if electric or 0 if gas
Measure life	5	The expected measure life is assumed to be 5 years1 Deemed Value from the TRM
Baseline definition		Time of Sale baseline definition is assumed to be 1.65 gallons per minute Retrofit or DI baseline definitions is assumed to be an existing pre-rinse spray valve with a flow rate of 1.9 gallons per minute.
Efficient Definition		Efficient Equipment Definition - To qualify for this measure, the new or replacement pre-rinse spray nozzle must use less than 1.6 gallons per minute with a cleanability performance of 26 seconds per plate or less.

Table for Algorithm Inputs

Application	Hours/day
Small, quick-service restaurants	1
Medium-sized casual dining restaurants	1.5
Large institutional establishments with cafeteria	3
Average	1.83

Incremental Cost	
TRM	100
Actual-BEER	125
Actual-MF	60
Actual-SBES	75

	FLObase	FLOeff
TOS	1.6	1.06
RF	1.9	1.06
DI	1.9	1.06

Fuel
Electric
Gas

4.2.12									Annual Savings			Lifetime Savings		
#	**Measure**	**Short Measure Name**	**Measure Componen**	**Program Type**	**Measure Life (Yrs)**	**Incremental Cost**	**Loadshape**	**Rebate Type**	**ΔkWh**	**ΔkW**	**ΔTherms**	**ΔkWh**	**ΔkW**	**ΔTherms**
4.2.12.1	**Infrared Charbroiler**	**Infrared Charbroiler**	**Food service**	TOS	12	$ 2,200.00	N/A		-	-	661.00	-	-	7,932.00
4.2.12.2	**Infrared Charbroiler Upstream**	**Infrared Charbroiler Upstream**	**Food service**	TOS	12	$ 2,200.00	N/A	Upstream	-	-	661.00	-	-	7,932.00

TRM Assumptions	Input Values	Notes
Measure life	12	This is a deemed TRM Value
Incremental Cost	2200	This is a deemed TRM Value
Therm Savings	661	This is a deemed TRM value equaling 661 Therms
Date	2016-09-01	
Measure Code	CI-FSE-IRCB-V01-120601	

4.2.13									Annual Savings			Lifetime Savings			TEAPot		
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Total Therms	Measure Life	Total Cost
4.2.13.1	**Infrared Rotisserie Oven**	**Infrared Rotisserie Oven**	**Food service**	TOS	12	$ 2,700.00	N/A		-	-	554.00	-	-	6,648.00			
4.2.13.2	**Infrared Rotisserie Oven Upstream**	**Infrared Rotisserie Oven Upstream**	**Food service**	TOS	12	$ 2,700.00	N/A	Upstream	-	-	554.00	-	-	6,648.00			

TRM Assumptions	Input Values	Notes
Measure life	12	This is a deemed TRM Value
Incremental Cost	2700	This is a deemed TRM Value
Therm Savings	554	This is a deemed TRM value equaling 554 Therms
Date	2016-09-01	
Measure Code	CI-FSE-IROV-V01-120601	

4.2.14									Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure C	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.14.1	**Infrared Salamander Broiler**	**Infrared Salamander Broiler**	**Food service**	TOS	12	$ 1,000.00	N/A		-	-	239.00	-	-	2,868.00
4.2.14.2	**Infrared Salamander Broiler Upstream**	**Infrared Salamander Broiler Upstream**	**Food service**	TOS	12	$ 1,000.00	N/A	Upstream	-	-	239.00	-	-	2,868.00

TRM Assumptions	Input Values	Notes
Measure life	12	This is a deemed TRM Value
Incremental Cost	1000	This is a deemed TRM Value
Therm Savings	239	This is a deemed TRM value equaling 239 Therms
Date	2016-09-01	
Measure Code	CI-FSE-IRBL-V01-120601	

4.2.15									Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Co	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.15.1	**Infrared Upright Broiler**	**Infrared Upright Broiler**	**Food service**	TOS	10	$ 5,900.00	N/A		-	-	1,089.00	-	-	10,890.00
4.2.15.2	**Infrared Upright Broiler Upstream**	**Infrared Upright Broiler Upstream**	**Food service**	TOS	10	$ 5,900.00	N/A	Upstream	-	-	1,089.00	-	-	10,890.00

TRM Assumptions	Input Values	Notes
Measure life	10	This is a deemed TRM Value
Incremental Cost	5900	This is a deemed TRM Value
Therm Savings	1089	This is a deemed TRM value equaling 1089 Therms
Date	2016-09-01	
Measure Code	CI-FSE-IRUB-V01-120601	

4.2.17									Annual Savings			Lifetime Savings		
#	Measure	Short Measure Nam	Measure Compon	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.17.1	**Pasta Cooker**	**Pasta Cooker**	**Food service**	TOS	12	$ 2,400.00	N/A		-	-	1,380.00	-	-	16,560.00
4.2.17.2	**Pasta Cooker Upstream**	**Pasta Cooker Upstream**	**Food service**	TOS	12	$ 2,400.00	N/A	Upstream	-	-	1,380.00	-	-	16,560.00

TRM Assumptions	Input Values	Notes
Measure life	12	This is a deemed TRM Value
Incremental Cost	2400	This is a deemed TRM Value
Therm Savings	1380	This is a deemed TRM value equaling 1089 Therms
Date	2016-09-01	
Measure Code	CI-FSE-PCOK-V01-120601	

4.2.18	Rack Oven - Double Oven								Annual Savings			Lifetime Savings		
#	Measure	Short Measu	Measure Co	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.2.18.1	Rack Oven - Double Oven Rack Oven - Double	Rack Oven - Double	Food service	TOS	12	$ 8,646.00	N/A		-	-	2,064.00	-	-	24,768.00
4.2.18.2	Rack Oven - Double Oven Rack Oven - Double Upstream	Rack Oven - Double Upstream	Food service	TOS	12	$ 8,646.00	N/A	Upstream	-	-	2,064.00	-	-	24,768.00

TRM Assumptions	Input Values	Notes
Measure life	12	This is a deemed TRM Value
Incremental Cost	8646	This is a deemed TRM Value
Therm Savings	2064	This is a deemed TRM value equaling 2064 Therms
Date	2016-09-01	
Measure Code	CI-FSE-RKOV-V01-120601	

4.3.1	Storage Water Heater													Annual Savings			Lifetime Savings			Algorithm Inputs								Standby loss calculation								
#	Measure	Short Measure Name	Measure Com	Program Type	Measure Type	Efficiency	Tank Size	Building Type	Btu/h Size	Rebate Type	Measure Life (Yrs)	Incremental Cost	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Tout	Tin	HotWaterUse	rWater	Elbase	Eleff	Gallons	BTU/therm	$\Delta Therms_{standby}$	Q	V	Sleff	Sigeabase	Input: 800	Input: 110	converts to btu/h	Hours per Year
4.3.1.1	Storage Water Heater - Gas, Standard, ≥0.67 EF, Bid Type = Average	Storage Water Heater, >0.67 EF	Water heater	RF	Gas, Standard, ≥0.67 EF	0.67	50 gallons	Average	<75,000		15	$ 440.00				28.73	-	-	430.99	125	54	27,900	8.33	0.60	0.67	50	100,000								
4.3.1.3	Storage Water Heater - Gas,High Efficiency, ≥88% TE, Bid Type = Average	Storage Water Heater, >88% TE	Water heater	RF	Gas,High Efficiency, ≥88% TE	0.88	100 gallons	Average	>75,000		15	$ 879.00				65.44	-	-	981.65	125	54	55,800	8.33	0.80	0.88	100	175,000	27.9	175,000	###	1,318.75	800.00	110.00	100,000	8,766

TRM VS Algorithm

$$\Delta Therms = \frac{(Q_{base} - Q_{ee}) \times HotWaterUse \times rWater \times 8 \times \left(\frac{1}{EF_{base}} - \frac{1}{EF_{eff}}\right)}{100{,}000}$$

$$\Delta Therms_{Standby} = \frac{(SG_{base} - SG_{ee}) \times 8766}{100{,}000}$$

For Gas Storage Water Heaters > 75,000 Btu/h can claim additional savings due to lower standby losses

Date	2016-09-01
Measure Code	CI-HW -STWH-V02-160601

Algorithm Input	Input Values		Notes
Measure Life		15	TRM Value The expected measure life is assumed to be 15 years
Incremental Cost	TRM Table of values		Deemed table of values from the TRM Dependent on equipment type, Btu/h and gallon size
Savings			Updated Savings based on TRM VS Algorithm Change Algorithm Inputs below
Tout		125	Tank temperature Deemed TRM Value
Tin		54	Incoming water temperature from well or municipal system Deemed TRM Value
HotWaterUse	TRM Table of values		Estimated annual hot water consumption (gallons) ; Actual if possible to provide reasonable custom estimate. If not, two methodologies Table of TRM inputs below
rWater		8.33	Specific weight capacity of water lb/wall Deemed TRM Value based on lbs/gallon
Elbase	TRM Table of values		Rated efficiency of baseline water heater expressed as Energy Factor (EF) or Thermal Efficiency (E_t) Based on Table of TRM inputs below
Eleff			Rated efficiency of efficient water heater expressed as Energy Factor (EF) or Thermal Efficiency (E_t) TRM algorithm to TRM algorithm to determine efficiency
Standby Loss Savings Calculation	This is a calculation based on nameplate input ratine. rated volume in gallons Based on Algorithm from TRM		Gas Storage Water Heaters >75,000 Btu/h can claim additional savings due to lower standby losses. This is added to the ΔTherm Algorithm for this larger units >75,000 Btu/h
Q		175000	Nameplate input rating custom or actual based on the nameplate input rating in Btu/h
V		100	Rate Volume in Gallons Custom or actual based on the rate volume of the tank
Sleff		1000	Nameplate standby loss of new water heater, in BTU/h
Conversion Inputs		8766	Hours per year - per TRM
		100000	conversion factor per TRM
Sigeabase			Standby loss of gas baseline unit (Btu/h) = Q/800 + 110V/
		800	Input from calculation above - from the TRM
		110	Input from calculation above - from the TRM

Table for Algorithm Inputs

Program Type Lookup Table	
TOS	Gas,High Efficiency, ≥88% TE
RF	Gas, Standard, ≥0.67 EF
EREP	Electric

Tank Size for Electric Incremental Cost	Incremental Cost	Savings (kWh)	Savings (kW)
50 gallons	$ 1,050.00	1,761	0.2
80 gallons	$ 1,050.00	4,963	0.57
100 gallons	$ 1,950.00	8,225	0.94

Equipment Type	Sub Category	Federal Standard Minimum Efficiency(s)	Calculated values for Table	
Gas Storage Water Heaters	≤55 gallon tanks	0.675 – (0.0015 * Rated Storage Volume in Gallons) EF	0.675	0.0015
< 75,000 Btu/h	>55 gallon tanks	0.8012 – (0.00079 * Rated Storage Volume in Gallons) EF	0.8012	0.00079
Gas Storage Water Heaters	< 4000 Btu/h/gal	80% E_t	80%	
< 75,000 Btu/h				

Incremental Cost			
Equipment Type	Category (Efficiency in Et)	Install Cost	Incremental Cost
Gas Storage Water Heaters < 75,000 Btu/h, ≤55 Gallons	Baseline	$ 616	N/A
	Efficient	$ 1052	$ 440
Gas Storage Water Heaters > 75,000 Btu/h	0.8	$ 4886	N/A
	0.83	$ 5306	$ 420
	0.84	$ 5299	$ 413
	0.85	$ 5415	$ 529
	0.86	$ 5523	$ 637
	0.87	$ 5648	$ 762
	0.88	$ 5765	$ 879
	0.89	$ 5882	$ 996
	0.9	$ 6001	$ 1115

HotWater Use:
Method 1 - Consumption per water heater capacity * Consumption/Cap * Capacity

HotWaterUse - Method 1	
Building Type	Consumption/day
Grocery, Convenience Store, and Restaurant	801
Lodging, Hospital, and Multifamily	630
Health Clinic, Church, Warehouse	423
Education, Office, and Industrial	594
Industrial	558
Agriculture	558
Average Non-Residential	558

Method 2 - Consumption by Facility Size					
HotWaterUse - Method 2					
Building Type	Gallons hot water per unit per day	Unit	Units/1000 ft	Days per year	Gallons/100 0 ft floor area
Small Office	1	person	2.3	250	575
Large Office	1	person	2.3	250	575
Fast Food Rest	0.7	meal/day	784.6	365	200458
Sit-Down Rest	2.4	meal/day	340	365	297840
Retail	2	employee	1	365	730
Grocery	2	employee	1.1	365	803
Warehouse	2	employee	0.1	250	252
Elementary School	0.6	person	9.1	200	1146
Jr High/High School	1.8	person	9.1	200	3429
Health	90	patient	3.8	365	124830
Motel	20	room	5	365	36500
Hotel	14	room	2.2	365	11242
Other	100%	employee	70%	25000%	175
Average					52185.2308

4.3.2	Low Flow Faucet Aerators										Annual Savings				Lifetime Savings				Algorithm Inputs											
#	Measure	Short Measure Name	Measure Component	DHW Fuel	Program Type	Building Type	Measure Life (Yrs)	Incremental Cost	Cost Source	Loadshape	ΔkWh	ΔkW	ΔTherms	Δgallons	ΔkWh	ΔkW	ΔTherms	Δgallons	EPG_gas selector for Room Type	%ElectricDH	GPM_base	GPM_low	EPG_electric	ISR	Hours	CF	%FossilDHW	EPG_gas	Usage	Throttling Factor Base	Throttling Factor Efficient
4.3.2.1	**Low Flow Faucet Aerators, Custom, DI Bath**	**Faucet Aerators - Bath - DI**	**Low-flow fixtures**	Fossil Fuel	DI	Custom	9	$ 12.00	Actual	C02- Commercial Electric DHW	-	-	5.33	1,343.29	-	-	48.00	12,089.64	Bath	0%	1.39	0.94	0.0795	95%	42.67	0.00613	100%	0.00397	4,368		
4.3.2.2	**Low Flow Faucet Aerators, Custom, DI Kitchen**	**Faucet Aerators - Kitchen - DI**	**Low-flow fixtures**	Fossil Fuel	DI	Custom	9	$ 12.00	Actual	C02- Commercial Electric DHW	-	-	6.50	1,343.29	-	-	58.51	12,089.64	Kitchen	0%	1.39	0.94	0.0969	95%	42.67	0.00613	100%	0.00484	4,368		
4.3.2.3	**Low Flow Faucet Aerators. Health. DI Laminar Flow**	**Laminar Flow**	**Low-flow fixtures**	Fossil Fuel	DI	Health	9	$ 14.27	Actual Laminar	C02- Commercial Electric DHW	-	-	35.43	6,425.07	-	-	318.88	57,825.66	Bath	0%	3.74	2.2	0.0795	95%	160.00	0.0144	100%	0.00695	16,425	1	1

TRM Algorithm

ΔkWh = %ElectricDHW* * (GPM_base - GPM_low)/GPM_base) * Usage * EPG_electric * ISR
ΔkW = (ΔkWh / Hours)* CF
ΔTherms = %FossilDHW * ((GPM_base - GPM_low)/ GPM_base) * Usage * EPG_gas * ISR
Δgallons = ((GPM_base - GPM_low) / GPM_base) *Usage * ISR

Date	2016-09-01
Measure Code	CI-HWE-LFFA-V06-160601

TRM Assumptions	Input Values	Notes
%ElectricDHW		proportion of water heating supplied by electric resistance heating Deemed TRM value. If Electric, 100%, if Fossil Fuel, 0%
GPM_base	1.39	Average flow rate, in gallons per minute, of the baseline faucet "as-used" Deemed TRM Value of 1.39 or custom based on metering studies or if measured during DI Measured full throttle flow * 0.83 throttling factor
GPM_low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator "as-used" Deemed TRM Value of 0.94 or custom based on metering studies or if measured during DI Rated full throttle flow * 0.95 throttling factor
EPG_electric	Lookup table based on whether Kitchen or Bath	Energy per gallon of mixed water used by faucet (electric water heater) Where the TRM Calculation is: (8.33 * 1.0 * (WaterTemp - SupplyTemp)) / (RE_electric * 3412) Where the TRM Calculation is: (8.33 * 1.0 * (90 – 54.1)) / (0.98 * 3412) Where the TRM Calculation is: 0.0894 kWh/gal Where 8.33 is a value from the TRM: Specific weight of water (lbs/gallon) Where 1.0 is a value from the TRM: Heat Capacity of water (btu/lb-°F) TRM Value for WaterTemp = Assumed temperature of mixed water = 86F for Bath, 93F for Kitchen 91F for Unknown TRM Value for SupplyTemp = Assumed temperature of water entering building = 54.1°F TRM Value for RE_electric = Recovery efficiency of electric water heater# 98% 3412 = Converts Btu to kWh (Btu/kWh)
ISR	95%	In service rate of faucet aerators This is a deemed value from the TRM
Hours	Used for kW calculation only TRM Table of values	Annual electric DHW recovery hours for faucet use (Usage * 0.545)/GPH Calculate if usage is custom, if using default usage use the tables from the TRM Gallons per hour recovery of electric water heater calculated for 85.9F temp rise (140-54.1), 98% recovery efficiency, and typical 12kW electric resistance storage tank. Deemed table of TRM Values. TRM also states that this is based on the building type. Or deem the value at 56
CF		Coincidence Factor for electric load reduction Dependent on building type, which is a deemed table of values from the TRM
%FossilDHW		proportion of water heating supplied by fossil fuel heating Deemed Table of Values from the TRM where if Electric, 0% and if Fossil Fuel, 100%
EPG_gas	Lookup table based on whether Kitchen or Bath	Energy per gallon of Hot water supplied by gas Using the same deemed TRM Values as described above = (8.33 * 1.0 * (WaterTemp - SupplyTemp)) / (RE_gas * 100,000) Deemed TRM Value for RE_gas = Recovery efficiency of gas water heater = 67% Deemed TRM Value - 100,000 = Converts Btus to Therms (Btu/Therm) Results in deemed TRM value of 0.00446 Will now be based on a lookup table for bath, kitchen or unknown
Usage	TRM Value based on building type - for planning purposes , using a mix of building types	Estimated usage of mixed water (mixture of hot water from water heater line and cold water line) per faucet (gallons per year)
Measure Life	9	This is a deemed value from the TRM
Incremental Cost		The incremental cost for this measure is $8 or program actual. Currently using the actual Value for the Incremental

Table for Algorithm Inputs

DHW fuel	%Electric_DHW
Electric	100%
Fossil Fuel	0%

EPG_gas	
Bath	0.00397
Kitchen	0.00484
Unknown	0.00459
Laminar	0.00695

EPG_electric	
Bath	0.07950
Kitchen	0.09690
Unknown	0.09190

Incremental Cost	
TRM	$ 8.00
Actual	$ 12.00
Actual Laminar	$ 14.27

Building Type	Gallons hot water per unit per day[1]	Unit	Estimated % hot water from Faucets [2]	Multiplier [3]	Unit	Days per year	Annual gallons mixed water per faucet	Annual Recovery Hours	Coincidence Factor
	(A)		(B)	(C)		(D)	(A*B*C*D)		
Small Office	1	person	1	10	employees per faucet	250	2500	24	0.0064
Large Office	1	person	1	45	employees per faucet	250	11250	109	0.0288
Fast Food Rest	0.7	meal/day	0.5	75	meals per faucet	365	9581	93	0.0084
Sit-Down Rest	2.4	meal/day	0.5	36	meals per faucet	365	15768	153	0.0184
Retail	2	employee	1	5	employees per faucet	365	3650	36	0.0043
Grocery	2	employee	1	5	employees per faucet	365	3650	36	0.0043
Warehouse	2	employee	1	5	employees per faucet	250	2500	24	0.0064
Elementary School	0.6	person	0.5	50	students per faucet	200	3000	29	0.0096
Jr High/High School	1.8	person	0.5	50	students per faucet	200	9000	88	0.0288
Health	90	patient	0.25	2	Patients per faucet	365	16425	160	0.0144
Motel	20	room	0.25	1	faucet per room	365	1825	18	0.0006
Hotel	14	room	0.25	1	faucet per room	365	1278	12	0.0004
Other	1	employee	1	20	employees per faucet	250	5000	49	0.0128
Custom	4.45		0.79	19		327	4368	43	0.0061

4.3.3	Low Flow Showerheads											Annual Savings				Lifetime Savings				Algorithm Inputs											
#	Measure	Short Mea	Measure C	DHW Fuel	Program Type	Est. number of showers taken per day per showerhead	Rated Flow (GPM)	Measure Life (Yrs)	Incremental Cost	Cost Source	Loadshape	ΔkWh	ΔkW	ΔTherms	Δgallons	ΔkWh	ΔkW	ΔTherms	Δgallons	%ElectricDHW	GPM_base	GPM_low	L_base	L_low	NSPD	EPG_electric	ISR	Hours	CF	%FossilDHW	EPG_gas
4.3.3	Low Flow Showerheads 1.5 GPM - DI	Low Flow Shower Heads - DI	Low-flow fixtures	Fossil Fuel	DI	1	1.5	10	$ 35.00	Actual	C02-Commercial Electric DHW	-	-	21.63	3,434.12	-	-	216.35	34,341.24	0%	2.67	1.5	8.2	8.2	1	0.127	98%	224.70	0.0278	100%	0.0063

TRM Algorithm

ΔkWh = %ElectricDHW * ((GPM_base * L_base - GPM_low * L_low) * NSPD * 365.25) * EPG_electric * ISR
ΔkW = ΔkWh/Hours * CF
ΔTherms = %FossilDHW * ((GPM_base * L_base - GPM_low * L_low) * NSPD* 365.25) * EPG_gas * ISR
Δgallons = ((GPM_base * L_base - GPM_low * L_low) * NSPD * 365.25 * ISR

Date	2016-09-01
Measure Code	CI-HW -LFSH-V03-150601

TRM Assumptions	Input Values	Notes
%ElectricDHW		proportion of water heating supplied by electric resistance heating This is a deemed statement of values from the TRM where - 1 if electric DHW, 0 if fuel DHW, if unknown assume 16%
GPM_base	2.67	Flow rate of the baseline showerhead This is a deemed TRM Value
GPM_low	Table of TRM Values below	As-used flow rate of the low-flow showerhead TRM gives 3 options for permutation values, 1.5, 1.75, 2. Table of these values are in the TRM. Table of values for calculation is below
L_base	8.2	Shower length in minutes with baseline showerhead This is a deemed TRM Value
L_low	8.2	Shower length in minutes with baseline showerhead This is a deemed TRM Value
NSPD	1	Estimated number of showers taken per day for one showerhead Note, this is an assumption. The value of 1 is not given by the TRM
EPG_electric	0.127	Calculation of Energy per gallon of hot water supplied by electric Where the TRM Calculation is: (8.33 * 1.0 * (ShowerTemp - SupplyTemp)) / (RE_electric * 3412) Where the TRM Calculation is: (8.33 * 1.0 * (105 – 54.1)) / (0.98 * 3412) Calculation value from the TRM: 0.127kWh/gal Where 8.33 is a value from the TRM: Specific weight of water (lbs/gallon) Where 1.0 is a value from the TRM: Heat Capacity of water (btu/lb-°F) Deemed TRM Value for ShowerTemp = Assumed temperature of water = 105 Deemed TRM Value for SupplyTemp = Assumed temperature of water entering house = 54.1°F Deemed TRM Value for RE_electric = Recovery efficiency of electric water heater= 98% 3412 = Converts Btu to kWh (Btu/kWh)
ISR	98%	In service rate of showerhead This is a deemed TRM Value Dependent on program delivery method as listed in table below: Direct Install - Deemed
Hours		Annual electric DHW recovery hours for showerhead use Calculation example from the TRM: ((GPM_base * L_base) *NSPD * 365.25) * 0.773 / GPH
	27.51	Where the TRM Deems Gallons per hour recovery of electric water heater calculated for 65.9F temp rise (120-54.1), 98% recovery efficiency, and typical 4.5kW electric resistance storage tank. = 27.51
	0.773	Where 0.773 is 77.3% is the proportion of hot 120F water mixed with 54.1°F supply water to give 105°F shower water. This is a deemed TRM Value
CF	0.0278	Coincidence Factor for electric load reduction This is a deemed TRM Value
%FossilDHW		proportion of water heating supplied by fossil fuel heating This is a deemed statement of values from the TRM where - 0 if electric DHW, 1 if fuel DHW, if unknown assume 84%
EPG_gas	0.0063	Energy per gallon of Hot water supplied by gas Where the TRM calculations is (8.33 * 1.0 * (ShowerTemp - SupplyTemp)) / (RE_gas * 100,000) Where the TRM Deems the RE_gas = Recovery efficiency of gas water heater = 67% 100,000 = Converts Btus to Therms (btu/Therm - from the TRM
Measure Life	10	This is a deemed TRM Value
Incremental Cost		The incremental cost for this measure is $12 or program actual Currently using the actual incremental cost - Table is below

Table for Algorithm Inputs

DHW fuel	%Electric_DHW
Electric	100%
Fossil Fuel	0%
Unknown	16%

Rated Flow (GPM)
2
1.75
1.5
Custom or Actual

DHW	%Fossil_DHW
Electric	0%
Fossil Fuel	100%
Unknown	84%

Incremental Cost	
TRM	$ 12.00
Actual	$ 35.00

4.3.4	Commercial Pool Covers									Annual Savings				Lifetime Savings				Algorithm Inputs	
#	Measure	Short Measure Nar	Measure C	Measure Life (Yrs)	Increment al Cost	Increment al Cost Source	Loadshape	Location	Ave. Pool Size	ΔkWh	ΔkW	ΔTherms	Δgallons	ΔkWh	ΔkW	ΔTherms	Δgallons	Savings Factor	Water Savings Factor
4.3.4.1	Commercial Pool Covers, per 1,000 sf, Indoor	Indoor Pool Covers	Water heater	6	$2,000.00	Custom	C02-Commercial Electric DHW	Indoor	1,000.00			2,610.00	15,280.00	-	-	15,660.00	91,680.00	2.610	15.28
4.3.4.2	Commercial Pool Covers, per 1,000 sf, Outdoor	Outdoor Pool Covers	Water heater	6	$2,040.00	Custom	C02-Commercial Electric DHW	Outdoor	1,000.00			1,010.00	8,940.00	-	-	6,060.00	53,640.00	1.010	8.94

TRM Algorithm

ΔTherms = SavingFactor x Size of Pool
Δgallons = WaterSavingFactor x Size of Pool

Date	2016-09-01
Measure Code	CI-HW_-PLCV-V01-130601

TRM Assumptions	Input Values	Notes
Savings Factor		dependent on pool location and is part of table of deemed TRM values based on location
Size of pool		Custom input; for planning values assuming a value of 1,000 sqft
WaterSavingFactor	Table of Values from the TRM listed below	Water savings for this measure dependent on pool location and is part of table of deemed TRM values based on location
Measure Life	6	Deemed TRM Value: The useful life of this measure is assumed to be 6 years
Incremental Cost		Deemed Table of TRM Values for the costs for the various options and cover sizes. Since this measure covers a mix of various sizes, the average cost of these options is taken to be the incremental measure cost; average cost from the
Baseline Definition		For indoor pools, the base case is an uncovered indoor pool that operates all year. For outdoor pools, the base case is an outdoor pool that is uncovered and is open through the summer season.
Efficient Definition		For indoor pools, the efficient case is the installation of an indoor pool cover with a 5 year warranty on an indoor pool that operates all year. For outdoor pools, the efficient case is the installation of an outdoor pool cover with a 5 year warranty on an outdoor pool that is open through the summer season.

Table for Algorithm Inputs

Incremental Cost Table		
Cover Size (sq. ft.) greater than	Edge Style	
	Hemmed	Weighted
	Indoor	Outdoor
1	$2.19	$2.24
1000	$2.19	$2.24
2000	$2.01	$2.06
3000	$1.80	$1.83
Average	$2.00	$2.04

Lookup Table for Incremental Cost	
Indoor	TRM
Outdoor	Custom

Savings factor = dependent on pool location and listed in table below	
Location (Chicago)	Therm / sq-ft
Indoor	2.61
Outdoor	1.01

WaterSavingFactor = Water savings for this measure dependent on pool location and listed in table below.	
Location (Chicago)	Annual Savings Gal / sq-ft
Indoor	15.28
Outdoor	8.94

4.3.6	Ozone Laundry									Annual Savings				Lifetime Savings				Algorithm Inputs										
#	Measure	Short Measure Name	Measure Component	DHW Fuel	Program Type	Measure Life (Yrs)	Incremental Cost	Lbs	Loadshape	ΔkWh	ΔkW	ΔTherms	Δgallons	ΔkWh	ΔkW	ΔTherms	Δgallons	HP	Hpconversion	Hours	%water_savings	Lbs-capacity	Thermbaseline	WHE	Wutiliz	Wusage_hot	%hot_water_savings	Wusage
4.3.6	**Ozone Laundry - 150 lbs capacity**	**Ozone Laundry**	**Clothes washers**	Fossil Fuel	DI	10	$ 11,976.00	150	CS3-Flat	2.93	-	4,605	1,828	29.30	-	46,050.00	18,280.00	5	0.746	800	25%	254.38	9648	0.00885	916150	1.19	81%	2.03

TRM Algorithm
ΔkWhpump = HP * Hpconversion * Hours * %water_savings
ΔTherms = Thermbaseline * %hot_water_savings
Δgallons = Wusage * Wutiliz * %water_savings

Date	2016-09-01
Measure Code	CI-HW-OZLD-V01-140601

TRM Assumptions	Input Values	Notes
HP	5	Brake horsepower of boiler feed water pump Actual or use deemed TRM Value of 5 HP if unknown
HPCONVERSION	0.746	Conversion from Horsepower to Kilowatt - deemed TRM value of 0.746
Hours	800	Actual associated boiler feed water pump hours or use deemed TRM value of 800 hours if unknown
%water_savings	25%	= water reduction factor: how much more efficient an ozone injection washing machine is compared to a typical conventional washing machine as a rate of hot and cold water reduction. Deemed TRM Value at = 25%
Lbs-Capacity	254.38	Average Capacity in lbs of washer This is a deemed TRM Value
ThermBaseline	0.00885	Annual Baseline Gas Consumption WHE * WUtiliz * WUsage_hot Where WHE is a deemed TRM Value = water heating energy: energy required to heat the hot water used = 0.00885 therm/gallon
	916150	Where Wutiliz is a deemed TRM Value = washer utilization factor: the annual pounds of clothes washed per year = actual, if unknown use 916,150 lbs laundry237, approximately equivalent to 13 cycles/day
	1.19	Where WUsage_hot is a deemed TRM Value = hot water usage factor: how much hot water a typical conventional washing machine utilizes, normalized per pounds of clothes washed = 1.19 gallons/lbs laundry
%hot_water_savings	0.81	Where %hot_water is a Deemed TRM Value = hot water reduction factor: how much more efficient an ozone injection washing machine is, compared to a typical conventional washing machine, as a rate of hot water reduction = 81%
Default per lb capacity		Where ΔTherm = ThermBaseline * %hot_water_savings
	7815.231317	= 9648 * 0.81 which is equal to 7815
	30.72266419	ΔTherm / lb-capacity = 7815 / 254.38
	30.7	Round value calculation from Deemed TRM values as described above
Measure Life	10	The measure equipment effective useful life (EUL) is estimated at 10 years based on typical lifetime of the ozone generator's corona discharge unit. This is a deemed TRM Value
Incremental Cost	79.84	The actual measure costs should be used if available. If not a deemed value of $79.84 / lbs capacity should be used This is a deemed TRM Value

4.3.8	Demand Controls for Central Domestic Hot Water								Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	# of Units	Incremental Cost	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.3.8	**Demand Controls for Central Domestic Hot Water**	**CDHW Controls**	**Water heater**	RF	15	40	$ 1,200.00	N/A	651.00	-	2,236.00	9,765.00	-	33,540.00

TRM Algorithm		
ΔTherms = 55.9 * #Units		
Date	2016-09-01	
Measure Code	CI-HW_-CDHW-V01-150601	

TRM Assumptions	Input Values	Notes
Savings	651	Savings Deemed at the measure level for kWh
	55.9	55.9 * the number of dwelling units for Therms footnote states from Nicor Gas ETP study - value is the average therms saved per dwelling unit
Incremental Cost	1200	deemed in the TRM at Incremental Cost: $1,200
Measure Life	15	deemed in the TRM The effective useful life is 15 years

4.4.2	Space Heating Boiler Tune-up											Annual Savings			Lifetime Savings			Algorithm Inputs					
#	Measure	Short Measure Name	Measure Component	Measure Life (Yrs)	Boiler MBh	Pre-Tune Up Boiler Efficiency	Efficiency Improvement	Zone	Building Type	Loadshape	Measure Cost	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Climate Zone Lookup	Capacity (Btu/hr)	EFLH	Effbefore	Ei	Additional Footnotes
4.4.2.1	**Space Heating Boiler Tune-up - 400**	Boiler Tune Up, 400 MBH	**Boilers**	3	400	80%	1.6%	6 (Nicor Custom)	Average	N/A	$ 332.00	-	-	122.33	-	-	366.98	7	400,000	1529	0.800	0.016	
4.4.2.2	**Space Heating Boiler Tune-up - 300**	Boiler Tune Up, 300 MBH	**Boilers**	3	300	80%	1.6%	6 (Nicor Custom)	Average	N/A	$ 249.00	-	-	91.74	-	-	275.23	7	300,000	1529	0.800	0.016	

TRM Algorithm	
Δtherms= (Capacity * EFLH) * (Effbefore + Ei) / Effbefore) - 1)) / 100000	
Date	2016-09-01
Measure Code	CI-HVC-BLRT-V06-160601

TRM Assumptions	Input Values	Notes
Climate Zone Lookup		used as a lookup for EFLH table
Capacity		Boiler gas input size (Btu/hr) custom - Table of inputs
EFLH	Table of lookup Values on the tab labeled:*List*	Equivalent Full Load Hours for heating are provided in section 4.4 HVAC End Use EFLHs by building type and climate zone provided in Section 4.4 Table of Lookup values from TRM
Effbefore		Efficiency of the boiler before the tune-up Need to better understand this value
	80%	Currently a custom input
Ei		Efficiency Improvement of the boiler tune-up measure Need to better understand this value
	1.60%	Custom input
Measure Life	3	Deemed Value from the TRM
Incremental Cost	0.83	The cost of this measure is $0.83/MBtu/hr per tune-up Deemed Value from the TRM
Baseline Definition		The baseline condition of this measure is a boiler that has not had a tune-up within the past 36 months
Efficient Definition		The efficient condition of this measure is a boiler that gets a tune up

Table for Algorithm Inputs		
Cost/kBtuh	0.83	Deemed TRM Value
Ngi	400	Boiler gas input size (kBTU/hr)
SF	1.60%	Savings factor
EFLH		Equivalent Full Load Hours for heating
Effpre	80%	Boiler Combustion Efficiency Before Tune-Up

Climate Table Lookup	
0	2
0	3
0	4
0	5
0	6
Custom	7

Conversion from kbtuh (MBH) to Btu/hr		
Boiler kbtuh (MBh)	AVE. Btu/hr	Program
1	1000	MF
75	75000	MF
300	300000	MF
400	400000	MF
650	650000	MF
482	482000	SBES
800	800000	BEER
1000	1000000	
General Conversion from kbtuh (MBH) to Btu/hr - multiply MBh by 1000)	1000	

4.4.3	Process Boiler Tune-up								Annual Savings			Lifetime Savings			Algorithm Inputs				
#	Measure	Short Measure Name	Measure Component	Measure Life (Yrs)	Combustion Efficiency Before Tune Up	Combustion Efficiency After Tune Up	Boiler kbtuh	Measure Cost	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Cost/kBtu	Ngi	UF	Eff_{pre}	$Eff_{measured}$
4.4.3	**Process Boiler Tune-up - 800 MBU**	**Boiler Tune Up, Process**	**Boilers**	3	80%	81.30%	800	$ 664.00	-	-	469.85	-	-	1,409.55	0.83	800	41.90%	80%	81.3%

TRM Algorithm	
Δtherms= ((Ngi* 8766 * UF)/100)*(1-(Eff_{pre}/$Eff_{measured}$))	
Date	2016-09-01
Measure Code	CI-HVC-PBTU-V05-160601

TRM Assumptions	Input Values	Notes
Ngi		Boiler gas input size (kBTU/hr) this is custom input
UF	41.90%	Utilization Factor Deemed TRM Value of 41.9 or custom
Eff_{pre}		Boiler Combustion Efficiency Before Tune-Up Custom Input
$Eff_{measured}$	81.3%	Boiler Combustion Efficiency After Tune-Up Custom Input
Measure Life	3	The life of this measure is 3 years this is a deemed TRM Value
Incremental Cost	0.83	The cost of this measure is $0.83/MBtu/hr per tune-up this is a deemed TRM Value
Baseline Definition		A Boiler that has not had a tune up in the last 3 years
Efficient Definition		A boiler that gets the tune up

4.4.4	Boiler Lockout/ Reset Controls										Annual Savings			Lifetime Savings			Algorithm Inputs				
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Boiler kbtuh	Zone	Building Type	Measure Cost		ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Climate Zon	Binput	SF	EFLH	Additional Footnotes
4.4.4.2	**Boiler Lockout/ Reset Controls - 400 MBH**	Boiler Reset Controls, 400 MBH	**Boilers**	RF	20	400	6 (Nicor Custom)	Unknown	$ 672.00	Actual	-	-	488.38	-	-	9,767.68	7	400	8.00%	1526.2	

TRM Algorithm	
Δtherms= B_{input} * SF * EFLH /100	
Date	2016-09-01
Measure Code	CI-HVC-BLRC-V03-150601

TRM Assumptions	Input Values	Notes
Binput		Boiler Input Capacity (kBTU) this is a custom input
SF	8.00%	Savings factor Custom or 8%. 8% is a deemed TRM value
EFLH	Table of lookup Values on the tab labeled:*List*	Equivalent Full Load Hours for heating are provided in section 4.4 HVAC End Use EFLHs by building type and climate zone provided in Section 4.4 Table of Lookup values from TRM
Conversion	100	100 = conversion from kBtu to therms
Measure Life	20	The life of this measure is 20 years This is a deemed TRM value
Incremental Cost	612	The cost of this measure is $612
Baseline Definition		Existing boiler without boiler reset controls, any size with constant hot water flow.
Efficient Definition		adding a boiler reset control where Natural gas customer adding boiler reset controls capable of resetting the boiler supply water temperature in an inverse linear fashion with outdoor air temperature. BoilerNatural gas customer adding boiler reset controls capable of resetting the boiler supply water temperature in an inverse linear fashion with outdoor air temperature.

Table for Algorithm Inputs		
	Incremental Cost	
TRM	612	
Actual	1.68	per MBH
Unknown	1.68	per MBH

4.4.5							Annual Savings			Lifetime Savings		
#	**Measure**	**Short Measure Name**	**Measure Component**	**Program Type**	**Measure Life (Yrs)**	**Incremental Cost**	**ΔkWh**	**ΔkW**	**ΔTherms**	**ΔkWh**	**ΔkW**	**ΔTherms**
4.4.5	**Condensing Unit Heaters**	**Condensing Unit Heaters, >90% <300 MBH**	**Other HVAC**	TOS	12	$ 676.00	-	-	266.00	-	-	3,192.00

Date	2016-09-01
Measure Code	CI-HVC-CUHT-V01-120601

TRM Assumptions	Input Values	Notes
Measure Life	12	The expected measure life is assumed to be 12 years This is a deemed TRM Value
Incremental Cost	676	The incremental capital cost for a unit heater is $676 This is a deemed TRM Value
Therm Savings	266	The annual natural gas energy savings from this measure is a deemed value equaling 266 Therms This is a deemed TRM Value

Program Types	
TOS	Time of Sale
NC	New Construction

4.4.10	High Efficiency Boiler													Annual Savings			Lifetime Savings			Algorithm Inputs				
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Boiler btuh	Base Boiler type	Efficient Measure	Zone	Building Type	Incremental Cost	Cost Source	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Climate Zo	EFLH	Capacity	$EffRating_{base}$	$EffRating_{actual}$
4.4.10.1	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 300 MBH, Condensing**	Condensing Boilers, ≥90%, <300 MBH	**Boilers**	TOS	20	300,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6 (Nicor Custom)	Average	$ 3,365.00	Actual	-	-	447.53	-	-	8,950.67	7	1529.074	300,000	0.82	0.9
4.4.10.2	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 499 MBH, Condensing**	Condensing Boilers, ≥90% 300-499 MBH	**Boilers**	TOS	20	499,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6 (Nicor Custom)	Average	$ 4,190.00	Actual	-	-	744.40	-	-	14,887.95	7	1529.074	499,000	0.82	0.9
4.4.10.3	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 999 MBH, Condensing**	Condensing Boilers, ≥90% 500-999 MBH	**Boilers**	TOS	20	999,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6 (Nicor Custom)	Average	$ 6,115.00	Actual	-	-	1,490.29	-	-	29,805.75	7	1529.074	999,000	0.82	0.9
4.4.10.4	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 1,700 MBH, Condensing**	Condensing Boilers, ≥90% 1000-1700 MBH	**Boilers**	TOS	20	1,700,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6 (Nicor Custom)	Average	$ 9,415.00	Actual	-	-	2,536.02	-	-	50,720.49	7	1529.074	1,700,000	0.82	0.9
4.4.10.5	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 2,000 MBH, Condensing**	Condensing Boilers, ≥90% 1701-2000 MBH	**Boilers**	TOS	20	2,000,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6 (Nicor Custom)	Average	$ 12,165.00	Actual	-	-	2,983.56	-	-	59,671.16	7	1529.074	2,000,000	0.82	0.9
4.4.10.6	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 300 MBH, Hydronic**	Hydronic Boilers, ≥85% <300 MBH	**Boilers**	TOS	20	300,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	6 (Nicor Custom)	Average	$ 1,470.00	Actual	-	-	167.83	-	-	3,356.50	7	1529.074	300,000	0.82	0.85
4.4.10.7	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 499 MBH, Hydronic**	Hydronic Boilers, ≥85% 300-499 MBH	**Boilers**	TOS	20	499,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	6 (Nicor Custom)	Average	$ 1,620.00	Actual	-	-	279.15	-	-	5,582.98	7	1529.074	499,000	0.82	0.85
4.4.10.8	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 999 MBH, Hydronic**	Hydronic Boilers, ≥85% 500-999 MBH	**Boilers**	TOS	20	999,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	6 (Nicor Custom)	Average	$ 1,970.00	Actual	-	-	558.86	-	-	11,177.15	7	1529.074	999,000	0.82	0.85
4.4.10.9	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 1,700 MBH, Hydronic**	Hydronic Boilers, ≥85% 1000-1700 MBH	**Boilers**	TOS	20	1,700,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	6 (Nicor Custom)	Average	$ 2,570.00	Actual	-	-	951.01	-	-	19,020.18	7	1529.074	1,700,000	0.82	0.85
4.4.10.10	**High Efficiency Boiler Hot Water <300,000 Btu/h ≥ June 1, 2013 - 2,000 MBH, Hydronic**	Hydronic Boilers, ≥85% 1701-2000 MBH	**Boilers**	TOS	20	2,000,000	Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	6 (Nicor Custom)	Average	$ 3,070.00	Actual	-	-	1,118.83	-	-	22,376.69	7	1529.074	2,000,000	0.82	0.85

TRM Algorithm	
ΔtherMs= (EFLH * Capacity * (EffRatingactual - EffRatingbase) / EffRatingbase)) / 100000	
Date	2016-09-01
Measure Code	CI-HVC-BOIL-V05-150601

TRM Assumptions	Input Values	Notes
EFLH	Table of lookup Values on the tab labeled:*List*	Equivalent Full Load Hours for heating are provided in section 4.4 HVAC End Use
Capacity	Permutation Type	Nominal Heating Input Capacity Boiler Size (Btu/hr) for efficient unit not existing unit custom Boiler input capacity in Btu/hr
$EffRating_{base}$	Based on Lookup Table	Baseline Boiler Efficiency Rating, dependent on year and boiler type. Baseline efficiency values by boiler type and capacity are found in the Definition of Baseline Equipment Section Deemed Table of Values from TRM
$EffRating_{actual}$	Based on Lookup Table	Efficient Boiler Efficiency Rating use actual value Deemed Table of Values from TRM
Measure Life	20	The expected measure life is assumed to be 20 years310 Deemed Value from TRM
Incremental Cost	Based on Lookup Table	The incremental capital cost for this measure depends on efficiency Deemed Table of Values from TRM, but currently are using Actual Incremental Cost values displayed in the table below
Baseline Definition		Dependent on when the unit is installed and whether the unit is hot water or steam.
Efficient Definition		To qualify for this measure the installed equipment must be a boiler used 80% or more for space heating, not process, and boiler AFUE, TE (thermal efficiency), or Ec (combustion efficiency) rating must be rated greater than or equal to 85% for hot water boilers and 81% for steam boilers.

Table for Algorithm Inputs

Type	Cost Source	Program Type
Hot Water	TRM	TOS
Steam	Actual	RF

Climate Table Lookup	
0	2
0	3
0	4
0	5
0	6
6 (Nicor Custom)	7

Measure Type	Type	Actual AFUE	Incr. Cost, per unit (TRM)
ENERGY STAR® Minimum	Hydronic	85%	$1,470
AFUE 90%	Condensing	90%	$2,400
AFUE 95%		95%	$3,370
AFUE ≥ 96%		96%	$4,340
Custom		95.70%	Custom

Boiler Baseline Values from the TRM		
Year	Efficiency	Units
Hot Water <300,000 Btu/h < June 1, 2013	80%	AFUE
Hot Water <300,000 Btu/h ≥ June 1, 2013	82%	AFUE
Hot Water ≥300,000 & <2,500,000 Btu/h	80%	TE
Hot Water >2,500,000 Btu/h	82%	TE
Steam <300,000 Btu/h < June 1, 2013	75%	AFUE
Steam <300,000 Btu/h ≥June 1, 2013	80%	AFUE
Steam - all except natural draft ≥300,000 & <2,500,000 Btu/h	79%	TE
Steam - natural draft ≥300,000 & <2,500,000 Btu/h	77%	TE
Steam - all except natural draft >2,500,000 Btu/h	79%	TE
Steam - natural draft >2,500,000 Btu/h	77%	TE

Base Boiler type	Efficient Measure	Actual Incremental Cost
Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	3365
Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	4190
Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	6115
Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	9415
Hot Water <300,000 Btu/h ≥ June 1, 2013	AFUE 90%	12165
Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	1470
Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	1620
Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	1970
Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	2570
Hot Water <300,000 Btu/h ≥ June 1, 2013	ENERGY STAR® Minimum	3070

4.4.11	High Efficiency Furnace									
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Eff. Measure Installation Yr	AC or No AC	Efficient Measure	Building Type	Zone
4.4.11.1	High Efficiency Furnace- 92.0%, Install Yr. 2012, Building Type: Unknown	Furnace, >92% AFUE	Furnaces	TOS	16.5	2012	Unknown	92%	Unknown	6 (Nicor Custom)
4.4.11.2	High Efficiency Furnace- 95.0%, Install Yr. 2012, Building Type: Unknown	Furnace, >95% AFUE	Furnaces	TOS	16.5	2012	Unknown	95%	Unknown	6 (Nicor Custom)
4.4.11.3	High Efficiency Furnace- 92.0%, Install Yr. 2012, Building Type: MF	Furnace, >92% AFUE - CA	Furnaces	TOS	16.5	2012	Unknown	92%	MF	6 (Nicor Custom)
4.4.11.4	High Efficiency Furnace- 95.0%, Install Yr. 2012, Building Type: MF	Furnace, >95% AFUE - CA	Furnaces	TOS	16.5	2012	Unknown	95%	MF	6 (Nicor Custom)

#	Furnace Capacity (BTUH)	Rebate Type	Loadshape	Incremental Cost/unit	Annual Savings ΔkWh	Annual Savings ΔkW	Annual Savings ΔTherms	Lifetime Savings ΔkWh	Lifetime Savings ΔkW	Lifetime Savings ΔTherms
4.4.11.1	150,000		N/A	$ 802.00	710.00	0.1108	387.07	11,715.00	0.11	6,386.63
4.4.11.2	150,000		N/A	#########	710.00	0.1108	458.75	11,715.00	0.11	7,569.34
4.4.11.3	150,000		N/A	$ 802.00	710.00	0.1108	399.24	11,715.00	0.11	6,587.48
4.4.11.4	150,000		N/A	#########	710.00	0.1108	473.18	11,715.00	0.11	7,807.39

#	Algorithm Inputs: Climate Loc	Heating Sav	Cooling Sav	Shoulder Season Savings	HOURSyear	DaysYear	CF	EFLH	Capacity	AFUEbase	AFUEeff
4.4.11.1	7	418	241	51	2718	365.25	0.424	1529.16	#######	0.8	93.5%
4.4.11.2	7	418	241	51	2718	365.25	0.424	1529.16	#######	0.8	96.0%
4.4.11.3	7	418	241	51	2718	365.25	0.424	1577.25	#######	0.8	93.5%
4.4.11.4	7	418	241	51	2718	365.25	0.424	1577.25	#######	0.8	96.0%

TRM Algorithm

ΔkWh = Heating Savings + Cooling Savings + Shoulder Season Savings
ΔkW = (ΔkWh/(HOURSyear *DaysYear)) * CF
ΔTherms= EFLH * Capacity * (AFUE(eff)-AFUE(base) / AFUE(base)) / 100,000 Btu/Therm

Date	2016-09-01
Measure Code	CI-HVC-FRNC-V06-160601

TRM Assumptions	Input Values	Notes
Heating Savings	418	Brushless DC motor or Electronically commutated motor savings during heating season Deemed TRM Value
Cooling Savings	Based on lookup table below	Brushless DC motor or electronically commutated motor savings during cooling season Table of Deemed TRM values dependent upon if there is air conditioning.
Shoulder Season Savings	51	Brushless DC motor or electronically commutated motor (ECM) savings during shoulder seasons Deemed TRM Value
HOURSyear	Based on lookup table below	Actual hours per year if known, otherwise use hours from Table below for building type Deemed table of TRM Values, currently using "Unknown"
DaysYear	365.25	
CF	Based on lookup table below	Summer Peak Coincidence Factor for measure is provided below for different building types Deemed Table of TRM Values
ELFH	Based on lookup table below	Equivalent Full Load Hours for heating are provided in section 4.4 HVAC End Use Deemed Table of TRM Values
Capacity	Custom	Nominal Heating Input Capacity Furnace Size (Btu/hr) for efficient unit not existing unit This is a custom input: custom Furnace input capacity in Btu/hr
AFUEbase	Based on lookup table below	Baseline Furnace Annual Fuel Utilization Efficiency Rating, dependent on year Deemed Table of TRM Values
AFUEeff		Efficient Furnace Annual Fuel Utilization Efficiency Rating. Actual. If Unknown, assume 95%
Measure Life	16.5 5.5	The expected measure life is assumed to be 16.5 years Remaining life of existing equipment is assumed to be 5.5 years These are Deemed TRM Values
Incremental Cos	Based on lookup table below (IMC values from the TRM)	Time of Sale: The incremental capital cost for this measure depends on efficiency Early Replacement: The full installation cost is provided in the table above. The assumed deferred cost (after 5.5 years) of replacing existing equipment with a new baseline unit is assumed to be $2641. This cost should be discounted to present value using the utilities' discount rate. Deemed Table of TRM Values dependent on program type
Definition of Baseline equipment		Based on program type - efficiency of standard piece of equipment
Definition of Efficient Equipment		Requirements must exceed the baseline requirements

Table for Algorithm Inputs

	Cooling Savings
Air Conditioning	263
No Air Conditioning	175
Unknown	241
*Note, unknown is a weighted average	

Climate Zone Lookup Table	
1 (Rockford)	2
2 (Chicago)	3
3 (Springfield)	4
4 (Belleville)	5
5 (Marion)	6
6 (Nicor Custom)	7

TRM V4 Values as of Feb 24, 2015		
AFUE	Installation Cost	Incremental Cost
80%	$2,011	n/a
90%	$2,641	$630
91%	$2,727	$716
92%	$2,813	$802
93%	$3,049	$1,038
94%	$3,286	$1,275
95%	$3,522	$1,511
96%	$3,758	$1,747
97%	$3,758	$1,747

Program Type	
TOS	Time of sale
RF	Retrofit

AFUEeff Lookup Table	
92%	0.935
95%	0.960

Cost Table Updated 04/14/2014 >>>
Old Incremental cost Values (TRM Effective 06/2012)
Old Incremental cost Values (TRM Effective 06/2012)
Old Incremental cost Values (TRM Effective 06/2012)
Old Incremental cost Values (TRM Effective 06/2012)
Old Incremental cost Values (TRM Effective 06/2012)

Measure Tier	Incr. Cost, per unit	Actual AFUE
CEE Tier 2 - 92%	$802	93.50%
CEE Tier 2 - 93%	$1,038	93.50%
CEE Tier 3 - 94%	$1,275	93.50%
CEE Tier 3 - 95%	$1,511	96.00%
≥ 96% AFUE	$1,747	96.00%

SBES MBTUH Range:	Capacity	
Up to 100 MBTUH range:	66,000	BTUH
>100 up to 200 MBTUH range:	154,000	BTUH
>200 up to 300 MBTUH range:	225,000	BTUH

AFUEbase Lookup Table	
Year	AFUE
2012	80%
2013	90%

Building Type	EFLH 1 (Rockford)	2 (Chicago)	3 (Springfield)	4 (Belleville)	5 (Marion)	6 (Nicor Custom)
Office - High Rise	2,746	2,768	2,656	2,155	2,420	2750.2
Office - Mid Rise	996	879	824	519	544	908.6
Office - Low Rise	797	666	647	343	329	703.4
Convenience	696	550	585	272	297	597.3
Healthcare Clinic	1,118	1,036	1,029	694	737	1059.9
Manufacturing Fac	1,116	1,123	904	771	857	1099
Hotel/ Motel	2,098	2,050	1,780	1,365	1,666	2037.4
High School	969	807	999	569	674	874.8
Medical	2,031	1,929	1,863	1,497	1,800	1953
Elementary	970	840	927	524	637	887.7
Religious Facility	1,830	1,657	1,730	1,276	1,484	1716.2
Restaurant	1,496	1,379	1,291	872	1,185	1405.3
Retail - Strip Mall	1,266	1,147	1,151	732	863	1183.1
Retail - Departmer	1,065	927	900	578	646	965.7
College/ Universit	373	404	376	187	187	391.9
Warehouse	416	443	427	226	232	433.3
Unknown	1,249	1,163	1,131	786	910	1185.425

Custom climate zone weights	
Rockford	30%
Chicago	60%
Springfield	10%

Building Type	EFLH (30%)	(60%)	(10%)			6 (Nicor Custom)
Office - High Rise (	2,020	2,050	1,869	1,252	1,363	2022.9
Office - High Rise (	2,089	2,132	1,960	1,351	1,487	2101.9
Office - High Rise V	1,528	1,558	1,284	759	846	1521.6
Office - High Rise F	1,118	1,102	952	505	530	1091.8
Office - Mid Rise	1,585	1,587	1,342	855	950	1561.9
Office - Low Rise	1,428	1,425	1,132	692	793	1396.6
Convenience	1,481	1,368	1,214	871	973	1386.5
Healthcare Clinic	1,579	1,620	1,414	963	1,019	1587.1
Manufacturing Fac	1,048	1,013	939	567	634	1016.1
Assembly	1,787	1,831	1,635	1,089	1,669	1798.2
Garage	985	969	852	680	752	962.1
Movie Theater	1,916	1,905	1,718	1,288	1,538	1889.6
Assisted Living	1,683	1,646	1,446	1,063	1,277	1637.1
Grocery	1,608	1,602	1,404	876	1,047	1584
Hotel/Motel	1,761	1,712	1,544	1,056	1,290	1709.9
Hotel/Motel - Com	1,601	1,626	1,548	1,260	1,323	1610.7
Hotel/Motel - Gue	1,758	1,702	1,521	1,018	1,252	1700.7
MF - High Rise	1,526	1,506	1,373	1,169	1,172	1498.7
MF - High Rise - Co	1,815	1,762	1,580	1,089	1,406	1759.7
MF - High Rise - Re	1,475	1,464	1,330	1,152	1,123	1453.9
MF - Mid Rise	1,666	1,685	1,450	1,067	1,216	1655.8
High School	1,845	1,857	1,666	1,187	1,388	1834.3
Hospital - CAV no e	1,764	1,818	1,549	1,332	1,512	1774.9
Hospital - CAV eco	1,788	1,853	1,580	1,369	1,555	1806.2
Hospital - VAV eco	731	695	522	314	340	688.5
Hospital - FCU	1,325	1,512	1,232	1,448	1,946	1427.9
Elementary	1,781	1,736	1,531	1,057	1,283	1729
Religious Facility	1,603	1,504	1,440	1,054	1,205	1527.3
Restaurant	1,350	1,354	1,216	920	1,091	1339
Retail - Departmer	1,392	1,278	1,200	781	891	1304.4
Retail - Strip Mall	1,332	1,233	1,090	751	810	1248.4
College	1,530	1,430	1,276	709	849	1444.6
Warehouse	1,456	1,357	1,400	875	1,078	1391
Unknown1	1,553	1,536	1,369	982	1,139	1524.4
Unknown	1,556	1,542	1,370	982	1,140	1529.160606
MF	1,596	1,596	1,412			1577.25

	TRM V5 Assumption Tables		
	Building Type	HOURSyear (Pumps and fans (h/yr)	CF
	Assembly	2150	48.30%
	Assisted Living	4373	52.90%
	College	1605	14.20%
	Convenience Store	2084	57.10%
	Elementary School	3276	33.30%
	Garage	2102	61.90%
	Grocery	2096	47.50%
	Healthcare Clinic	1987	61.90%
	High School	3141	28.80%
	Hospital - VAV econ	2788	57.60%
	Hospital - CAV econ	2881	61.50%
	Hospital - CAV no econ	8760	64.80%
	Hospital - FCU	8729	60.90%
	Manufacturing Facility	2805	43.30%
	MF - High Rise	4237	43.70%
	MF - Mid Rise	2899	24.30%
	Hotel/Motel - Guest	4479	62.90%
	Hotel/Motel - Common	8712	64.60%
	Movie Theater	2120	41.90%
	Office - High Rise - VAVecon	2038	43.20%
	Office - High Rise - CAVecon	4849	48.30%
	Office - High Rise - CAV noecon	5682	50.30%
	Office - High Rise - FCU	3069	46.20%
	Office - Low Rise	2481	47.40%
	Office - Mid Rise	1881	42.80%
	Religious Building	2830	43.30%
	Restaurant	3350	48.80%
	Retail - Department Store	2528	50.50%
	Retail - Strip Mall	2266	52.80%
	Warehouse	770	22.50%
	Unknown	2718	42.40%
Same as unknov	MF	2718	0.424

4.4.12								Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure C	Program Type	Measure Life (Yrs)	Loadshape	Incremental Cost	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
4.4.12	**Infrared Heaters (all sizes), Low Intensity**	**Infrared Heaters**	**Other HVAC**	TOS	12	N/A	$ 1,716.00	-	-	451.00	-	-	5,412.00

TRM Assumptions	Input Values	Notes
Measure Life	12	The expected measure life is assumed to be 12 years This is a deemed TRM Value
Incremental Cost	1716	The incremental capital cost for a unit heater is $1716 This is a deemed TRM Value
Therm Savings	451	The annual natural gas energy savings from this measure is a deemed value equaling 451Therms This is a deemed TRM Value
Date	2016-09-01	
Measure Code	CI-HVC-IRHT-V01-120601	

Program Types	
TOS	Time of Sale
NC	New Construction

4.4.14	Pipe Insulation																	Annual Savings			Lifetime Savings			Algorithm Inputs					
	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (yrs)	Insulation Thickness	Location	Piping use	System Type	Outdoor reset?	Recirculation?	Building Type	Climate Zone	Linear feet of insulation	Loadshape	Incremental Cost	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Qbase	Qeff	EFLH	ηboiler	TRF_eff	Climate Zone Lookup
4.4.14.1	Pipe Insulation, Outdoor, Space Heating, High pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor HPS Space Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Space Heating	High pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	64.20	-	-	963.01	1101	52	4939	0.807	1	7
4.4.14.2	Pipe Insulation, Outdoor, Space Heating, Low pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor LPS Space Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Space Heating	Low pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	41.49	-	-	622.42	710	32	4939	0.807	1	7
4.4.14.3	Pipe Insulation, Indoor, Space Heating, High pressure steam, Recirculation - Heating Season only	Pipe Insulation, Indoor HPS Space Heat	Pipe insulation	DI	15	1 INCH	Indoor	Space Heating	High pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	8.20	-	-	122.96	432	70	4939	0.807	0.37	7
4.4.14.4	Pipe Insulation, Indoor, Space Heating, Low pressure steam, Recirculation - Heating Season only	Pipe Insulation, Indoor LPS Space Heat	Pipe insulation	DI	15	1 INCH	Indoor	Space Heating	Low pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	4.35	-	-	65.22	232	40	4939	0.807	0.37	7
4.4.14.5	Pipe Insulation, Outdoor, Space Heating, Hot water, Recirculation - Heating Season only	Pipe Insulation, Outdoor HW Space Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Space Heating	Hot water	Average reset	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	23.70	-	-	355.50	411.5	18.5	4939	0.819	1	7
4.4.14.6	Pipe Insulation, Indoor, Domestic Hot Water, Hot water, DHW Circulation Loop	Pipe Insulation, Indoor DHW	Pipe insulation	DI	15	1 INCH	Indoor	Domestic Hot Water	Hot water	Average reset	DHW Circulation Loop	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	2.05	-	-	30.80	52	13.25	8766	0.67	0.405	7
4.4.14.7	Pipe Insulation, Indoor, Space Heating, Hot water, Recirculation - Heating Season only	Pipe Insulation, Indoor HW Space Heat	Pipe insulation	DI	15	1 INCH	Indoor	Space Heating	Hot water	Average reset	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	1.68	-	-	25.27	96	20.5	4939	0.819	0.37	7
4.4.14.8	Pipe Insulation, Outdoor, Space Heating, Medium pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor MPS Space Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Space Heating	Medium pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	52.85	-	-	792.72	905.5	42	4939	0.807	1	7
4.4.14.9	Pipe Insulation, Indoor, Space Heating, Medium pressure steam, Recirculation - Heating Season only	Pipe Insulation, Indoor MPS Space Heat	Pipe insulation	DI	15	1 INCH	Indoor	Space Heating	Medium pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	6.27	-	-	94.09	332	55	4939	0.807	0.37	7
4.4.14.10	Pipe Insulation, Outdoor, Process Heating, High pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor HPS Process Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Process Heating	High pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	100.77	-	-	1,511.50	1101	52	7752	0.807	1	7
4.4.14.11	Pipe Insulation, Outdoor, Process Heating, Medium pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor MPS Process Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Process Heating	Medium pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	82.95	-	-	1,244.21	905.5	42	7752	0.807	1	7
4.4.14.12	Pipe Insulation, Outdoor, Process Heating, Low pressure steam, Recirculation - Heating Season only	Pipe Insulation, Outdoor LPS Process Heat	Pipe insulation	DI	15	2 INCHES	Outdoor	Process Heating	Low pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$21.20	-	-	65.13	-	-	976.92	710	32	7752	0.807	1	7
4.4.14.13	Pipe Insulation, Indoor, Process Heating, High pressure steam, Recirculation- year round	Pipe Insulation, Indoor HPS Process Heat	Pipe insulation	DI	15	1 INCH	Indoor	Process Heating	High pressure steam	NA	Recirculation- year round	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	14.08	-	-	211.25	432	70	7752	0.807	0.405	7
4.4.14.14	Pipe Insulation, Indoor, Process Heating, Medium pressure steam, Recirculation - Heating Season only	Pipe Insulation, Indoor MPS Process Heat	Pipe insulation	DI	15	1 INCH	Indoor	Process Heating	Medium pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	10.78	-	-	161.65	332	55	7752	0.807	0.405	7
4.4.14.15	Pipe Insulation, Indoor, Process Heating, Low pressure steam, Recirculation - Heating Season only	Pipe Insulation, Indoor LPS Process Heat	Pipe insulation	DI	15	1 INCH	Indoor	Process Heating	Low pressure steam	NA	Recirculation - Heating Season only	Unknown	6 (Nicor Custom)	1	N/A	$13.97	-	-	7.47	-	-	112.04	232	40	7752	0.807	0.405	7

TRM Algorithm	
Δtherms per foot = [((Qbase – Qeff) * EFLH) / (100,000 * ηBoiler)] * TRF Δtherms = (Lsp + Loc,i) * Δtherms per foot	
Date	2016-09-01
Measure Code	CI-HVC-PINS-V04-160601

TRM Assumptions	Input Values	Notes
Qbase	Based on lookup table below	Heat Loss from Bare Pipe (Btu/hr/ft) Table of deemed values from the TRM - but can Calculate where possible using 3E Plusv4.0 software. For defaults
Qeff	Based on lookup table below	Heat Loss from Insulated Pipe (Btu/hr/ft) Table of deemed values from the TRM - but can Calculate where possible using 3E Plusv4.0 software. For defaults
100000		conversion factor (1 therm = 100,000 Btu) Deemed TRM Value
EFLH	Based on lookup table	Equivalent Full Load Hours for Heating Actual or defaults by building type provided in Section 4.4, HVAC end use For year round recirculation or domestic hot water: 8766 Table of deemed values from the TRM - However. Nicor uses a weighted average based on climate zone
ηboiler	Based on lookup table below	Efficiency of the boiler being used to generate the hot water or steam in the pipe 81.9% deemed TRM value for water boilers 80.7% deemed TRM value for steam boilers, except multifamily low pressure 64.8% for multifamily low pressure steam boilers 67% for Domestic Hot Water These are deemed values from the TRM and are displayed in a table below. - can use Actual or if unknown use default values given below:
TRF_eff	Based on lookup table below	Thermal Regain Factor for space type, applied only to space heating energy and is applied to values resulting from Δtherms/ft tables below The TRM has a table of Deemed Values. Currently using a weighted average. This weighted average is: outdoor is assumed to be 1 and indoor is based on the assumption that 60% of the projects are in an indoor heated space, 40% of the projects are in an indoor semi-heated space, and 0% of the projects will be in an outdoor, unheated space. Those weights were applied to get a value of 0.15 at 60% and 0.7 at 40% 70% of process projects are indoor, 0% in semi indoor, and 30% in outdoor unheated space This weighted average results in a custom input calculation in the table below
Measure Life	15.00	The measure life is assumed to be 15 years. This is a deemed TRM Value
Incremental Cost	Based on lookup table below from TRM Values	Actual costs should be used if known. Otherwise the deemed measure costs below based on RS Means pricing reference materials may be used. There is a table of deemed TRM Values for the estimated costs for this measure per foot of insulation added and include installation costs

Table for Algorithm Inputs

Heat Loss from bare pipe (Qbase) - Table of information from the TRM

	Indoor						Outdoor					
	Hot water			Low pressure steam	Medium pressure steam	High pressure steam	Hot water			Low pressure steam	Medium pressure steam	High pressure steam
	With outdoor reset	Average reset	Without outdoor reset	NA	NA	NA	With outdoor reset	Average reset	Without outdoor reset	NA	NA	NA
Non-recirculation	78	96	114	232	332	432	363	411.5	460	710	905.5	1,101
Recirculation - Heating Season only	78	96	114	232	332	432	363	411.5	460	710	905.5	1,101
Recirculation- year round	58	86	114	232	332	432	306	383	460	710	905.5	1,101
DHW Circulation Loop	52	52	52	Error	Error	Error	Error	Error	Error	Error	Error	Error

Q Column lookup table	
IndoorHot waterWith outdoor reset	2
IndoorHot waterAverage reset	3
IndoorHot waterWithout outdoor reset	4
IndoorLow pressure steamNA	5
IndoorMedium pressure steamNA	6
IndoorHigh pressure steamNA	7
OutdoorHot waterWith outdoor reset	8
OutdoorHot waterAverage reset	9
OutdoorHot waterWithout outdoor reset	10
OutdoorLow pressure steamNA	11
OutdoorMedium pressure steamNA	12
OutdoorHigh pressure steamNA	13

Heat Loss from insulated pipe (Qeff) - Table of information from the TRM

	Indoor						Outdoor					
	Hot water			Low pressure steam	Medium pressure steam	High pressure steam	Hot water			Low pressure steam	Medium pressure steam	High pressure steam
	With outdoor reset	Average reset	Without outdoor reset				With outdoor reset	Average reset	Without outdoor reset			
Non-recirculation	17	20.5	24	40	55	70	16	18.5	21	32	42	52
Recirculation - Heating Season only	17	20.5	24	40	55	70	16	18.5	21	32	42	52
Recirculation- year round	13	18.5	24	40	55	70	13	17	21	32	42	52
DHW Circulation Loop	13.25	13.25	13.25	Error	Error	Error	Error	Error	Error	Error	Error	Error

Efficiency of Boiler (ηboiler) - Deemed Values from the TRM		Source
Hot water	81.90%	TRM V5 Page 195
Low pressure steam	80.70%	TRM V5 Page 195
Medium pressure steam	80.70%	TRM V5 Page 195
High pressure steam	80.70%	TRM V5 Page 195
Domestic Hot Water	67.00%	TRM V5 Page 199

TRF - table of deemed values from the TRM

	Pipe Location	Assumed Regain	TRF, Thermal Regain Factor	Q Lookup	Space Heating	Process Heating
	Outdoor	0%	1	Outdoor	0%	0%
(unconditioned space, with heat transfer to conditioned space. E.g.: boiler room, ceiling plenum, basement, crawlspace, wall)	Indoor, heated space	85%	0.15	Indoor	60%	70%
(no heat transfer to conditioned space)	Indoor, semi- heated	30%	0.7	Indoor	40%	0%
	Indoor, unheated	0%	1	Indoor	0%	30%
	Indoor, location not specified	85%	0.15	Indoor	0%	0%
	Custom	Custom	1	Custom	0%	0%

TRF_eff - Nicor Weighted Average	
Pipe Location	TRF_eff
Space Heating	0.37
Process Heating	0.405
Domestic Hot Water	0.405

Nominal Pipe Diameter	Equivalent Length (ft)	
	90 Degree Elbow	Straight Tee
1/2"	0.04	0.03
3/4"	0.06	0.05

Incremental Cost from the TRM	INSULATION THICKNESS	
	Indoor	Outdoor
	1 INCH	2 INCHES
Pipe- RS Means #	220719.10.5170	220719.10.5530
Jacket- RS Means #	220719.10.0156	220719.10.0320
Jacket Type	PVC	Aluminum
Insulation Cost per foot	$9.40	$13.90
Jacket Cost per foot	$4.57	$7.30
Total Cost per foot	$13.97	$21.20

1 INCH	$13.97
2 INCHES	$21.20

Zone 1 (Rockford)	2
Zone 2 (Chicago)	3
Zone 3 (Springfield)	4
Zone 4 (Belleville)	5
Zone 5 (Marion)	6
Zone 6 (Nicor Custom)	7

Program Type
RF
DI
Location
Indoor
Outdoor

Program Type - Look up table	
Non-recirculation	Domestic Hot Water
Recirculation - Heating Season only	Space Heating
Recirculation- year round	Process Heating
DHW Circulation Loop	
Average reset	
NA	

EFLH Table from the TRM

Piping Use	Building Type		EFLH Zone 1 (Rockford)	Zone 2 (Chicago)	Zone 3 (Springfield)	Zone 4 (Belleville/	Zone 5 (Marion)	Zone 6 (Nicor Custom)
Space Heating - Recirculation - Heating Season only	NA	Space Heating - Recirculation - Heating Season onlyNA	5,039	4,963	4,495	4,021	4,150	4,939
Space Heating - Recirculation Year Round	NA	Space Heating - Recirculation Year RoundNA	8,766	8,766	8,766	8,766	8,766	8,766
Domestic Hot Water	NA	Domestic Hot WaterNA	8,766	8,766	8,766	8,766	8,766	8,766
Process Heating								7752

EFLH Table	
1 (Rockford)	5,039
2 (Chicago)	4,963
3 (Springfield)	4,495
4 (Belleville)	4,021
5 (Marion)	4,150
6 (Nicor Custom)	4,939

Building Type
Office - High Rise
Office - Mid Rise
Office - Low Rise
Convenience
Healthcare Clinic
Manufacturing Facility
Lodging Hotel/ Motel/Multifamily
High School
Hospital
Elementary
Religious Facility
Restaurant
Retail - Strip Mall
Retail - Department Store
College/University
Warehouse
Unknown
NA

Weighted average for Nicor Custom - Based on Climate zone		
1 (Rockford)	Zone 1	30%
2 (Chicago)	Zone 2	60%
3 (Springfield)	Zone 3	10%

4.4.16

Steam Trap Replacement or Repair

#	Measure	Short Measure Name	Measure Componen	Program Type	Replacement type	Measure Life (Yrs)	Steam System	Zone	Loadshape	Measure Cost	Cost source	Annual Savings ΔkWh	Annual Savings ΔkW	Annual Savings ΔTherms	Lifetime Savings ΔkWh	Lifetime Savings ΔkW	Lifetime Savings ΔTherms
4.4.16.1	**Steam Trap Replacement or Repair - Industrial Medium Pressure >15 psig < 30 psig, Custom Survey**	**Steam Trap, Indust MP 15-30 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial Medium Pressure >15 psig < 30 psig	Custom	N/A	$ 315.00	TRM	-	-	639.19	-	-	3,835.15
4.4.16.2	**Steam Trap Replacement or Repair - Industrial Medium Pressure ≥30 <75 psig, Custom Survey**	**Steam Trap, Indust MP 30-75 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial Medium Pressure ≥30 <75 psig	Custom	N/A	$ 315.00		-	-	2,213.63	-	-	13,281.75
4.4.16.3	**Steam Trap Replacement or Repair - Industrial High Pressure ≥75 <125 psig, Custom Survey**	**Steam Trap, Indust HP 75-125 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial High Pressure ≥75 <125 psig	Custom	N/A	$ 315.00		-	-	3,992.21	-	-	23,953.29
4.4.16.4	**Steam Trap Replacement or Repair - Industrial High Pressure ≥125 <175 psig, Custom Survey**	**Steam Trap, Indust HP 125-175 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial High Pressure ≥125 <175 psig	Custom	N/A	$ 322.00	TRM	-	-	5,412.61	-	-	32,475.67
4.4.16.5	**Steam Trap Replacement or Repair - Industrial High Pressure ≥175 <250 psig, Custom Survey**	**Steam Trap, Indust HP 175-250 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial High Pressure ≥175 <250 psig	Custom	N/A	$ 370.00	TRM	-	-	7,111.84	-	-	42,671.07
4.4.16.6	**Steam Trap Replacement or Repair - Industrial High Pressure ≥250 psig, Custom Survey**	**Steam Trap, Indust HP 250 psig**	**Steam traps**	TOS	Custom Survey	6	Industrial High Pressure ≥250 psig	Custom	N/A	$ 418.00	TRM	-	-	8,885.13	-	-	53,310.80
4.4.16.7	**Steam Trap Replacement or Repair - Commercial Heating , (including Multifamily) low pressure steam, all replaced**	**Steam Trap, Commercial**	**Steam traps**	TOS	all replaced	6	Commercial Heating , (including Multifamily) low pressure steam	Custom	N/A	$ 77.00	Actual	-	-	89.46	-	-	536.78
4.4.16.9	**Steam Trap Replacement or Repair - Commercial Dry Cleaners, Custom Survey**	**Steam Trap, Dry Cleaner**	**Steam traps**	TOS	Custom Survey	6	Commercial Dry Cleaners	Custom	N/A	$ 315.00	Actual	-	-	515.28	-	-	3,091.69

Algorithm Inputs

#	Climate loc	Sa**	Pia**	Pig	Patm	D**	A**	FF**	Hv	B	Hours	A	L	L lookup
4.4.16.1	13	6.54	30.70	16.00	14.70	0.1875	0.5	0.5	944	80.0%	8282	50%	1	5
4.4.16.2	13	23.37	61.7	47	14.7	0.25	0.5	0.5	915	80.0%	8282	50%	1	6
4.4.16.3	13	43.82	115.7	101	14.7	0.25	0.5	0.5	880	80.0%	8282	50%	1	7
4.4.16.4	13	60.87	160.7	146	14.7	0.25	0.5	0.5	859	80.0%	8282	50%	1	8
4.4.16.5	13	82.08	216.7	202	14.7	0.25	0.5	0.5	837	80.0%	8282	50%	1	9
4.4.16.6	13	105.18	277.7	263	14.7	0.25	0.5	0.5	816	80.0%	8282	50%	1	10
4.4.16.7	13	6.90							951	80.0%	4039.6	50%	0.27	3
4.4.16.9	13	19.10							890	80.0%	2425	50%	1	2

**indicated new per TRM V5

Where Sa = Average actual steam loss per leaking trap = 24.24 x Pia x D² x A x FF

'= Sa * (Hv/B) * Hours * L / 100,000

TRM Algorithm

Updated TRM Formula PER trm v5

ΔTherm = Sa * (Hv/B) * Hours * L / 100,000

Where Sa = Average actual steam loss per leaking trap = 24.24 x Pia x D² x A x FF

Date	2016-09-01
Measure Code	CI-HVC-STRE-V04-160601

TRM Assumptions	Input Values	Notes
S	Based on lookup table below	Maximum theoretical steam loss per trap TRM provides a Deemed Table of Values
Hv	Based on lookup table below	Heat of vaporization of steam Deemed Table of Values from the TRM
B	80%	Boiler efficiency - custom number custom, if unknown - 80.7% for steam boilers, except multifamily low-pressure custom, if unknown 64.8% for multifamily low-pressure steam boilers
Hours	Based on lookup table below	Annual operating hours of steam plant Deemed Table of Values from the TRM
L	Based on lookup table below	Leaking & blow-thru Deemed Table of Values from the TRM L is 1.0 when applied to the replacement of an individual leaking trap. If a number of steam traps are replaced and the system has not been audited, the leaking and blow-thru is applied to reflect the assumed percentage of steam traps that were actually leaking and need to be replaced. A custom value can be utilized if a supported by an evaluation.
Sa	24.42	The Average actual steam loos per leaking trap TRM Value for Sa calculation Calculated based on the items Formula for Sa = 24.24 x Pia x D² x A x FF
Pia	Calculated where = Pig + Patm Deemed Table of Values via Look up table from TRM based on Pressure of the system	Average steam trap inlet pressure, absolute, psia
Pig	Table of values from TRM - Lookup table	Average steam trap inlet pressure, gauge, psig
Patm	14.70	Atmospheric pressure This value is deemed in the TRM at , 14.7 psia
D	Deemed Table of Values via Look up table from TRM based on Pressure of the system	Diameter of Orifice, in. This is a look up table from the TRM based on pressure of the system
A	50%	Adjustment factor 50%,[1] all steam systems. This factor is to account for reducing the maximum theoretical steam flow to the average steam flow (the Enbridge factor).
FF	50%	Flow Factor. In addition to the Adjustment factor (A), an additional 50 percent flow factor adjustment is recommended for medium and high pressure steam systems to address industrial float and thermostatic style traps where additional blockage is possible. This value is deemed in the TRM at 50%
Conversion Factors	24.24	Constant lb/(hr-psia-in2)
Measure life	6.00	Deemed Value from the TRM
Incremental Cost	Based on lookup table below	Deemed Table of Values from the TRM However, if actual data exists, will use that information instead of the TRM value

Table for Algorithm Inputs

Climate Zone Lookup Table	
1 (Rockford)	8
2 (Chicago)	9
3 (Springfield)	10
4 (Belleville)	11
5 (Marion)	12
Custom	13

Program Type Lookup Table	
TOS	Custom Survey
RF	all replaced
	Custom Value

Steam System	Incremental Cost - cost per trap: TRM	Actual - cost per trap	S - (lb/hr/trap)	Heat of Vaporization (HV) - (Btu/lb)	B	L	Hours/Yr: 1 (Rockford)	2 (Chicago)	3 (Springfiel d)	4 (Belleville)	5 (Marion)	Custom	Custom climate zone weights	
Commercial Dry Cleaners	$ 77	$ 315	38.1	890	80.00%	27%	2,425	2,425	2,425	2,425	2,425	2,425	Rockford	30%
Commercial Heating , (including Multifamily) low pressure steam	$ 77	$ 77	13.8	951	80.00%	27%	4,272	4,029	3,406	2,515	2,546	4,040	Chicago	60%
Industrial Low Pressure <15 psig	$ 77	$ 315	13.8	951	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282	Springfield	10%
Industrial Medium Pressure >15 psig < 30 psig	$ 180	$ 315	12.7	944	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial Medium Pressure ≥30 <75 psig	$ 223	$ 315	19	915	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial High Pressure ≥75 <125 psig	$ 276	$ 315	67.9	880	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial High Pressure ≥125 <175 psig	$ 322		105.8	859	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial High Pressure ≥175 <250 psig	$ 370		143.7	837	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial High Pressure ≥250 psig	$ 418		200.5	816	80.00%	16%	8,282	8,282	8,282	8,282	8,282	8,282		
Industrial High Pressure ≥300psig														

	Commercial Dry Cleaners	Commercial Heating , (including Multifamily) low pressure steam	Industrial Low Pressure <15 psig	Industrial Medium Pressure >15 psig < 30 psig	Steam Trap, Ind Med Pressure ≥30 <75 psig	Steam Trap, Ind High Pressure ≥75 <125 psig	Steam Trap, Ind High Pressure ≥125 <175 psig	Steam Trap, Ind High Pressure ≥175 <250 psig	Steam Trap, Ind High Pressure ≥250 psig
Custom Survey	1	1	1	1	1	1	1	1	1
All replaced	27%	27%	16%	16%	16%	16%	16%	16%	16%
Custom value	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74

Leaking & blow-thru (L) Lookup Table	
Commercial Dry Cleaners	2
Commercial Heating , (including Multifamily) low pressure steam	3
Industrial Low Pressure <15 psig	4
Industrial Medium Pressure >15 psig < 30 psig	5
Industrial Medium Pressure ≥30 <75 psig	6
Industrial High Pressure ≥75 <125 psig	7
Industrial High Pressure ≥125 <175 psig	8
Industrial High Pressure ≥175 <250 psig	9
Industrial High Pressure ≥250 psig	10

Steam System	Average Steam Trap Inlet Pressure	Diameter of Orifice in	Adjustment Factor	Flow Factor	Average Actual Steam Loss per Leaking Trap (lb/hr/trap)
Commercial Dry Cleaners			50%	100%	19.1
Commercial Heating , (including Multifamily) low pressure steam			50%	100%	6.9
Industrial Low Pressure <15 psig			50%	100%	6.9
Industrial Medium Pressure >15 psig < 30 psig	16	0.1875	50%	50%	6.5
Industrial Medium Pressure ≥30 <75 psig	47	0.25	50%	50%	23.4
Industrial High Pressure ≥75 <125 psig	101	0.25	50%	50%	43.8
Industrial High Pressure ≥125 <175 psig	146	0.25	50%	50%	60.9
Industrial High Pressure ≥175 <250 psig	202	0.25	50%	50%	82.1
Industrial High Pressure ≥250 psig	263	0.25	50%	50%	105.2
Industrial High Pressure ≥300 psig	Custom	Custom	50%	50%	Calculated

4.4.24	Small Pipe Insulation													Annual Savings			Lifetime Savings			Algorithm Inputs		
	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (yrs)	Pipe Size	Location	Piping use	Recirculation	Building Type	Climate Zone	Linear feet of insulation	Loadshape	Increment al Cost	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	EFLH	TRF_eff	Climate Zone Lookup
4.4.24.1	Small Pipe Insulation, 1/2", Indoor Space Heating, Recirculation - Heating Season only	Small Pipe Insulation, 1/2" Indoor Space Heat	Pipe insulation	DI	15	1/2"	Indoor	Space Heating	Recirculation - Heating Season only	All buildings (Hours below 55°F)	6 (Nicor Custom)	1	N/A	$4.15	-	-	0.12	-	-	1.79	4939	0.37	7
4.4.24.2	Small Pipe Insulation, 3/4", Indoor Space Heating, Recirculation - Heating Season only	Small Pipe Insulation, 3/4" Indoor Space Heat	Pipe insulation	DI	15	3/4"	Indoor	Space Heating	Recirculation - Heating Season only	All buildings (Hours below 55°F)	6 (Nicor Custom)	1	N/A	$4.45	-	-	0.14	-	-	2.17	4939	0.37	7
4.4.24.3	Small Pipe Insulation, 1/2", Indoor Domestic Hot Water, DHW Circulation Loop	Small Pipe Insulation, 1/2" Indoor DHW	Pipe insulation	DI	15	1/2"	Indoor	Domestic Hot Water	DHW Circulation Loop	Recirculation loop	6 (Nicor Custom)	1	N/A	$4.15	-	-	0.23	-	-	3.47	8766	0.405	7
4.4.24.4	Small Pipe Insulation, 3/4", Indoor Domestic Hot Water, DHW Circulation Loop	Small Pipe Insulation, 3/4" Indoor DHW	Pipe insulation	DI	15	3/4"	Indoor	Domestic Hot Water	DHW Circulation Loop	Recirculation loop	6 (Nicor Custom)	1	N/A	$4.45	-	-	0.28	-	-	4.22	8766	0.405	7

TRM Algorithm	
Δtherms per foot =	[((Qbase – Qeff) * EFLH) / (100,000 * ηBoiler)] * TRF
Δtherms =	(Lsp + Loci) * Δtherms per foot
Date	2016-09-01
Measure Code	CI-HVC-SPIN-V02-160601

TRM Assumptions	Input Values	Notes
EFLH	Table of lookup Values, on the tab labeled: List	Equivalent Full Load Hours for Heating Actual or defaults by building type provided in Section 4.4, HVAC end use For year round recirculation or domestic hot water use deemed TRM Value of 8766 For heating season recirculation, hours with the outside air temperature below 55°F: use table of deemed TRM Values
TRF_eff	Based on lookup table below	Thermal Regain Factor for space type, applied only to space heating energy and is applied to values resulting from Δtherms/ft tables below The TRM has a table of Deemed Values. Currently using a weighted average. This weighted average is: outdoor is assumed to be 1 and indoor is based on the assumption that 60% of the projects are in an indoor heated space, 40% of the projects are in an indoor semi-heated space, and 0% of the projects will be in an outdoor, unheated space. Those weights were applied to get a value of 0.15 at 60% and 0.7 at 40% 70% of process projects are indoor, 0% in semi indoor, and 30% in outdoor unheated space This weighted average results in a custom input calculation in the table below
Measure Life	15	The measure life is assumed to be 15 years. This is a deemed TRM Value
Incremental Cost	Based on lookup table below	The incremental measure cost for insulation is the full cost of adding insulation to the pipe. Actual installation costs should be used for the measure cost For planning purposes, the following costs can be used to estimate the full cost of materials and labor.

Table for Algorithm Inputs

Incremental Cot	INSULATION THICKNESS	
	1 INCH (INDOOR)	2 INCHES (OUTDOOR)
Pipe- RS Means #	220719.10.5170	220719.10.5530
Jacket- RS Means #	220719.10.0156	220719.10.0320
Jacket Type	PVC	Aluminum
Insulation Cost per foot	$9.40	$13.90
Jacket Cost per foot	$4.57	$7.30
Total Cost per foot	$13.97	$21.20
3/4"	$4.45	Custom
1/2"	$4.15	Custom

EFLH Table	
1 (Rockford)	5,039
2 (Chicago)	4,963
3 (Springfield)	4,495
4 (Belleville)	4,021
5 (Marion)	4,150
6 (Nicor Custom)	4,939

Program Type
RF
DI

Weighted average for Nicor Custom Climate Zone	
Zone 1	30%
Zone 2	60%
Zone 3	10%

Efficiency of Boiler (ηboiler) - Deemed Values from the TRM	
Hot water	81.90%
Low pressure steam	80.70%
High pressure steam	80.70%
ultifamily low pressure ste	64.80%

Program Type - Look up table	
Non-recirculation	Domestic Hot Water
Recirculation - Heating S	Space Heating
Recirculation- year round	
DHW Circulation Loop	

1/2"	Indoor
3/4"	Outdoor

	TRF - table of deemed values from the TRM				
	Pipe Location	Assumed Regain	TRF, Thermal Regain Factor	Space Heating	Process Heating
	Outdoor	0%	1	0%	0%
	Indoor, heated space	85%	0.15	60%	70%
(unconditioned space, with h	Indoor, semi- heated	30%	0.7	40%	0%
(no heat transfer to conditior	Indoor, unheated	0%	1	0%	30%
	Indoor, location not specified	85%	0.15	0%	0%
	Custom	Custom	1	0%	0%

TRF_eff - Nicor Weighted Average	
Pipe Location	TRF_eff
Space Heating	0.37
Process Heating	0.405
Domestic Hot Water	0.405

1/2" Copper Pipe

Piping Use	Building Type	Annual Therms Saved / Linear Foot					
		Zone 1 (Rockford)	Zone 2 (Chicago)	Zone 3 (Springfield)	Zone 4 (Belleville)	Zone 5 (Marion)	Zone 6 (Nicor Custom)
Space Heating Non-recirculation	Assembly	0.117	0.12	0.107	0.071	0.109	0.118
	Assisted Living	0.11	0.107	0.094	0.069	0.083	0.107
	College	0.1	0.093	0.083	0.046	0.055	0.094
	Convenience Store	0.097	0.089	0.079	0.057	0.064	0.090
	Elementary School	0.116	0.113	0.1	0.069	0.084	0.113
	Garage	0.064	0.063	0.056	0.044	0.049	0.063
	Grocery	0.105	0.105	0.092	0.057	0.068	0.104
	Healthcare Clinic	0.103	0.106	0.092	0.063	0.066	0.104
	High School	0.12	0.121	0.109	0.077	0.091	0.120
	Hospital - CAV no econ	0.115	0.119	0.101	0.087	0.099	0.116
	Hospital - CAV econ	0.117	0.121	0.103	0.089	0.101	0.118
	Hospital - VAV econ	0.048	0.045	0.034	0.02	0.022	0.045
	Hospital - FCU	0.087	0.099	0.08	0.094	0.127	0.094
	Hotel/Motel	0.115	0.112	0.101	0.069	0.084	0.112
	Hotel/Motel - Common	0.104	0.106	0.101	0.082	0.086	0.105
	Hotel/Motel - Guest	0.115	0.111	0.099	0.066	0.082	0.111
	Manufacturing Facility	0.068	0.066	0.061	0.037	0.041	0.066
	MF - High Rise	0.1	0.098	0.09	0.076	0.076	0.098
	MF - High Rise - Common	0.118	0.115	0.103	0.071	0.092	0.115
	MF - High Rise - Residential	0.096	0.096	0.087	0.075	0.073	0.095
	MF - Mid Rise	0.109	0.11	0.095	0.07	0.079	0.108
	Movie Theater	0.119	0.117	0.109	0.083	0.099	0.117
	Office - High Rise - CAV no ec	0.132	0.134	0.122	0.082	0.089	0.132
	Office - High Rise - CAV econ	0.136	0.139	0.128	0.088	0.097	0.137
	Office - High Rise - VAV econ	0.1	0.102	0.084	0.05	0.055	0.100
	Office - High Rise - FCU	0.073	0.072	0.062	0.033	0.035	0.071
	Office - Low Rise	0.093	0.093	0.074	0.045	0.052	0.091
	Office - Mid Rise	0.103	0.104	0.088	0.056	0.062	0.102
	Religious Building	0.105	0.098	0.094	0.069	0.079	0.100
	Restaurant	0.088	0.088	0.079	0.06	0.071	0.087
	Retail - Department Store	0.091	0.083	0.078	0.051	0.058	0.085
	Retail - Strip Mall	0.087	0.081	0.071	0.049	0.053	0.082
	Warehouse	0.095	0.089	0.091	0.057	0.07	0.091
	Unknown	0.101	0.1	0.089	0.064	0.074	0.099
Space Heating Recirculation - Heating Season only	All buildings (Hours below 55°F)	0.329	0.324	0.293	0.262	0.271	0.322
Space Heating Recirculation - year round	All buildings (All hours)	0.572	0.572	0.572	0.572	0.572	0.572
Domestic Hot Water	Recirculation loop	0.572	0.572	0.572	0.572	0.572	0.572
Process	Custom	Custom					

Climate Zone Lookup	
1 (Rockford)	2
2 (Chicago)	3
3 (Springfield)	4
4 (Belleville)	5
5 (Marion)	6
6 (Nicor Custom)	7

3/4" Copper Pipe

Piping Use	Building Type	Annual Therms Saved / Linear Foot					
		Zone 1 (Rockford)	Zone 2 (Chicago)	Zone 3 (Springfield)	Zone 4 (Belleville)	Zone 5 (Marion)	Zone 6 (Nicor Custom)
Space Heating Non-recirculating	Assembly	0.142	0.145	0.129	0.086	0.132	0.143
	Assisted Living	0.133	0.13	0.115	0.084	0.101	0.129
	College	0.121	0.113	0.101	0.056	0.067	0.114
	Convenience Store	0.117	0.108	0.096	0.069	0.077	0.110
	Elementary School	0.141	0.137	0.121	0.084	0.102	0.137
	Garage	0.078	0.077	0.067	0.054	0.06	0.076
	Grocery	0.127	0.127	0.111	0.069	0.083	0.125
	Healthcare Clinic	0.125	0.128	0.112	0.076	0.081	0.126
	High School	0.146	0.147	0.132	0.094	0.11	0.145
	Hospital - CAV no econ	0.14	0.144	0.123	0.105	0.12	0.141
	Hospital - CAV econ	0.142	0.147	0.125	0.108	0.123	0.143
	Hospital - VAV econ	0.058	0.055	0.041	0.025	0.027	0.055
	Hospital - FCU	0.105	0.12	0.098	0.115	0.154	0.113
	Hotel/Motel	0.14	0.136	0.122	0.084	0.102	0.136
	Hotel/Motel - Common	0.127	0.129	0.123	0.1	0.105	0.128
	Hotel/Motel - Guest	0.139	0.135	0.12	0.081	0.099	0.135
	Manufacturing Facility	0.083	0.08	0.074	0.045	0.05	0.080
	MF - High Rise	0.121	0.119	0.109	0.093	0.093	0.119
	MF - High Rise - Common	0.144	0.14	0.125	0.086	0.111	0.140
	MF - High Rise - Residential	0.117	0.116	0.105	0.091	0.089	0.115
	MF - Mid Rise	0.132	0.134	0.115	0.085	0.096	0.132
	Movie Theater	0.144	0.142	0.133	0.101	0.12	0.142
	Office - High Rise - CAV no ec	0.16	0.162	0.148	0.099	0.108	0.160
	Office - High Rise - CAV econ	0.165	0.169	0.155	0.107	0.118	0.166
	Office - High Rise - VAV econ	0.121	0.123	0.102	0.06	0.067	0.120
	Office - High Rise - FCU	0.089	0.087	0.075	0.04	0.042	0.086
	Office - Low Rise	0.113	0.113	0.09	0.055	0.063	0.111
	Office - Mid Rise	0.126	0.126	0.106	0.068	0.075	0.124
	Religious Building	0.127	0.119	0.114	0.084	0.095	0.121
	Restaurant	0.107	0.107	0.096	0.073	0.086	0.106
	Retail - Department Store	0.11	0.101	0.095	0.062	0.071	0.103
	Retail - Strip Mall	0.106	0.098	0.086	0.059	0.064	0.099
	Warehouse	0.115	0.108	0.111	0.069	0.085	0.110
	Unknown	0.123	0.122	0.108	0.078	0.09	0.121
Space Heating - Recirculation heating Season only	All buildings (Hours below 55°F)	0.399	0.393	0.356	0.319	0.329	0.391
Space Heating - Recirculation year round	All buildings (All hours)	0.694	0.694	0.694	0.694	0.694	0.694
Domestic Hot Water	Recirculation loop	0.694	0.694	0.694	0.694	0.694	0.694
Process	Custom	Custom					

Climate Zone Lookup	
Zone 1 (Rockford)	2
Zone 2 (Chicago)	3
Zone 3 (Springfield)	4
Zone 4 (Belleville)	5
Zone 5 (Marion)	6
Zone 6 (Nicor Custom)	7

#	Measure	Short Measure Na	Measure Component	Program Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Methodology	Unit type	Age of Equipment	Electric heating?	System Type	Capacity of Air Cooling system (Btu/H)	Capacity of heating system	Climate Zone	Type of Conditioned Space	Annual Savings ΔkWh	Annual Savings ΔkW	Annual Savings ΔTherms	Lifetime Savings ΔkWh	Lifetime Savings ΔkW	Lifetime Savings ΔTherms
5.3.4	Duct Insulation and Sealing																					
5.3.4.1	Duct Insulation and Sealing - Evaluation of Distribution Efficiency, 39305 Btu/H, Single family	Duct Sealing SF Unconditioned	Duct sealing	RF	20	$ 400.00	R08 - Residential Cooling	Evaluation of Distribution Efficiency	Single family	Average	FALSE	Heat Pump	39,305	83,321	6 (Nicor C	Unconditioned	149.49	0.2406	166.47	2,989.81	0.2406	3,329.46
5.3.4.3	Duct Insulation and Sealing - Evaluation of Distribution Efficiency, 39305 Btu/H, Single family Joint	Duct Sealing SF Joint	Duct sealing	RF	20	$ 400.00	R08 - Residential Cooling	Evaluation of Distribution Efficiency	Single family	Average	FALSE	Heat Pump	39,305	83,321	6 (Nicor C	Average - Nicor	74.75	0.1203	116.53	1,494.90	0.1203	2,330.62

Algorithm Inputs

#	Pre-ΔCFM5	Post-ΔCFM50	ΔCFM25	Pre-CFM50Whole	Post-CFM50Whole	Pre-CFM50Envelope Only	Post-CFM50Envelope Only	Pre-SCF	Post-SCF	DEbefore	DEafter	SLF	RLF	Cooling Capacity	Heating Capacity	FLHcool
5.3.4.1	387.00	139.00	119.04	4800	4600	4500	4500	1.29	1.39	0.72	0.78	0.5	0.25	39,305	83,321	568.6
5.3.4.3	387.00	139.00	119.04	4800	4600	4500	4500	1.29	1.39	0.72	0.78	0.5	0.25	39,305	83,321	568.6

#	ηCool	FLHheat	ηHeat	CF	ηHeat	Methodolog	Methodolog	Methodolog	Methodolog	ηEquipment	ηSystem	Fe	TRFheat	TRFcool	Converts CFM50 to CFM 25	Converts Btu to therms	Conversion of Capacity to CFM (0.0123CFM / Btu/hr)	Btu/H capacity to Tons	Converts Capacity in tons to CFM (400CFM/ton)	Converts Btu to kBtu	Converts Btu to KkWh
5.3.4.1	11.5	1,870	2.13	0.915	0.7	176.573	149.49	251.374	166.473	0.83	0.5976	0.0314	1	1	0.64	100000	0.0123	12000	400	1000	3412
5.3.4.3	11.5	1,870	2.13	0.915	0.7	88.2863	74.7452	175.962	116.531	0.83	0.5976	0.0314	0.7	0.5	0.64	100000	0.0123	12000	400	1000	3412

TRM Algorithm

Methodology 1: Modified Blower Door Subtraction

a) Determine Duct Leakage rate before and after performing duct sealing:

Duct Leakage (CFM50DL) = (CFM50Whole House – CFM50Envelope Only) * SCF

b) Calculate duct leakage reduction, convert to CFM25DL and factor in Supply and Return Loss Factors

Duct Leakage Reduction (ΔCFM25DL) = (Pre CFM50DL – Post CFM50DL) * 0.64 * (SLF + RLF)

c) Calculate Energy Savings:

ΔkWhcooling = ((ΔCFM25DL)/ ((Capacity/12,000) * 400)) * FLHcool * Capacity) / 1000 / ηCool

Heating savings for homes with electric heat (Heat Pump)

ΔkWhheating = (((ΔCFM25DL /((Capacity/12,000) * 400)) * FLHheat * Capacity) / ηHeat / 3412

Methodology 2: Evaluation of Distribution Efficiency

ΔkWhcooling = ((DEafter – DEbefore)/ DEafter)) * FLHcool * Capacity)/1000 / ηCool

Heating savings for homes with electric heat (Heat Pump or resistance):

ΔkWhheating = ((DEafter – DEbefore)/ DEafter)) * FLHheat * Capacity) / ηHeat / 3412

ΔkW= ΔkWhcooling/ FLHcool * CF

For homes with Natural Gas Heating:

Methodology 1: Modified Blower Door Subtraction

ΔTherm = (((ΔC = (((ΔCFM25DL / (InputCapacityHeat * 0.0123)) * FLHheat * InputCapacityHeat * TRFheat (ηEquipment / ηSystem)) / 100,000

Methodology 2: Evaluation of Distribution Efficiency

ΔTherm = ((DEafter – DEbefore)/ DEafter)) * FLHheat * InputCapacityHeat * TRFheat * (ηEquipment / ηSystem)) / 100,000

Date	2016-09-01
Measure Code	RS-HVC-DINS-V06-160601

TRM Assumptio		Input Values	Notes
Pre-CFM50Whole House			Standard Blower Door test result finding Cubic Feet per Minute at 50 Pascal pressure differential This is a custom input
Post-CFM50Whole House			Standard Blower Door test result finding Cubic Feet per Minute at 50 Pascal pressure differential This is a custom input
Pre-CFM50Envelope Only			Blower Door test result finding Cubic Feet per Minute at 50 Pascal pressure differential with all supply and return registers sealed. This is a custom input
Post-CFM50Envelope Only			Blower Door test result finding Cubic Feet per Minute at 50 Pascal pressure differential with all supply and return registers sealed. This is a custom input
Pre-SCF			Subtraction Correction Factor to account for underestimation of duct leakage due to connections between the duct system and the home. Determined by measuring pressure in duct system with registers sealed and using look up table provided by Energy Conservatory. Seems to be the same value used in the TRM Calculation
Post-SCF			Subtraction Correction Factor to account for underestimation of duct leakage due to connections between the duct system and the home. Determined by measuring pressure in duct system with registers sealed and using look up table provided by Energy Conservatory. Seems to be the same value used in the TRM Calculation
DEbefore		0.72	Distribution Efficiency before duct sealing This is a custom input
DEafter			Distribution Efficiency after duct sealing This is a custom input
SLF		0.5	Supply Loss Factor % leaks sealed located in Supply ducts * 1 TRM deemed value of 0.5
RLF		0.25	Return Loss Factor % leaks sealed located in Return ducts * 0.5 TRM deemed value of 0.25
Cooling Capacity			Capacity of Air Cooling system (Btu/hr) Actual This is a custom input
Heating Capacity			Capacity of Air Heating system (Btu/hr) Actual This is a custom input
FLHcool			Full load cooling hours: Deemed Table of TRM Values dependent on location
ηCool			Efficiency (SEER) of Air Conditioning equipment (kBtu/kWh) Actual. If not available refer to the Table of deemed values from the TRM which is based on the age of the equipment
FLHheat			Full load heating hours Deemed Table of TRM Values dependent on location
ηHeat	Is this actual?		Efficiency in COP of Heating equipment Actual. If not available refer to the Table of deemed values from the TRM which is based on the age of the equipment
CF			Summer system peak coincidence factor This is a deemed TRM value
ηHeat			Efficiency in COP of Heating equipment Actual. If not available refer to the Table of deemed values from the TRM which is based on the age of the equipment
ηEquipment		83%	Heating Equipment Efficiency Actual. If not available use the deemed TRM value of 83%
ηSystem		70%	Pre duct sealing Heating System Efficiency (Equipment Efficiency * Pre Distribution Efficiency) Actual. If not available use the deemed TRM value of 70%
TRFheat	TRM lookup table based on semi or unconditioned space		Thermal Regain Factor for heating by space type TRM Deemed value based on semi-conditioned spaces or unconditioned spaces; lookup table below
TRFcool	TRM lookup table based on semi or unconditioned space		Thermal Regain Factor for cooling by space type TRM Deemed value based on semi-conditioned spaces or unconditioned spaces; lookup table below
Fe		3.14%	Furnace Fan energy consumption as a percentage of annual fuel consumption This is a deemed TRM value
Conversion Fac		100000	Converts Btu to therms
		0.0123	Conversion of Capacity to CFM (0.0123CFM / Btu/hr)
		0.64	Converts CFM50 to CFM 25
		12000	Converts Btu/h capacity to tons (per the TRM)
		400	Converts capacity in tons to CFM (400CFM /ton) (per the TRM)
		1000	Converts Btu to kBtu
		3412	Converts Btu to kWh
		29.3	kWh per therm
Measure Life		20	The assumed lifetime of this measure is 20 years This is a deemed TRM value
Incremental Cc		400	The actual duct sealing measure cost should be used. using 400 based on actual data

Tables for Algorithm Inputs

System Type	Age of Equipment	SEER Estimate	HSPF Estimate	COP Estimate
Heat Pump	Before 2006	10	6.8	2
	After 2006	13	7.7	2.26
	Average	11.5	7.25	2.13
	After 1/1/2015	14	8.2	2.4
Resistance			N/A	1

Custom Inputs		CFM50 Whole House	CFM50 Envelope Only	Subtraction correction factor	Distribution Efficiency
	Before performing duct sealing	4800	4500	1.29	0.72
	After performing duct sealing	4600	4500	1.39	0.78

ΔkWh of Therm Savings Lookup	
Modified Blower Door Subtraction	
Evaluation of Distribution Efficiency	
TRUE	
FALSE	
Single family	
Multi Family	

TRFheat	
Semi-Conditioned	0.4
Unconditioned	1
Average - Nicor	0.7

ηSystem	
From CR Input	
=Debefore*ηEquipment	
0.5976	

TRFcool	
Semi-Conditioned	0
Unconditioned	1
Average - Nicor	0.5

ηHeat	
Actual	70%

Loadshape Table
R08 - Residential Cooling
R09 - Residential Electric Space Heat
R10 - Residential Electric Heating and Cooling (Shell Measures)

Climate Zone	FLHcool Single Family	FLHcool Multifamily	FLH_heat
1 (Rockford)	512	467	1,969
2 (Chicago)	570	506	1,840
3 (Springfield)	730	663	1,754
4 (Belleville)	1,035	940	1,266
5 (Marion)	903	820	1,288
Unknown	629	564	1,821
6 (Nicor Custom)	568.6	510	1,870

Climate Lookup Table - to create Nicor Custom		
Rockford	Zone 1	0.3
Chicago	Zone 2	0.6
Springfield	Zone 3	0.1

Electric Benefits Calculation		Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Volumetric Retail Rate /kWh	0.11		0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.15	0.15	0.1529	0.155818012
ML	20																					
Electric Savings	74.75		8.13	8.29	8.44	8.60	8.77	8.94	9.11	9.28	9.46	9.64	9.82	10.01	10.20	10.40	10.60	10.80	11.00	11.21	11.4284	11.64665271
Rate Escalation Rate	1.91%																					
Nicor Gas Discount Rate	7.44%																					
NPV of Electric Benefits	$95.92																					

5.3.6	Gas High Efficiency Boiler												Annual Savings			Lifetime Savings			Algorithm Inputs			
#	Measure	Short Measure Name	Measure Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Program Type	EFF Measure Type	Climate Zone	Program Year	Household Type	Rebate Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Gas_Boiler_Load	AFUE(base)	AFUE(eff)	HF
5.3.6.2	**Gas High Efficiency Boiler Single-Family AFUE 95% - June 2013 onwards**	**Boilers, >95% AFUE <300 MBH - SF**	**Boilers**	25	$ 1,785		TOS	AFUE 95%	2 (Chicago)	June 2013 onwards	Single-Family		-	-	203.26	-	0.0000	5,081.51	1218	82%	95.0%	100.0%

TRM Algorithm	
ΔTherms = Gas_Boiler_Load * HF*(1/AFUE(base) - 1/AFUE(eff))	
Date	2016-09-01
Measure Code	RS-HVC-GHEB-V05-160601

TRM Assumptions	Input Values	Notes
Gas_Boiler_Load	1218	Estimate of annual household Load for gas boiler heated single-family homes If location is unknown, assume the average below or Actual if informed by site-specific load calculations, ACCA Manual J or equivalent Deemed Table of Values from the TRM
HF		Household factor, to adjust heating consumption for non-single-family households. Factor adjustment values from the TRM
AFUE(base)	82%	Baseline Boiler Annual Fuel Utilization Efficiency Rating PER TRM V5 TRM Deems this value at 82%; no longer dependent on program year
AFUE(eff)	95.0%	Efficient Boiler Annual Fuel Utilization Efficiency Rating Actual. If unknown, use defaults dependent on tier as listed in Table of Deemed TRM Values
Measure Life	25	The expected measure life is assumed to be 25 years Early replacement: Remaining life of existing equipment is assumed to be 8 years Deemed values from the TRM
Incremental Cost		Time of sale: The incremental install cost for this measure is dependent on tier Deemed values from the TRM

Table for Algorithm Inputs

	Incr. Install Cost			
Measure Type	Installation Cost	Incremental Install Cost	AFUE(eff)	AFUE(base)
AFUE 825	$3,543	N/A	N/A	82.0%
AFUE 85% (Energy Star)	$4,268	$725	87.5%	N/A
AFUE 90%	$4,815	$1,272	92.5%	N/A
AFUE 95%	$5,328	$1,785	95.0%	N/A

Climate Zone	Gas_Boiler Load (therms)
1 (Rockford)	1275
2 (Chicago)	1218
3 (Springfield)	1043
4 (Belleville)	805
5 (Marion)	819
Unknown	1158

Household Factor	
Single-Family	100%
Multi-Family	65%
Actual	Custom

Program Year	AFUE (base)
June 2012 – May 2013	80%
June 2013 onwards	82%

Program Type	
TOS	Time of Sale
NC	New Construction

Per TRM V5: Early Replacement: The full installation cost is provided in the table above. The assumed deferred cost (after 8 years) of replacing existing equipment with a new baseline unit is assumed to be $4,045 . This cost should be discounted to present value using the utilities' discount rate.

5.3.7	Gas High Efficiency Furnace												Annual Savings			Lifetime Savings			Algorithm Inputs				Source						
#	Measure	Short Measure Name	Measure Type	Measure Life (Yrs)	Incremental Cost	Loadshape	Program Type	Eff AFUE	Cost Source	Climate Zone	Program Year	Household Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Gas_Furnace_Heating_Load	AFUE(base)	AFUE(eff)	HF							
5.3.7.1	Gas High Efficiency Furnace AFUE ≥95% - TOS - Single-Family	Furnace. >95% AFUE	Furnaces	20	$ 1,240	N/A	TOS	AFUE 95%	TRM	2 (Chicago)	June 2012 – May 2013	Single-Family	-	-	164.61	-	-	3,292.11	834	0.80	0.950	1.00	TRM						
5.3.7.3	Gas High Efficiency Furnace AFUE ≥97% - TOS - Single-Family	Furnace, >97% AFUE	Furnaces	20	$ 1,434	N/A	TOS	AFUE 97%	TRM	2 (Chicago)	June 2012 – May 2013	Single-Family	-	-	182.71	-	-	3,654.12	834	0.80	0.970	1.00	TRM						
5.3.7.5	Gas High Efficiency Furnace AFUE ≥92% - TOS - Multi-Family	Furnace, >92% AFUE - MF IU	Furnaces	20	$ 802	N/A	TOS	AFUE 92%	TRM	2 (Chicago)	June 2012 – May 2013	Multi-Family	-	-	88.39	-	-	1,767.72	834	0.80	0.920	0.65	TRM						
5.3.7.6	Gas High Efficiency Furnace AFUE ≥95% - TOS - Multi-Family	Furnace, >95% AFUE - MF IU	Furnaces	20	$ 1,240	N/A	TOS	AFUE 95%	TRM	2 (Chicago)	June 2012 – May 2013	Multi-Family	-	-	106.99	-	-	2,139.87	834	0.80	0.95	0.65	TRM						
5.3.7.11	Gas High Efficiency Furnace AFUE 95% - EREP - TRM	Furnace. >95% AFUE - Early Retire	Furnaces	6	$ 3,449	N/A	EREP	AFUE 95%	EREP	2 (Chicago)		Single-Family	-	-	417.14	-	-	2,502.82	834	0.64	0.95	1.00	TRM	0.9	2.0%	-	-	48.77	20	808
5.3.7.12	Gas High Efficiency Furnace AFUE 97% - EREP - TRM	Furnace, >97% AFUE - Early Retire	Furnaces	6	$ 3,873	N/A	EREP	AFUE 97%	EREP	2 (Chicago)		Single-Family	-	-	435.24	-	-	2,611.42	834	0.64	0.97	1.00	TRM	0.9	2.0%	-	-	66.87	20	1232

Dual Baselines (EREP)

TRM Algorithm

ΔTherms = Gas_Furnace_Heating_Load * HF*(1/AFUE(base) - 1/AFUE(eff))

Date	2016-09-01
Measure Code	RS-HVC-GHEF-V06-160601

TRM Assumptions	Input Values	Notes
Gas_Furnace_Heating_Load		Estimate of annual household heating load for gas furnace heated single-family homes. If location is unknown, assume the average below Actual if informed by site-specific load calculations, ACCA Manual J or equivalent
HF		Household factor, to adjust heating consumption for non-single-family households. Factor adjustment values from the TRM
AFUE(exist)		Existing Furnace Annual Fuel Utilization Efficiency Rating = Use actual AFUE rating where it is possible to measure or reasonably estimate. If unknown, assume TRM Value of 64.4 AFUE%
AFUE(base)		Baseline Furnace Annual Fuel Utilization Efficiency Rating Dependent on program type as listed in Table of Values deemed by the TRM
AFUE(eff)		Efficient Furnace Annual Fuel Utilization Efficiency Rating Actual. If unknown, assume TRM Value of 95%
Measure Life		The expected measure life is assumed to be 20 years For early replacement: Remaining life of existing equipment is assumed to be 6 years
Incremental Cost		Time of sale: The incremental installed cost (retail equipment cost plus installation cost) for this measure depends on efficiency as listed in the TRM Early Replacement: The full installed cost is provided in the table above. The assumed deferred cost (after 6 years) of replacing existing equipment with a new baseline unit

Notes	
11/2/2015	
Dual baseline inflation assumption of	2%
AFUE Baseline 2 assumption	90%
Full Lifetime	20.00

Table for Algorithm Inputs

Property Type		Incremental Cost Density Factor	Eligibility
TOS	Time of Sale	TRM	80%
NC	New Construction	IC	
EREP	Early Replacement	EREP	64%

Retrofit	Measure Life
TOS	20
NC	20
EREP	6

Retrofit	Measure Life	AFUE	AFUE
TOS			
NC			
EREP		AFUE 95%	0.64	0.95
		AFUE 97%	0.64	0.97

	AFUE	Incremental Cost	
		June 2012 – May 2013	June 2013 onward
AFUE 90%	90%	$630	$630
AFUE 91%	91%	$716	$716
AFUE 92%	92%	$802	$802
AFUE 93%	93%	$1,014	$1,014
AFUE 94%	94%	$1,226	$1,226
AFUE 95%	95%	$1,438	$1,438
AFUE 96%	96%	$1,650	$1,650
Unknown	95%	$1,650	$1,650

Climate Zone	Gas_Furnace_Heating_Load (therms)
1 (Rockford)	873
2 (Chicago)	834
3 (Springfield)	714
4 (Belleville)	551
5 (Marion)	561
Unknown	793

Household Factor	
Single-Family	100%
Multi-Family	65%
Actual	Custom

Updated from TRM

	AFUE	Installed Cost	TRM Incremental Installed Cost (ICM Weighted	IC Incremental Installed Cost	(Retire) EEP2.0 Incremental Installed Cost
	80%	$2,011	n/a	n/a	
AFUE 90%	90%	$2,641	$630	$630	
AFUE 91%	91%	$2,727	$716	$716	
AFUE 92%	92%	$2,813	$802	$802	$0.00
AFUE 93%	**92.5%**	$3,025	$905	$1,014	
AFUE 95%	95%	$3,449	$1,240	$1,311	$1,461.64
AFUE 96%	96%	$3,661	$1,434	$1,650	
AFUE 97%	97%	$3,873	$1,434	$1,862	$1,861.90
Unknown					

ICM Analysis

Incremental Cost ECM (TRM)	$97
Gross kWh Savings (ECM)	$732
Value of ECM Benefits	$168
ECM Adjustment to Incremental Cost	$271

ComEd Avoided Cost (from cost-sharing arrangement)	$	0.056
Nicor Avoided Cost (2017)	$	0.351
Nicor Discount Rate		7.44%
Early Replacement Deferred Cost (TRM)		2641
Additional Natural Gas Usage because of ECM: Existing (TRM)		15
Additional Natural Gas Usage because of ECM: New (TRM)		22.1

Incremental Cost W/ ECM

AFUE	Installation Cost	Incremental Install Cost
AFUE ≥92%		$743
AFUE ≥95%		$1,167
AFUE ≥97%		$1,379

AFUE	Furnace Models: Number with Efficient Motor	Furnace Models: % with Efficient Motor	Furnace Models: All Models
92-94	23	7%	340
95	146	24%	617
96	216	71%	294
97	123	80%	153
98	18	95%	19

Source: AHRI directory. Active, non-weatherized, natural gas furnaces. Searched: www.ahridirectory.org on 2/11/2013.

Early Replacement Deferred Cost Multiplier	Deferred Cost (% of Installed Cost)
Early Replacement Rate for Furnace-only participants	7%
Early Replacement Rate for a furnace when the furnace is the Primary unit in a Combined System Replacement (CSR) project	14%
Early Replacement Rate for a furnace when the furnace is the Secondary unit in a CSR project	46%

5.4.1	Domestic Hot Water Pipe insulation												Annual Savings			Lifetime Savings			Algorithm Inputs						
#	Measure	Short Measure Name	Measure Component	Program Type	Measure Life (Yrs)	Measure Cost	Cost Source	Loadshape	DHW Fuel	Total length of insulation (linear ft)	R-value of insulation	Insulated pipe diameter (inch)	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	R_{exist}	R_{new}	L	C	ΔT	ηDHW (Electric)	ηDHW (Gas)
5.4.1.1	Domestic Hot Water Pipe insulation/ 3 ft./ 4 R-value/ 0.75 in. dia. - DI, SF	HW Pipe Insulation (3 ft.) (DI)	Pipe insulation	RF	15	$ 6.00	Actual -SF	C-53 Flat	Natural Ga	3	4	0.75	-	-	3.18	-	-	47.66	1	5	3	0.196	60	0.98	0.78

TRM Algorithm

For electric DHW systems:

ΔkWh = ((1/Rexist – 1/Rnew) * (L * C) * ΔT * 8,766)/ ηDHW / 3413

ΔkW= ΔkWh / 8766

For Natural Gas DHW systems:

ΔTherm= ((1/Rexist – 1/Rnew) * (L * C) * ΔT * 8,766) / ηDHW /100,000

Date	2016-09-01
Measure Code	RS-HWE-PINS-V02-150601

TRM Assumptions	Input Values	Notes
R_{exist}	1	Pipe heat loss coefficient of uninsulated pipe (existing) [(hr-°F-ft)/Btu] This is a deemed TRM Value
R_{new}	1	Pipe heat loss coefficient of insulated pipe (new) [(hr-°F-ft)/Btu] Actual with TRM Calculation of (1.0 + R value of insulation)
L		Length of pipe from water heating source covered by pipe wrap (ft) Actual - use custom input
C		Circumference of pipe (ft) (Diameter (in) * π/12) Actual (0.5" pipe = 0.131ft, 0.75" pipe = 0.196ft)
ΔT	60	Average temperature difference between supplied water and outside Air temperature (°F) This is a deemed TRM Value
ηDHW (electric)	0.98	Recovery Efficiency of electric hot water heater This is a deemed TRM Value
ηDHW (gas)	0.78	Recovery Efficiency of gas hot water heater This is a deemed TRM Value
Measure Life	15	The measure life is assumed to be 15 years This is a deemed TRM Value
Incremental Cost		The measure cost including material and installation is assumed to be $3 per linear foot Actual input

Tables for Algorithm Inputs

Circumference of Pipe look up table - equation	
Equation	Circumference of pipe (ft) (Diameter (in) * π/12)
Pi Value	3.141592654
Input	12

Incremental Cost		
TRM	$3	per foot
Actual -SF	$2.00	per foot
Actual - MF	$1.01	per foot

Program Type	
TOS	Time of Sale
NC	New Construction
RF	Retrofit

ΔkWh of Therm Savings Lookup	
Electric	
Natural Gas	

5.4.4	Low Flow Faucet Aerators											Annual Savings					Lifetime Savings			Algorithm Inputs													
#	Measure	Short Measure Name	Measure Type	Program Type	Measure Life (Yrs)	Incremental Cost	Cost source	Loadshape	DHW Fuel	Household Unit Type	Faucet Type	ΔkWh	ΔkW	ΔTherms	ΔgaBons	ΔkWh	ΔkW	ΔTherms	ΔgaBons	LElectricDHW	GPM_base	GPM_low	L_base	L_low	Household	DF	FPH	EPG_electric	ISR	Hours	CF	kFossilDHW	EPG_gas	Key
5.4.4.1	Low Flow Faucet Aerators- DI, Single Famliv. Bath	Bathroom Aerator SF (DI)	Low-flow fixtures	DI	9	$ 2.00	Actual-bath SF	R03 - Residential Electric DHW	Natural Gas	Single Familv	Bath	-	-	0.69	203.40	-	0.0000	6.24	1.830.56	0	1.39	0.94	1.6	1.6	2.56	0.9	2.83	0.0795	0.95	14	0.022	1	0.00341	DISinale FamilvBath
5.4.4.2	Low Flow Faucet Aerators- DI, Single Familv. Kitchen	Kitchen Aerator SF (DI)	Low-fixtures	DI	9	$ 5.00	Actual-kitchen SF	R03 - Residential Electric DHW	Natural Gas	Single Familv	Kitchen	-	-	5.60	1.349.09	-	0.0000	50.39	12.141.79	0	1.39	0.94	4.5	4.5	2.56	0.75	1	0.0969	0.95	94	0.022	1	0.00415	DISinale FamilvKitchen
5.4.4.3	Low Flow Faucet Aerators- DI, Multifamiv. Bath CA	Low Flow Aerator - Bath (DI) MF-CA	Low-flow fixtures	DI	9	$ 6.54	Actual-bath MF	R03 - Residential Electric DHW	Natural Gas	Multifamilv	Bath	-	-	1.25	314.79	-	0.0000	11.25	2.833.08	0	1.39	0.94	1.6	1.6	2.1	0.9	1.5	0.0795	0.95	22	0.022	1	0.00397	DIMultifamilvBath
5.4.4.4	Low Flow Faucet Aerators- DI, Multifamiv. Bath IU	Low Flow Aerator - Bath (DI) MF-IU	Low-flow fixtures	DI	9	$ 6.54	Actual-bath MF	R03 - Residential Electric DHW	Natural Gas	Multifamilv	Bath	-	-	1.25	314.79	-	0.0000	11.25	2.833.08	0	1.39	0.94	1.6	1.6	2.1	0.9	1.5	0.0795	0.95	22	0.022	1	0.00397	DIMultifamilvBath
5.4.4.5	Low Flow Faucet Aerators- DI, Multifamiv. Kitchen IU	Low Flow Aerator - Kitchen (DI) MF-IU	Low-flow fixtures	DI	9	$ 6.54	Actual-kitchen MF	R03 - Residential Electric DHW	Natural Gas	Multifamilv	Kitchen	-	-	5.13	1.060.08	-	0.0000	46.18	9.540.69	0	1.39	0.94	4.5	4.5	2.1	0.75	1	0.0969	0.91	77	0.022	1	0.00484	DIMultifamilvKitchen
5.4.4.6	Low Flow Faucet Aerators- DI, Multifamiv. Kitchen CA	Low Flow Aerator - Kitchen (DI) MF-CA	Low-fixtures	DI	9	$ 6.54	Actual-kitchen MF	R03 - Residential Electric DHW	Natural Gas	Multifamilv	Kitchen	-	-	5.13	1.060.08	-	0.0000	46.18	9.540.69	0	1.39	0.94	4.5	4.5	2.1	0.75	1	0.0969	0.91	77	0.022	1	0.00484	DIMultifamilvKitchen

TRM Algorithm

ΔkWh= %ElectricDHW * ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 *DF / FPH) * EPG_electric * ISR
ΔkW = ΔkWh / Hours * CF
ΔTherms = %FossilDHW * (GPM_base * L_base - GPM_low * L_low) * Household * 365.25 *DF / FPH) * EPG_gas * ISR
ΔgaBons = ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 *DF / FPH) * ISR

Date	2016-09-01
Measure Code	RS-HWE-LFFA-V05-160601

TRM Assumptions	Input Values	Notes
%ElectricDHW		proportion of water heating supplied by electric resistance heating Deemed Table of Values from the TRM
GPM_base	1.39	Average flow rate, in gallons per minute, of the baseline faucet "as-used." This includes the effect of existing low flow fixtures and therefore the freerider rate for this measure should be 0 Deemed TRM Value of 1.39 or custom based on metering studies or if measured during DI = measured full throttle flow*0.83 throttling factor
GPM_low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator "as-used" Deemed TRM Value of 0.94 or custom based on metering studies or if measured during DI = rated full throttle flow *0.95 throttling factor
L_base		Average baseline length faucet use per capita for all faucets min/person/day if available custom based on metering studies, if not use table of Deemed TRM values
L_low		Average retrofit length faucet use per capita for all faucets if available custom based on metering studies, if not use table of Deemed TRM values
Household		Average number of people per household Deemed Table of Values from the TRM based on Single Family, Multifamily or custom
Days in a year	365.25	Days in a year, on average. Deemed TRM Value
DF		Drain Factor Deemed Table of TRM values based on kitchen, bath, or unknown
FPH		Faucets Per Household Deemed Table of TRM values
EPG_electric		Energy per gallon of water used by faucet supplied by electric water heater Where the TRM calculation is: (8.33 * 1.0 * (WaterTemp - SupplyTemp)) / (RE_electric * 3412) Calculation continue - (8.33 * 1.0 * (86 – 54.1)) / (0.98 * 3412) Values from the TRM based on the inputs described: 0.0795 kWh/gal (Bath), 0.0969 kWh/gal (Kitchen), 0.0919 kWh/gal (Unknown) Where the TRM deems 8.33 = Specific weight of water (lbs/gallon) Where the TRM deems 1.0 = Heat Capacity of water (btu/lb-°F) Where the TRM deems WaterTemp = Assumed temperature of mixed water 86F for Bath, 93F for Kitchen 91F for Unknown Where the TRM deems SupplyTemp = Assumed temperature of water entering house = 54.1F Where the TRM Deems RE_electric = Recovery efficiency of electric water heater = 98% Where the TRM deems 3412 to convert Btu to kWh (btu/kWh)
ISR	0.95	In service rate of faucet aerators dependent on install method In service rate of faucet aerators dependent on install method as listed and deemed in the TRM
Hours		Annual electric DHW recovery hours for faucet use per faucet Deemed table of values from the TRM based on a calculation of the following equation: ((GPM_base * L_base) * Household/FPH * 365.25 * DF) * 0.545 / GPH
CF	0.022	Coincidence Factor for electric load reduction deemed value from the TRM
%FossilDHW		proportion of water heating supplied by Natural Gas heating deemed table of values from the TRM depending on if Electric, natural gas, or unknown
EPG_gas		Energy per gallon of Hot water supplied by gas (Therms/gal) Where the TRM calculation is: (8.33 * 1.0 * (WaterTemp - SupplyTemp)) / (RE_gas * 100,000) Deemed values from the TRM RE_gas = Recovery efficiency of gas water heater Deemed Values for Single Family and Multifamily homes from the TRM 100,000 = Converts Btus to Therms (btu/Therm) Other variables as defined above.
Measure Life	9	The expected measure life is assumed to be 9 years Deemed TRM Value
Incremental Cost		The incremental cost for this measure is $8 or program actual. For faucet aerators provided in Efficiency Kits, the actual program delivery costs should be utilized. Currently using actual amounts

Tables for Algorithm Inputs

Faucet Type	Drain Factor	FPH (Single Family)	FPH (Multi Family)	EPG_electric
Kitchen	75%	1	1	0.0969
Bath	90%	2.83	1.5	0.0795
Unknown	79.50%	3.83	2.5	0.0919

DHW fuel	%Electric DHW	%Fossil DHW
Electric	100%	0%
Natural Gas	0%	100%
Unknown	16%	84%

Household Unit Type	Avg # of people
Single Familv	2.56
MultiFamily	2.1
Custom	Actual Occ. or No of Bdrms

Building Type	Faucet location	Hours per faucet	EPG Gas	L_Base and L_Low
Single Family	Kitchen	94	0.00415	4.5
	Bath	14	0.00341	1.6
	Unknown	52	0.00394	9
Multi Family	Kitchen	77	0.00484	4.5
	Bath	22	0.00397	1.6
	Unknown	50	0.00459	6.9

		Incremental Cost	
TOS		TRM	8.00
NC		Actual-bath SF	2.00
AF		Actual-kitchen SF	5.00
DI		Actual-bath MF	6.54
KITS		Actual-kitchen MF	6.54

	Table from TRM for ISR	
Key	Selection	ISR
DISingle FamilyBath	Direct Install - Single Family	0.95
DISingle FamilyKitchen	Direct Install - Single Family	0.95
DIMultifamilyKitchen	Direct Install – Multi Family Kitchen	0.95
DIMultifamilyBath	Direct Install – Multi Family Bathroom	0.95
	Efficiency Kits	to be determined through evaluation
Efficiency Kit Bathroom Aerator		0.63
Efficiency Kit Kitchen Aerator		0.60
Distributed School Efficiency Kit Aerator		to be determined through evaluation

5.4.5	Low Flow Showerheads												Annual Savings				Lifetime Savings				Algorithm Inputs													
#	Measure	Short Measure Name	Measure T	Common Area or In Unit	Program Type	Measure Life (Yrs)	Incremental Cost	Cost Source	Loadshape	DHW Fuel	Eff Rated flow	Household Unit Type	ΔkWh	ΔkW	ΔTherms	Δgallons	ΔkWh	ΔkW	ΔTherms	Δgallons	%ElectricDHW	GPM_base	L_base	GPM_low	L_low	Household	SPCD	SPH	EPG_electric	ISR	Hours	CF	%FossilDHW	EPG_gas
5.4.5.1	Low Flow Showerheads - DI, Natural Gas, Flow = 1.5, IU, Single-Family	Showerhead (DI) SF	Low-flow fixtures	IU	DI	10	$ 12.00	TRM	R03 - Residential Electric DHW	Natural Gas	1.5	Single-Family	-	-	14.04	2,803.08	-	-	140.43	28,030.76	0	2.67	7.8	1.5	7.8	2.56	0.6	1.79	0.117	0.98	302	2.78%	1	0.00501
5.4.5.2	Low Flow Showerheads handheld- DI, Natural Gas, Flow = 1.5, IU, Single-Family	Handheld Showerhead (DI) SF	Low-flow fixtures	IU	DI	10	$ 12.00	Actual- handheld showerhead	R03 - Residential Electric DHW	Natural Gas	1.5	Single-Family	-	-	14.04	2,803.08	-	-	140.43	28,030.76	0	2.67	7.8	1.5	7.8	2.56	0.6	1.79	0.117	0.98	302	2.78%	1	0.00501
5.4.5.3	Low Flow Showerheads - DI Custom, Natural Gas, Flow = 1.5, CA, Multi-Family	Showerhead (DI) MF-CA	Low-flow fixtures	CA	DI Custom	10	$ 12.00	TRM	R03 - Residential Electric DHW	Natural Gas	1.5	Multi-Family	-	-	17.89	3,069.17	-	-	178.93	30,691.74	0	2.67	7.8	1.5	7.8	2.1	0.6	1.3	0.117	0.95	248	2.78%	1	0.00583
5.4.5.4	Low Flow Showerheads - DI Custom, Natural Gas, Flow = 1.5, IU, Multi-Family	Showerhead (DI) MF-IU	Low-flow fixtures	IU	DI Custom	10	$ 12.00	TRM	R03 - Residential Electric DHW	Natural Gas	1.5	Multi-Family	-	-	17.89	3,069.17	-	-	178.93	30,691.74	0	2.67	7.8	1.5	7.8	2.1	0.6	1.3	0.117	0.95	248	2.78%	1	0.00583

TRM Algorithm

ΔkWh = %ElectricDHW * ((GPM_base * L_base - GPM_low * L_low) * Household * SPCD * 365.25 / SPH) * EPG_electric * ISR
ΔkW = ΔkWh/Hours * CF
ΔTherms = %FossilDHW * ((GPM_base * L_base - GPM_low * L_low) * Household * SPCD * 365.25 / SPH) * EPG_gas * ISR
Δgallons= ((GPM_base * L_base - GPM_low * L_low) * Household * SPCD * 365.25 / SPH) * ISR

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Measure Code	RS-HWE-LFSH-V04-160601

TRM Assumptions	Input Values	Notes
%ElectricDHW		proportion of water heating supplied by electric resistance heating Deemed Table of Values from the TRM based on fuel type: either electric, Natural gas, or unknown
GPM_base		Flow rate of the baseline showerhead Deemed values from the TRM based on Program Type
L_base	7.8	Shower lenetth in minutes with baseline showerhead Deemed Value from the TRM
GPM_low		As-used flow rate of the low-flow showerhead TRM has 3 permutation values available in a Table based on Rated Flow
L_low	7.8	Shower length in minutes with low-flow showerhead Deemed Value from the TRM
Household		Average number of people per household Deemed Table of Values from the TRM based on Single Family, Multifamily or custom
SPCD	0.6	Showers per Capita per Day Deemed Value from the TRM
SPH		Showerheads Per Household Deemed Table of Values from the TRM based on Single Family, Multifamily or custom
EPG_electric	0.117	Energy per gallon of hot water supplied by electric Where the TRM provides the calculation: (8.33 * 1.0 * (ShowerTemp - SupplyTemp)) / (RE_electric * 3412) TRM Calculation continued (8.33 * 1.0 * (101 – 54.1)) / (0.98 * 3412) 0.117 kWh/gal is the value from the TRM Where the TRM deems 8.33 = Specific weight of water (lbs/gallon) Where the TRM deems 1.0 = Heat Capacity of water (btu/lb-°F) Where the TRM deems ShowerTemp = Assumed temperature of water = 101F Where the TRM deems SupplyTemp = Assumed temperature of water entering house = 54.1F Where the TRM deems RE_electric = Recovery efficiency of electric water heater = 98% Where the TRM deems 3412 to convert Btu to kWh (btu/kWh)
ISR		In service rate of showerhead ISR is dependent on program delivery method as listed in the TRM table
Hours		Annual electric DHW recovery hours for showerhead use Deemed table of values from the TRM based on a calculation of the following equation: ((GPM_base * L_base) * Household * SPCD * 365.25) * 0.712 / GPH Deemed TRM value = 302 for SF Direct Install; 248 for MF Direct Install Deemed TRM Value of 266 for SF Retrofit, Efficiency Kits, NC and TOS; 218 for MF Retrofit, Efficiency Kits, NC and TOS
CF	2.78%	Coincidence Factor for electric load reduction this is a deemed TRM value
%FossilDHW		proportion of water heating supplied by Natural Gas heating deemed table of values from the TRM depending on if Electric, natural gas, or unknown
EPG_gas	0.0054	Energy per gallon of Hot water supplied by gas Where the TRM calculation is : (8.33 * 1.0 * (ShowerTemp - SupplyTemp)) / (RE_gas * 100,000) RE_gas = Recovery efficiency of gas water heater where 78% for SF homes and 67% for MF homes Deemed Values for Single Family and Multifamily homes from the TRM 100,000 = Converts Btus to Therms (btu/Therm) Other variables as defined above. Deemed value from the TRM - 0.00501 Therm/gal for SF homes Deemed value from the TRM - 0.00583 Therm/gal for MF homes
Measure Life	10	The expected measure life is assumed to be 10 years. this is a deemed TRM value
Incremental Cost		The incremental cost for this measure is $12 or program actual Currently using a combination of TRM amount and actual for showerhead. Table of deemed TRM values are below

Tables for Algorithm Inputs

DHW fuel	%Electric DHW	%Fossil DHW
Electric	100%	0%
Natural Gas	0%	100%
Unknown	16%	84%

GPM_Low Table	
Rated Flow (GPM)	
2	
1.75	
1.5	

Household Unit Type	Household	SPH	ISR
Single-Family	2.56	1.79	0.98
Multi-Family	2.1	1.3	0.95
Custom	Actual - Occupy or No of Bedrooms	Actual	
Efficiency Kits--One showerhead kit			0.65
Efficiency Kits--Two showerhead kit			0.67
Distributed School Efficiency Kit showerhead			to be determined through evaluation

EPG_gas	
Single-Family	0.00501
Multi-Family	0.00583

Incremental Cost table		
TRM	12	
Actual- handheld showerhead	12	
Actual- showerhead	8.91	
MF DI	18	Actual
SF DI	18	Actual

		Hours		
Program	GPM_base	SF	MF	Notes
TOS	2.35	266	218	
RF	2.35	266	218	
NC	2			
DI	2.67	302	248	
DI Custom	2.67	302	248	Custom Direct Install input created to account for custom ISR = 0.93, based on HES calculations

5.4.6	Water Heater Temperature Setback											Annual Savings			Lifetime Savings			Algorithm Inputs						
#	Measure	Short Measure Nam	Measure Compone	Program Type	Measure Life (Yrs)	Incremental Cost	Cost Source	Loadshape	Unit Type	Tank Capacity	DHW Fuel	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	Tpre	Tpost	Hours	CF	RE gas	U	A
5.4.6.1	Water Heater Temperature Setback Single Family	WH Set Back - SF	Water heater	DI	2	$ 5.00	TRM	R03- Residential Electric DHW	Single Family	50	Natural Ga	-34.20	-0.0039	3.5	-68.40	-0.0039	6.99	135	120	8766	1	0.78	0.083	24.99
5.4.6.2	Water Heater Temperature Setback Multi Family	WH Set Back - MF	Water heater	DI	2	$ 5.00	TRM	R03- Residential Electric DHW	Multi Family	50	Natural Ga	-34.20	-0.0039	4.1	-68.40	-0.0039	8.14	135	120	8766	1	0.67	0.083	24.99

TRM Algorithm	
For electric DHW systems:	
ΔkWh = 86.4 * (Tpre - Tpost) / 15	
ΔkW= ΔkWh / Hours * CF	
For Natural Gas DHW systems:	
ΔTherm= (UA * (Tpre - Tpost) * (Hours) / (100,000 * RE_gas)	Incremental Cost

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Measure Code	RS-HWE-TMPS-V04-150601

TRM Assumptions	Input Values	Notes
Tpre		Actual hot water setpoint prior to adjustment Can use the deemed TRM value at 135 or custom input
Tpost		Actual new hot water setpoint, which may not be lower than 120 degrees Can use the deemed TRM value at 120 or custom input
Hours	8766	Number of hours in a year (since savings are assumed to be constant over year). This is a deemed TRM value
RE gas		Recovery efficiency of gas water heater Deemed values from the TRM where use 78% for Single Family homes and 67% for Multifamily Homes
U	0.083	Overall heat transfer coefficient of tank (Btu/Hr-°F-ft2). Actual if known. If unknown assume deemed TRM value of R-12, U = 0.083
A		Surface area of storage tank (square feet) Actual if known. If unknown use the deemed table values defined in the TRM based on capacity of tank. If capacity unknown assume 50 gal tank; A = 24.99ft
CF	1	Summer Peak Coincidence Factor for measure This is a deemed value from the TRM
Measure Life	2	The assumed lifetime of the measure is 2 years. This is a deemed TRM value
Incremental Cost		The incremental cost of a setback is assumed to be $5 for contractor time, or no cost if the measure is self-installed. Currently, using the deemed TRM Value

Tables for Algorithm Inputs

Incremental Cost	
TRM	$5
Actual	$0.01

Deemed Values from the TRM for Tpre and Tpost	
Tpre	135
Tpost	120

ΔkWh of Therm Savings Lookup	
Electric	
Natural Gas	

RE gas lookup table (deemed TRM Values)	
Single Family	78%
Multi Family	67%

A (Deemed TRM Values)	
Capacity (gal)	A (ft2)
30	19.16
40	23.18
50	24.99
80	31.84

Program Type	
NC	New Construction
RF	Retrofit
DI	Direct Install

5.3.11	Programmable Thermostats														Annual Savings			Lifetime Savings			Algorithm Inputs							
#	Measure	Short Measure Name	Measure Type	Program Type	Measure Life (Yrs)	Capital Cost	Cost Source	Loadshape	Eff measure Type	Heating Fuel	Climate Zone	Heating System	Household Type	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	%Electric Heat	Elec_Heating_Consumption	Heating_Reduction	HF	Eff_ISR	Fe	%Fossil Heat	Gas_Heating_Consumption
5.3.11.1	Programmable Thermostats - (DI - New Programmable thermostat - Single Family)	Programmable Thermostat (DI)	Thermostats	DI	5	$ 55.00	Actual - SF	RD9- Residential Electric Space Heat	New Programmable thermostat	Natural Gas	2 (Chicago)	Unknown	Single Family	57.33	-	62.31	286.63	-	311.55	0%	12218	6.20%	100%	100.0%	3.14%	1	1005
5.3.11.4	Programmable Thermostats - (DI - New Programmable thermostat - Multifamily)	Programmable Thermostat (DI) MF-IU	Thermostats	DI	5	$ 55.00	Actual - MF	RD9- Residential Electric Space Heat	New Programmable thermostat	Natural Gas	2 (Chicago)	Unknown	Multifamily	37.26	-	40.50	186.31	-	202.51	0%	12218	6.20%	65%	100.0%	3.14%	1	1005
5.3.11.5	- (DI - Reprogramming existing thermostat - Multifamily)	Re-Program Thermostat (DI) MF-IU	Thermostats	DI	2	$ 25.00	Actual - MF	RD9- Residential Electric Space Heat	Reprogramming existing thermostat	Natural Gas	2 (Chicago)	Unknown	Multifamily	37.26	-	40.50	74.52	-	81.00	0%	12218	6.20%	65%	100.0%	3.14%	1	1005

TRM Algorithm

ΔkWh = %ElectricHeat * Elec_Heating_Consumption * Heating_Reduction * HF * Eff_ISR + (ΔTherms * Fe * 29.3)

ΔTherms = %FossilHeat * Gas_Heating_Consumption * Heating_Reduction * HF * Eff_ISR

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Measure Code	RS-HVC-PROG-V03-140601

TRM Assumptions	Input Values	Notes
%Electric Heat		Percentage of heating savings assumed to be electric Deemed table of values from the TRM
Elec_Heating_Consumption		Estimate of annual household heating consumption for electrically heated single-family homes (kWh) If location and heating type is unknown, assume TRM Value of 15,678 kWh
Heating_Reduction	6.2%	Assumed percentage reduction in heating energy consumption due to programmable thermostat This is a Deemed TRM Value
HF		Household factor, to adjust heating consumption for non-single-family households. Deemed table of values from the TRM; or custom if actual is known
Eff_ISR		Effective In-Service Rate, the percentage of thermostats installed and programmed effectively Deemed table of TRM Values if direct install, 100% otherwise if other or unknown, 56%
Fe	3.14%	Furnace Fan energy consumption as a percentage of annual fuel consumption This is a Deemed TRM Value
%Fossil Heat		Percentage of heating savings assumed to be Natural Gas Deemed table of TRM Values if Electric, 0%, if natural gas, 100%, if unknown, 87%
Gas_Heating_Consumption		Estimate of annual household heating consumption for gas heated single-family homes Deemed table of values from the TRM
Measure Life		The expected measure life of a programmable thermostat is assumed to be 10 years based upon equipment life only. For the purposes of claiming savings for a new programmable thermostat, this is reduced by a 50% persistence factor to give final measures life of 5 years. For reprogramming, this is reduced further to give a measure life of 2 years. Deemed Values from the TRM
Incremental Cost		Actual material and labor costs should be used if the implementation method allows. If unknown (e.g. through a retail program) the capital cost for the new installation measure is assumed to be $30. The cost for reprogramming is assumed to be $10 to account for the auditors time to reprogram and educate the homeowner. For some permutations, using TRM incremental cost, for other permutations using actual information

Tables for Algorithm Inputs

Heating fuel	%Electric Heat	%Fossil Heat
Electric	100%	0%
Natural Gas	0%	100%
Unknown	13%	87%

Thermostat Type	Measure Life
New Programmai	5
Reprogramming e	2

Climate Zone	Elec_Heating_ Consumption (kWh)	Elec_Heating_ Consumption (kWh)	Gas_Heating_ Consumption (Therms)
1 (Rockford)	21,741	12,789	1052
2 (Chicago)	20,771	12,218	1005
3 (Springfield)	17,789	10,464	861
4 (Belleville)	13,722	8,072	664
5 (Marion)	13,966	8,215	676
Unknown	19,743	11,613	955

Incremental Cost	New Programmable thermostat	Reprogramming existing thermostat
TRM	30	10
Actual - SF	55	25
Actual - MF	55	25

Household Type	HF
Single Family	100%
Multifamily	65%
Actual	Custom

Program Type	Eff_ISR
TOS	56%
NC	56%
RF	56%
DI	100%

Elec_Heating_Consumption		
Electric Resistance	Electric Heat Pump	Unknown

5.3.16	Advanced Thermostat														Annual Savings			Lifetime Savings			Algorithm Inputs															
#	Measure	Short Measure Name	Measure Type	Program Type	Measure Life (Yrs)	Capital Cost	Cost Source	Loadshape	Eff measure Type	Heating Fuel	Climate Zone	Heating System	Household Type	Existing Thermostat Type	Thermostat Control of AC	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	%Electric Heat	Elec_Heating_Consumption	Heating_Reduction	HF	Eff_ISR	Fe	%Fossil Heat	Gas_Heating_Consumption	%AC	Fsh	Btu/hr	SEER	Cooling_Reduction	ΔkWhheating	ΔkWhcooling	kWh per therm	kBtu per Btu
5.3.16.3	Advanced Thermostat - (TOS - Blended - Single Family)	Advanced Thermostat (TOS)	Thermostats	TOS	10.00	$ 175.00	TRM	R09- Residential Electric Space Heat	Blended	Natural Gas	Nicor Custom	Unknown	Single Family	Unknown (Blended)	Unknown	185.6970	-	74.35	1,856.97	-	743.48	0%	12213.9	7.40%	100%	100.0%	3.14%	1	1004.7	0.66	568.6	33600	8.6	8%	68.40	117.30	29.30	1,000.00
5.3.16.6	Advanced Thermostat - (DI - Blended - Single Family)	Advanced Thermostat (DI)	Thermostats	DI	10.00	$ 250.00	TRM	R09- Residential Electric Space Heat	Blended	Natural Gas	Nicor Custom	Unknown	Single Family	Unknown (Blended)	Unknown	185.6970	-	74.35	1,856.97	-	743.48	0%	12213.9	7.40%	100%	100.0%	3.14%	1	1004.7	0.66	568.6	33600	8.6	8%	68.40	117.30	29.30	1,000.00
5.3.16.10	Advanced Thermostat - (TOS Joint - Blended - Single Family)	Advanced Thermostat (TOS)	Thermostats	TOS Joint	10.00	$ 87.50	TRM	R09- Residential Electric Space Heat	Blended	Natural Gas	Nicor Custom	Unknown	Single Family	Unknown (Blended)	Unknown	185.6970	-	74.35	1,856.97	-	743.48	0%	12213.9	7.40%	100%	100.0%	3.14%	1	1004.7	0.66	568.6	33600	8.6	8%	68.40	117.30	29.30	1,000.00
5.3.16.11	Advanced Thermostat - (DI Joint - Blended - Single Family)	Advanced Thermostat (DI)	Thermostats	DI Joint	10.00	$ 210.00	TRM	R09- Residential Electric Space Heat	Blended	Natural Gas	Nicor Custom	Unknown	Single Family	Unknown (Blended)	Unknown	185.6970	-	74.35	1,856.97	-	743.48	0%	12213.9	7.40%	100%	100.0%	3.14%	1	1004.7	0.66	568.6	33600	8.6	8%	68.40	117.30	29.30	1,000.00

TRM Algorithm

ΔkWh = ΔkWheating + ΔkWhcooling

ΔkWheating = %ElectricHeat * Elec_Heating_Consumption * Heating_Reduction * HF * Eff_ISR + (ΔTherms * Fe * 29.3)

ΔkWhcool = %AC * ((FLH * Btu/hr * 1/SEER)/1000) * Cooling_Reduction * Eff_ISR

ΔTherms = %FossilHeat * Gas_Heating_Consumption * Heating_Reduction * HF * Eff_ISR

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TRM Assumptions	Input Values	Notes
%Electric Heat		Percentage of heating savings assumed to be electric Deemed table of values from the TRM
Elec_Heating_Consumption		Estimate of annual household heating consumption for electrically heated single-family homes (kWh) If location and heating type is unknown, assume TRM Value of 15,678 kWh
Heating_Reduction	6.2%	Assumed percentage reduction in heating energy consumption due to programmable thermostat Based on existing thermostat type
HF		Household factor. to adjust heating consumption for non-single-family households. Deemed table of values from the TRM, or custom if actual is known
Eff_ISR		Effective In-Service Rate. the percentage of thermostats installed and programmed effectively Deemed table of TRM Values if direct install, 100% otherwise if other or unknown, 56%
Fe	3.14%	Furnace Fan energy consumption as a percentage of annual fuel consumption This is a Deemed TRM Value
%Fossil Heat		Percentage of heating savings assumed to be Natural Gas Deemed table of TRM Values if Electric, 0%, if natural gas, 100%, if unknown, 87%
Gas_Heating_Consumption		Estimate of annual household heating consumption for gas heated single-family homes Deemed table of values from the TRM
%AC		Fraction of customers with thermostat-controlled air-conditioning based on deemed TRM lookup value table for thermostat control of air conditioning: yes/no question
Fsh		Estimate of annual household full load cooling hours for air conditioning equipment based on location and home type. If location and cooling type are unknown, assume the weighted average. Deemed table of TRM values based on household type and climate zone
Btu/hr		Size of AC unit . (Note: One refrigeration ton is equal to 12,000 Btu/hr.) either custom or there is a deemed TRM value for an unknown value
SEER		the cooling equipment's Seasonal Energy Efficiency Ratio rating (kBtu/kWh) Use actual SEER rating where it is possible to measure or reasonably estimate.
Cooling_Reduction	8%	Assumed percentage reduction in total household cooling energy consumption due to installation of advanced thermostat TRM Deemed at 8%
Conversion factors	1,000 29	kBtu per Btu kWh per therm, TRM Deemed value for conversion
Measure Life	10	The expected measure life for advanced thermostats is assumed to be similar to that of a programmable thermostat 10 years based upon equipment life only. Deemed Values from the TRM
Incremental Cost		Actual material and labor, and other costs should be used if the implementation method allows . If unknown (e.g. through a retail program) the average incremental cost for the new installation measure is assumed to be $175 .

Tables for Algorithm Inputs

Heating fuel	%Electric Heat	%Fossil Heat
Electric	100%	0%
Natural Gas	0%	100%
Unknown	13%	87%

Thermostat Type	Measure Life
New Programmable	5
Reprogramming	2

Climate Zone	Elec_Heating_Consumption (kWh)	Elec_Heating_Consumption (kWh)	Gas_Heating_Consumption (therms)
1 (Rockford)	21,741	12,799	1052
2 (Chicago)	20,771	12,238	1005
3 (Springfield)	17,789	10,464	861
4 (Belleville)	13,722	8,072	664
5 (Marion)	13,966	8,215	676
Unknown	19,743	11,613	955
Nicor Custom	20,764	12,214	1004.7

Custom Climate Zone	
Rockford	30%
Chicago	60%
Springfield	10%

Incremental Cost	New Programmable Thermostat	Reprogramming existing thermostat
TRM	30	10
Actual - SF	55	25
Actual - MF	55	25

Household Type	HF
Single Family	100%
MultiFamily	65%
Actual	Custom

Elec_Heating_Consumption		
Electric Resistance	Electric Heat Pump	Unknown

Existing Thermostat Type	Heating_Reduction (%)
Manual	8.8%
Programmable	5.4%
Unknown (Blended)	7.4%

Thermostat control of air conditioning?	%AC
Yes	100.0%
No	0.0%
Unknown	66.0%
Unknown Multi-Family	46.0%
Unknown Single Family	87.0%

Climate zone	FLH	FLH	Fsh_Cooling (weatherized multi)
(city based zone)	(kWh/kW-Year) [1]	(Internal analysis) [2]	
1 (Rockford)	532	467	243
2 (Chicago)	570	506	263
3 (Springfield)	730	663	345
4 (Belleville)	1035	940	489
5 (Marion)	903	820	426
Weighted average(4)	629	564	293
Nicor Custom	569	510	265.2

	Nicor Gas	ComEd
Allocation Share	50%	50%
DI	84%	16%

Program Type	Eff_ISR
DI	100%
Other	100%

Btu/hr: size of AC unit	
Program Delivery	Btu/hr
Direct Install (Single Family known, or MF)	Actual
Unknown (Single family home only)	33600

SEER: the cooling equipments Seasonal Energy Efficiency Ratio Rating	
Cooling System	SEER31
Air Source Heat Pump	9.12
Central AC	8.6

Program Type	Eff_ISR	Incremental Cost	Notes
TOS	100%	$ 175.00	
TOS Joint	100%	$ 87.50	
NC	100%		
BF	100%		
DI	100%	$ 250.00	DI amount equals the IMC from TRM + 75 from CR
DI Joint	100%	$ 210.00	DI amount equals the IMC from TRM + 75 from CR

5.6.1	Air Sealing											
#	Measure	Short Measure Name	Measure Type	Program Type	CFM50_existing	CFM50_new	Climate Zone	Heating Fuel	Cooling System Type	Age of Cooling Equipment	Age of Heating Equipment	Heating System Type
5.6.1.1	Air Sealing 784 cfm Reduction, Single Family - 3 story building	Air Sealing SF	Shell	RF	2,800	2,016	6 (Nicor Custom)	Natural Gas	Heat Pump	2015 on	Before 2006	Heat Pump

#	# of stories	Building Type	Measure Cost	Measure Life (Yrs)	Loadshape	Annual Savings ΔkWh	Annual Savings ΔkW	Annual Savings ΔTherms	Lifetime Savings ΔkWh	Lifetime Savings ΔkW	Lifetime Savings ΔTherms
5.6.1.1	3	Single Family	$ 600.00	15.00	R10 - Residential Electric Heating and Cooling	77.21	0.0000	83.922	1158.14	0.0000	1,258.82

Algorithm Inputs - Methodology 1

#	ΔkWh_cooling	ΔkWh_heating	CFM50_existing	CFM50_new	N_cool	CDD	DUA	ηCool	LM	N_heat	HDD	ηHeat	FLH_cooling	CF	ηHeat	Fe
5.6.1.1	0	77.2096	2,800	2,016	28.28	862	0.75	14	3.28	17.19	5111.3	1.7	568.6	91.50%	72%	3.14%

Algorithm Inputs - Methodology 2

#	Methodology 2 ΔkWh_heating	Methodology 2 Δtherms	Δthermsgasket	Δthermssweep	Δthermssealing	ΔthermsWX	ΔkWhgasket	ΔkWhsweep	ΔkWhsealing	ΔkWhWX	ngasket	nsweep	lfsealing	lfWX	ADJRxAirsealing
5.6.1.1	0	0	0.47	9.108	9.108	0.519	5.09	97.39	5.58	6.47					80.0%

TRM Algorithm

ΔkWh= ΔkWh_cooling + ΔkWh_heating
ΔkWh_cooling = [(((CFM50_existing - CFM50_new)/N_cool) * 60 * 24 * CDD * DUA * 0.018) / (1000 * ηCool)] * LM
If gas furnace heat, saving for reduction in fan run time
ΔkWh_heating= ΔTherms * Fe * 29.3
Methodology 2: Prescriptive Infiltration Reduction Measures
ΔkWh_heating = (ΔkWhgasket * ngasket + ΔkWhsweep * nsweep + ΔkWhsealing * lfsealing + ΔkWhWX * lfWX) * ADJRxAirsealing

If electric heat:
ΔkWh_heating = (((CFM50_existing - CFM50_new)/N_heat) * 60 * 24 * HDD * 0.018) / (ηHeat * 3,412)
ΔkW = (ΔkWh_cooling / FLH_cooling) * CF
If Natural Gas Heating:
Methodology 1: preferred methodology unless blower door testing is not possible
ΔTherms = (((CFM50_existing - CFM50_new)/N_heat) * 60 * 24 * HDD * 0.018) / (ηHeat * 100,000)
Methodology 2: Prescriptive infiltration Reduction Measures: Savings shall only be calculated via Methodology 2 if a blower door test is not feasible
Δtherms= (Δthermsgasket * ngasket + Δthermssweep * nsweep + Δthermssealing * lfsealing + ΔthermsWX * lfWX) * ADJRxAirsealing

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Measure Code	RS-SHL-AIRS-V05-160601

TRM Assumptions	Input Values	Notes
ΔkWh_cooling		If central cooling, reduction In annual cooling requirement due to air sealing TRM provides an equation as follows: ΔkWh_cooling = [(((CFM50_existing - CFM50_new)/N_cool) * 60 * 24 * CDD * DUA * 0.018) / (1000 * ηCool)] * LM
ΔkWh_heating		If electric heat (resistance or heat pump), reduction In annual electric heating due to air sealing TRM provides an equation as follows: ΔkWh_heating= ΔTherms * Fe * 29.3
CFM50_existing	2800	Infiltration at 50 Pascals as measured by blower door before air sealing This is an actual value
CFM50_new	2,016	Infiltration at 50 Pascals as measured by blower door after air sealing This is an actual value
N_cool	Table of TRM Values below based on location and Number of Stories	Conversion factor from leakage at 50 Pascal to leakage at natural conditions This is dependent on location and number of stories, the TRM provides a table of values Updated from TRM V4 to 5 from exposure to number of stories
CDD	TRM Table of values based on location	Cooling Degree Days This is dependent on location. The TRM provides a table of values
DUA	0.75	Discretionary Use Adjustment (reflects the fact that people do not always operate their AC when conditions may call for it). This is a deemed TRM value
ηCool	Actual or Table of Values from TRM based on age	Efficiency (SEER) of Air Conditioning equipment Actual (where it is possible to measure or reasonably estimate). If unknown assume the following table of values from the TRM
LM	Table of TRM values based on climate zone	Latent multiplier to account for latent cooling demand This is dependent on location. The TRM provides a table of values
N_heat	Table of TRM Values below based on climate zone and building height	Conversion factor from leakage at 50 Pascal to leakage at natural conditions The TRM provides a table of values. This is based on climate zone, building height and exposure level
HDD	Table of TRM values based on climate zone	Heating degree days This is dependent on location. The TRM provides a table of values
ηHeat	Table of TRM Values based on system type** note this is the version for kWh calc	Efficiency of heating system (effective COP Estimate) Actual. If not available refer to the Table of deemed values from the TRM which is based on system type
FLH_cooling		Full load hours of air conditioning This is dependent on location. The TRM provides a table of values
CF	91.5%	Summer system peak coincidence factor This is a deemed TRM value
ηHeat	72.0%	% Efficiency of heating system = Equipment efficiency * distribution efficiency Use actual, if not use the deemed TRM value of 72%
Fe	3.14%	Furnace Fan energy consumption as a percentage of annual fuel consumption This is a deemed TRM value
Measure Life	15.00	The expected measure life is assumed to be 15 years. This is a deemed TRM value
Incremental Cost		The actual capital cost for this measure should be used in screening Currently using actual
ΔkWhgasket	Table of TRM Values based on Climate zone and heating type	annual kWh savings from installation of air sealing gasket on an electric outlet dependent on TRM table of values based on climate zone - values for electric resistance and heat pump part of the methodology 2 calculation
ngasket		number of gaskets installed part of the methodology 2 calculation
ΔkWhsweep	Table of TRM Values based on Climate zone and heating type	Annual kWh savings from installation of door sweep dependent on TRM table of values based on climate zone - values for electric resistance and heat pump part of the methodology 2 calculation
nsweep		number of sweeps installed part of the methodology 2 calculation
ΔkWhsealing	Table of TRM Values based on Climate zone and heating type	Annual kWh savings from foot of caulking, sealing, or polyethlylene tape dependent on TRM table of values based on climate zone - values for electric resistance and heat pump part of the methodology 2 calculation
lfsealing		linear feet of caulking, sealing, or polyethylene tape part of the methodology 2 calculation
ΔkWhWX	Table of TRM Values based on Climate zone and heating type	Annual kWh savings from window weatherstripping or door weatherstripping dependent on TRM table of values based on climate zone - values for electric resistance and heat pump part of the methodology 2 calculation
lfWX		linear feet of window weatherstripping or door weatherstripping part of the methodology 2 calculation
ADJRxAirsealing	80.0%	Adjustment for air sealing savings to account for prescriptive estimates overclaiming savings TRM V5 deems this value at 80% part of the methodology 2 calculation
Δthermsgasket		Annual therm savings from installation of air sealing gasket on an electric outlet dependent on TRM table of values based on climate zone - values for gas heat part of the methodology 2 calculation
Δthermssweep	Table of TRM values based on climate zone	Annual therm savings from installation of door sweep dependent on TRM table of values based on climate zone - values for gas heat part of the methodology 2 calculation
Δthermssealing	Table of TRM values based on climate zone	Annual therm savings from foot of caulking, sealing, or polyethlylene tape dependent on TRM table of values based on climate zone - values for gas heat part of the methodology 2 calculation
ΔthermsWX	Table of TRM values based on climate zone	Annual therm savings from window weatherstripping or door weatherstripping dependent on TRM table of values based on climate zone - values for gas heat part of the methodology 2 calculation

Tables for Algorithm Inputs

Climate Lookup Table - to create Nicor Custom		
Rockford	Zone 1	0.3
Chicago	Zone 2	0.6
Springfield	Zone 3	0.1

1	2	3	4	5	6
Climate Zone	CDD 65	LM	HDD 60	Single Family	Multifamily
1 (Rockford)	820	3.3	5,352	512	467
2 (Chicago)	842	3.2	5,113	570	506
3 (Springfield)	1,108	3.7	4,379	730	663
4 (St Louis, MO)	1,570	3.6	3,378	1,035	940
5 (Paducah, KY)	1,370	3.7	3,438	903	820
6 (Nicor Custom)	862	3.28	5,111	568.6	510

System Type	Age of Heating Equipment	HSPF Estimate	ηHeat (Effective COP Estimate)= (HSPF/3.413)* 0.85
Heat Pump	Before 2006	6.8	1.7
	2006 - 2014	7.7	1.92
	2015 on	8.2	2.4
Resistance	N/A	N/A	1

ΔkWh and Savings Lookup Table
Electric
Natural Gas

Lookup Table
Central Cooling
Heat Pump

Loadshape Table
R08 - Residential Cooling
R09 - Residential Electric Space Heat
R10 - Residential Electric Heating and Cooling

Climate Zone (City based upon)	N_cool(by # of stories) 1	1.5	2	3
1 (Rockford)	39.5	35	32.1	28.4
2 (Chicago)	38.9	34.4	31.6	28
3 (Springfield)	41.2	36.5	33.4	29.6
4 (St Louis, MO)	40.4	35.8	32.9	29.1
5 (Paducah, KY)	43.6	38.6	35.4	31.3
6 (Nicor Custom)	39.31	34.79	31.93	28.28

Climate Zone (City based upon)	N_heat(by # of stories) 1	1.5	2	3
1 (Rockford)	23.8	21.1	19.3	17.1
2 (Chicago)	23.9	21.1	19.4	17.2
3 (Springfield)	24.2	21.5	19.7	17.4
4 (St Louis, MO)	25.4	22.5	20.7	18.3
5 (Paducah, KY)	27.8	24.6	22.6	20
6 (Nicor Custom)	23.9	21.14	19.4	17.19

	Age of Cooling Equipment	ηCool (SEER Estimate)
Central AC	Before 2006	10
	2006 - 2014	13
	2015 on	13
Heat Pump	Before 2006	10
	2006 - 2014	13
	2015 on	14

Methodology 2 Tables from TRM V5 Proposal

	Climate Zone (City based upon)	ΔkWh_{gasket} / gasket	ΔkWh_{sweep} / sweep	$\Delta kWh_{sealing}$ / ft	ΔkWh_{wx} / ft
		Electric Resistance	Electric Resistance	Electric Resistance	Electric Resistance
Electric Resistance	1 (Rockford)	10.5	202.4	11.6	13.5
Electric Resistance	2 (Chicago)	10.2	195.3	11.2	13
Electric Resistance	3 (Springfield)	8.8	169.3	9.7	11.3
Electric Resistance	4 (Belleville)	7	134.9	7.7	9
Electric Resistance	5 (Marion)	7.2	137.9	7.9	9.2
Electric Resistance	6 (Nicor Custom)	10.15	194.83	11.17	12.98

	Climate Zone (City based upon)	ΔkWh_{gasket} / gasket	ΔkWh_{sweep} / sweep	$\Delta kWh_{sealing}$ / ft	ΔkWh_{wx} / ft
Heat Pump		Heat Pump	Heat Pump	Heat Pump	Heat Pump
Heat Pump	1 (Rockford)	5.3	101.2	5.8	6.7
Heat Pump	2 (Chicago)	5.1	97.6	5.6	6.5
Heat Pump	3 (Springfield)	4.4	84.7	4.8	5.6
Heat Pump	4 (Belleville)	3.5	67.5	3.9	4.5
Heat Pump	5 (Marion)	3.6	68.9	3.9	4.6
Heat Pump	6 (Nicor Custom)	5.09	97.39	5.58	6.47

Climate Zone (City based upon)	$\Delta therms_{gasket}$ / gasket	$\Delta therms_{sweep}$ / sweep	$\Delta therms_{sweep}$ / sweep	$\Delta therms_{sealing}$ / ft	$\Delta therms_{wx}$ / ft
	Gas Heat	Gas Heat	Gas Heat	Gas Heat	Gas Heat
1 (Rockford)	0.49	9.46	9.46	0.54	0.63
2 (Chicago)	0.47	9.13	9.13	0.52	0.61
3 (Springfield)	0.41	7.92	7.92	0.45	0.53
4 (Belleville)	0.33	6.31	6.31	0.36	0.42
5 (Marion)	0.33	6.45	6.45	0.37	0.43
6 (Nicor Custom)	0.47	9.108	9.108	0.519	0.608

5.6.2	Basement Sidewall Insulation																																								
																								Annual Savings			Lifetime Savings			Algorithm Inputs														
#	Measure	Short Measure Name	Measure Type	Total Sq Ft of Insulation	Program Type	Insulation Type	R-value of Additional Insulation	Length of basement wall around entire insulated perimeter (ft)	Ht of insulated basement wall above grade (ft)	Hmgrade: Insulated basement wall Below grade (ft)	Is the Basement Conditioned?	Climate Zone	Heating Fuel	Cooling System Type	Age of Cooling Equipment	Age of Heating Equipment	Heating System Type	Low Income	Building Type	Measure Cost	kW savings type	Measure Life (Yrs)	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms	ΔkWh_cooling	ΔkWh_heating	ADbasementcool	ADbasementheat	R_added	R_old_AG	L_basement_wall_to_	H_basement_wall_A	Framing_Factor	CDD	DUA	nCool	R_old_BG	H_basement_wall_to_	HDD	ηHeat (Rath algorithm)	FLH_cooling	CF	ηHeat (Therm algorithm)
5.6.2.1	Basement Sidewall Insulation, R-value = 13, 720 sq ft of Insulation, Single Family	Basement/Sidewall Insulation SF	Shell	720	RF	Spray Foam	13	90	2	6	FALSE	6 (Nicor Custom)	Natural Gas	Heat Pump	2015 on	Before 2006	Resistance	Non-Low Income	Single Family	$ 1,440.00	Utility	25.00	910 Residential Cooling	114.07	0.0000	123.99	2,851.83	0.0000	3,099.75	-	114	0.60	0.80	13	1	90	2	0	293.1	0.75	34	9.46	8	3099	3	568.6	72.00%	72%

TRM Algorithm

ΔkWh= (ΔkWh_cooling + ΔkWh_heating)

ΔkWh_cooling = [((1/R_old_AG - 1/(R_added+R_old_AG)) * L_basement_wall_total * H_basement_wall_AG * (1-Framing_factor) * 24 * CDD * DUA) / (1000 * nCool)]*ADbasementcool

ΔkWh_heating = [((1/R_old_AG - 1/(R_added+R_old_AG)) * L_basement_wall_total * H_basement_wall_AG * (1-Framing_factor)) + ((1/(R_old_BG - 1/(R_added+R_old_BG)) * L_basement_wall_total * (H_basement_wall_total - H_basement_wall_AG) * (1-Framing_factor))] * 24 * HDD) / (1,412 * ηHeat)]*ADbasementheat

ΔkW = (ΔkWh_cooling / FLH_cooling) * CF

ΔTherms = [((1/R_old_AG - 1/(R_added+R_old_AG)) * L_basement_wall_total * H_basement_wall_AG * (1-Framing_factor) + ((1/(R_old_BG - 1/(R_added+R_old_BG)) * L_basement_wall_total * (H_basement_wall_total - H_basement_wall_AG) * (1-Framing_factor)) * 24 * HDD) / (ηHeat * 100,067)] * ADbasementheat

Date	2016-09-01
Measure Code	RS-SHL-WHS-V07-160601

TRM Assumptions	Input Values	Notes
ΔkWh_cooline		If central cooling, reduction in annual cooling requirement due to insulation TRM provides an equation as follows: ΔkWh_cooling = [((1/R_old_AG - 1/(R_added+R_old_AG)) * L_basement_wall_total * H_basement_wall_AG * (1-Framing_factor)) * 24 * CDD * DUA) / (1000 * nCool)]
ΔkWh_heating		If electric heat (resistance or heat pump), reduction in annual electric heating due to insulation TRM provides an equation as follows: [((1/R_old_AG - 1/(R_added+R_old_AG)) * L_basement_wall_total * H_basement_wall_AG * (1-Framing_factor)) + ((1/(R_old_BG - 1/(R_added+R_old_BG)) * L_basement_wall_total * (H_basement_wall_total - H_basement_wall_AG) * (1-Framing_factor))] * 24 * HDD) / (1,412 * ηHeat)]
ADSI	60%	Adjustment to account for prescriptive-engineering algorithms overclaiming savings. TRM Deems a value of 88%
ADbasementcool	0.80	Adjustment for cooling savings from basement wall insulation to account for prescriptive-engineering algorithms overclaiming savings TRM VS deems this value at 80%
R_added		R-value of additional spray foam, rigid foam, or cavity insulation This is a custom input
R_old_AG	1	R-value value of foundation wall above grade Use Actual, if unknown assume TRM Value of 1.0
L_basement_wall_total		Length of basent wall around entire insulated perimeter (ft) This is a custom input
H_basement_wall_ac		Ht of insulated basemt wall above grade (ft) This is a custom input
Framing factor	TRM provides a table of values	Adjustment to account for area of framing when cavity insulation is used TRM provos a list of assumptions as follows: 0% if Spray Foam or Caternal Rigid Foam; 25% if studs and cavity insulation. The table from the TRM is listed below.
CDD		Cooling Degree Days This is dependent on location. The TRM provides a table of values which is listed below
DUA	0.75	Discretionary Use Adjustment This is a deemed TRM value
nCool	Actual or Table of Values from TRM based on zee	Seasonal Energy Efficiency Ratio (kWh/kWH) Actual (where it is possible to measure or reasonably estimate). If unknown assume the following table of values from the TRM. The table from the TRM is listed below
R_old_BG	Custom Input	R-value value of foundation wall below grade dependent on depth of foundation (H_basement_wall_total – H_basement_wall_AG) Actual R-value of wall plus average earth R-value by depth in table provided by the TRM
H_basement_wall_total	Custom Input	Total height of basement wall (ft) This is a custom input
HDD	Table of TRM values based on climate zone	Heating Degree Days This is dependent on location. The TRM provides a table of values which is listed below
ηHeat	Table of TRM Values based on system type** note this is the version for kWh calc	Efficiency of heating system (effective COP Estimate) Actual. If not available refer to the Table of deemed values from the TRM which is based on system type
FLH_cooling		Full load hours of air conditioning This is dependent on location. The TRM provides a table of values
CF		Summer system peak coincidence factor This is a deemed TRM value
ηHeat	72%	% Efficiency of heating system = Equipment efficiency * distribution efficiency Use actual, if not use the deemed TRM value of 72%
Measure life	25	The expected measure life is assumed to be 25 years This is a deemed TRM value
Incremental Cost	2	The actual installed cost for this measure should be used in screening Currently using a calculation of 2 multiplied by the Squarefeet

Tables for Algorithm Inputs

Climate Zone	Conditioned CDD 65	Unconditioned CDD 65	Conditioned HDD 65	Unconditioned HDD 65	Single Family	Multifamily
1 (Rockford)	820	263	5,262	3,232	512	467
2 (Chicago)	840	261	5,233	3,073	570	506
3 (Springfield)	1,108	416	4,379	2,550	730	663
4 (Belleville)	1,570	528	3,378	1,789	1,015	940
5 (Marion)	1,270	570	3,438	1,796	901	820
Unknown	947	325	4,840	2,895	629	564
6 (Nicor Custom)	862	291.1	5,111	3,099	544.6	510

Climate Lookup Table - Sq Ft Nicor Custom		
Rockford	Zone 1	0.1
Chicago	Zone 2	0.6
Springfield	Zone 3	0.1

Framing Factor (Framing_Factor)	
Spray Foam	0
Studs	0.25

ΔkWh and Savings Lookup Table
Natural Gas
Electric

Housing Type Lookup Table
Single Family
Multifamily

CF Values Lookup Table		
Central Cooling	Utility	68%
Heat Pump	Utility	72%
	RIM	47%

Is the Basement Conditioned? - True False Lookup Table
TRUE
FALSE

Below Grade R-value										
Depth below grade (ft)	0	1	2	3	4	5	6	7	8
Earth R-value (°F-ft²-h/Btu)	2.44	4.5	6.3	8.4	10.44	12.66	14.49	17	20
Average Earth R-value (°F-ft2-h/Btu)	2.44	3.47	4.41	5.41	6.42	7.46	8.46	9.53	10.69
Total BG R-value (earth + 0.2 ft foundation)	3.64	4.67	5.61	6.61	7.62	8.66	9.66	10.53	11.69

System Type	Age of Equipment	HSPF Estimate	ηHeat (Effective COP Estimate) (HSPF/3.41)
Heat Pump	Before 2006	6.8	1.7
	After 2006 - 2014	7.7	1.92
	2015 on	8.2	2.4
Resistance	N/A	N/A	1

	Age of Central Equipment	nCool (SEER Estimate)
Central AC	Before 2006	10
	2006 - 2014	13
	2015 on	13
Heat Pump	Before 2006	10
	2006 - 2014	13
	2015 on	13

Loadshape Table
908 - Residential Cooling
909 - Residential Electric Space Heat
910 - Residential Electric Heating and Cooling

5.6.4	Attic & Wall Insulation																				Annual Savings			Lifetime Savings		
#	Measure	Short Measure Name	Measure T	Program Type	New total R-value of Wall	New R-value of Attic	Old R-value of Wall	Area of Insulated wall (ft^2)	Area of Insulated Attic (ft^2)	Climate Zone	Heating Fuel	Cooling System Type	Age of Cooling Equipment	Age of Heating Equipment	Heating System Type	Measure Cost	Building Type	kW Savings type	Measure Life (Yrs)	Loadshape	ΔkWh	ΔkW	ΔTherms	ΔkWh	ΔkW	ΔTherms
5.6.4.1	Attic Insulation attic: R5 to R19, attic area = 1210 ft, Single Family Joint	Attic Insulation (R5 to R19) SF	Shell	RF	13	19	5	-	1,210	6 (Nicor Custom)	Natural Gas	Central A/C	Before 2006	Before 2006	Heat Pump	$ 1,210.00	Single Family	Utility	25	R08 - Residential Cooling	361.71	0.2462	169.41	9,042.70	0.2462	4,235.29
5.6.4.3	Attic Insulation attic: R<19 to R38, attic area = 1210 ft, Single Family Joint	Attic Insulation (<R19 to R38) SF	Shell	RF	custom	38	<19	-	1.210							$ 1.525.00	Single Family		25		194.24	0.13	90.98	4.856.08	0.13	2.274.42
5.6.4.4	Attic Insulation attic: R<19 to R49, attic area = 1210 ft, Single Family Joint	Attic Insulation (<R19 to R49) SF	Shell	RF	custom	49	<19	-	1.210							$ 1.525.00	Single Family		25		208.74	0.14	97.77	5.218.58	0.14	2.444.20
5.6.4.5	Attic Insulation attic: R>19 to R49, attic area = 1210 ft, Single Family Joint	Attic Insulation (>R19 to R49) SF	Shell	RF		49	>19	0	1210							$ 1.210.00	Single Family		25		46.52	0.03	28.06	2.166.44	0.06	1.014.68
5.6.4.7	Heat Pump Insulation, wall: R5 to R13, wall area = 1878 ft, Single Family	Wall Insulation SF	Shell	RF	13	38	5	1878	0	6 (Nicor Custom)	Natural Gas	Central A/C	Before 2006	Before 2006	Heat Pump	#N/A	Single Family	Utility	0	R09 - Residential Electric Space Heat	-	-	-	-	-	-

#	Algorithm Inputs																				
	ΔkWh_cool	ΔkWh_heat	R_wall	R_attic	R_old	A_wall	A_attic	Framing_factor_wall	Framing_factor_attic	CDD	DUA	ηCool	HDD	ηHeat (kWh algorithm input)	ηHeat (therm algorithm input)	FLH_cooling	CF	ADJ[illegible]	ADJ[illegible]	Fe
5.6.4.1	205.846	155.8621	13	19	5	-	1,210	25%	7%	862	0.75	10	5111.3	1.7	72%	568.6	68.00%	60%	80%	3.14%
5.6.4.7	-	-	13	38	500%	187800%	0	0	0	862	0	FALSE	5111.3	#N/A	0%	51000%	0.00%	0.6	0	0

TRM Algorithm

ΔkWh= (ΔkWh_cooling + ΔkWh_heating)

ΔkWh_cooling = (((1/R_old - 1/R_wall) * A_wall * (1-Framing_factor_wall) + (1/R_old - 1/R_attic) * A_attic * (1-Framing_factor_attic)) * 24 * CDD * DUA] / (1000 * ηCool)) *ADJwallatticcool

Electric heating:

ΔkWh_heating = ((1/R_old - 1/R_wall) * A_wall * (1-Framing_factor) + (1/R_old - 1/R_attic) * A_attic * (1-Framing_factor_attic) * 24 * HDD] / (ηHeat * 3412))*ADJwallatticheat

gas Furnace Heating

ΔkWh_heating = Δtherms * Fe * 29.3

ΔkW = (ΔkWh_cooling / FLH_cooling) * CF

ΔTherms = (((1/R_old - 1/R_wall) * A_wall * (1-Framing_factor_wall)) + (1/R_old - 1/R_attic) * A_attic * (1-Framing_factor_attic)) * 24 * HDD) / (ηHeat * 100,067 Btu/therm)*ADJWallAtticHeat

Date	2016-09-01
Measure Code	RS-SHL-AINS-V06-160601

TRM Assumptions	Input Values	Notes
ΔkWh_cooling		If central cooling, reduction in annual cooling requirement due to insulation TRM Provides a calculation where: ΔkWh_cooling = [((1/R_old - 1/R_wall) * A_wall * (1-Framing_factor_wall) + (1/R_old - 1/R_attic) * A_attic * (1-Framing_factor_attic)) * 24 * CDD * DUA] / (1000 * ηCool)
ΔkWh_heating		If electric heat (resistance or heat pump), reduction in annual electric heating due to insulation TRM provides a calculation where ΔkWh_heating = [(1/R_old - 1/R_wall) * A_wall * (1-Framing_factor) * ADJwall) + (1/R_old - 1/R_attic) * A_attic * (1-Framing_factor_attic) * ADJattic) * 24 * HDD] / (ηHeat * 3412)
R_wall		R-value of new wall assembly (including all layers between inside air and outside air) This is a custom input
R_attic		R-value of new attic assembly (including all layers between inside air and outside air) This is a custom input
R_old		R-value value of existing assemble and any existing insulation (Minimum of R-5 for uninsulated assemblies)
A_wall		Total area of insulated wall (ft^2) This is a custom input
A_attic		Total area of insulated ceiling/attic (ft^2) This is a custom input
Framing_factor	 25% 7%	Adjustment to account for area of framing TRM deems value of 25% for wall TRM deems value of and 7% for attic
CDD		Cooling Degree Days This is dependent on location. The TRM provides a table of values which is listed below
DUA	0.75	Discretionary Use Adjustment This is a deemed TRM value
ηCool		Seasonal Energy Efficiency Ratio (SEER) of cooling system (kBtu/kWh) Actual (where it is possible to measure or reasonably estimate). If unknown assume the following table of values from the TRM. The table from the TRM is listed below
HDD		Heating Degree Days This is dependent on location. The TRM provides a table of values which is listed below
ηHeat	Table of TRM values - part of the kWh algorithm	Efficiency of heating system (effective COP Estimate) Actual. If not available refer to the Table of deemed values from the TRM which is based on system type
ηHeat	72%	% Efficiency of heating system = Equipment efficiency * distribution efficiency Use actual, if not use the deemed TRM value of 72%
ADJwallatticcool	80%	Adjustment for cooling savings from basement wall insulation to account for prescriptive engineering algorithms overclaiming savings TRM Deems this value at 80% - this is a new factor per TRM V5
FLH_cooling		Full load hours of air conditioning This is dependent on location. The TRM provides a table of values
CF	91.5%	Summer Peak Coincidence factor This is a deemed TRM value
ADJ[illegible]	60%	Adjustment to account for prescriptive engineering algorithms overclaiming savings combining into one factor for attic and wall at 60% as proposed in TRM V5
Fe	3.14%	Furnace Fan energy consumption as a percentage of annual fuel consumption This is a deemed TRM value
Measure Life	25	The expected measure life is assumed to be 25 years This is a deemed TRM value
Incremental Cost		The actual installed cost for this measure should be used in screening.

Tables for Algorithm Inputs

Climate Zone	CDD 65	HDD 60	Single Family FLH	Multi Family FLH
1 (Rockford)	820	5,352	512	467
2 (Chicago)	842	5,113	570	506
3 (Springfield)	1,108	4,379	730	663
4 (Belleville)	1,570	3,378	1,035	940
5 (Marion)	1,370	3,438	903	820
Unknown	947	4,860	629	564
6 (Nicor Custom)	862	5,111	568.6	510

System Type	Age of Equipment	HSPF Estimate	ηHeat (Effective COP Estimate) (HSPF/3.413) *0.85
Heat Pump	Before 2006	6.8	1.7
	2006 - 2014	7.7	1.92
	2015 on	8.2	2.4
Resistance	N/A	N/A	1

Climate Lookup Table - to create Nicor Custom		
Rockford	Zone 1	0.3
Chicago	Zone 2	0.6
Springfield	Zone 3	0.1

	Age of Cooling Equipment	ηCool (SEER Estimate)
Central AC	Before 2006	10
	2006 - 2014	13
	2015 on	13
Heat Pump	Before 2006	10
	2006 - 2014	13
	2015 on	14

ΔkWh and Savings Lookup Table
Natural Gas
Electric

Housing Type Lookup Table
Single family
Multi family

For Measure Name:	
Attic	
Wall	

CF Values Lookup Table		
Central A/C	Utility	68%
Heat Pump	Utility	72%
PJM Central A/C	PJM	47%

Other Information	
R19 %	59.50%
R 30%	40.50%
Attic Insulation (Final R19 - Baseline = R5) (Prescriptive)- Nicor Gas	
Attic Insulation (Final R38 - Baseline < R19) (Prescriptive)- Nicor Gas	
Attic Insulation (Final R49 - Baseline < R19) (Prescriptive)- Nicor Gas	
Attic Insulation (Final R49 - Baseline > R19) (Prescriptive)- Nicor Gas	

Nicor Gas - Residential Kit
Measure Assumptions Niaara Kit 1 & 2

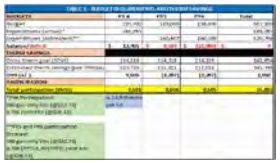
1	2	3	4	5
	Measure Assumptions			
Short Measure Name	Water Savings (Gallons / YR)	Therm Savings (PY4 - G)	Measure Life (PY4 - G)	
1.5gpm Shower Head	1350.69	6.77	10.00	1
1.0gpm Bath Aerator	128.46	0.44	9.00	1
1.0gpm Bath Aerator	128.46	0.44	9.00	1
1.5gpm Kitchen Aerator	894.66	3.71	9.00	1
Kit 1	**2,502.27**	**11.36**	**10.00**	**1.00**
1.5gpm Shower Head	1392.25	6.98	10.00	1
1.5gpm Shower Head	1350.69	6.98	10.00	1
1.0gpm Bath Aerator	128.46	0.44	9.00	1
1.0gpm Bath Aerator	128.46	0.44	9.00	1
1.5gpm Kitchen Aerator	894.66	3.71	9.00	1
Kit 2	**3,894.52**	**18.54**	**10.00**	**1.00**

6	7	8	9	10	11	12	13

Date	2016-09-01
Measure Code: S.4.4	R1-HWE-LFSA-V05-160601
Measure Code: S.4.5	R1-HWE-LFSH-V04-160601
Measure Code: S.4.6	R1-HWE-TMPS-V04-150601

PY4 Evaluation Table 4
Recommended TRM ISRs for Efficiency Kits

Measure	ISR
Showerheads (Kit 1)	0.65
Showerheads (Kit 2)	0.67
Kitchen Aerators (Kits 1&2)	0.63
Bathroom Aerators (Kits 1 & 2)	0.6



	Incremental Cost	Postage	Total Cost
Kit 1	7.36	**6.36**	**13.72**
Kit 2	10.28	**6.36**	**16.64**

Elementary Education Kit - Planning Values

	Water Savings (Gallons / YR)	Therm Savings (PY4 - G)	Measure Life (PY4 - G)	Net to Gross Ratio (PY4 - G)	Incremental cost	Net Therm	ISR
1.5gpm Shower Head	1385.11	6.94	10.00	79.0%	5.48		**34.6%**
1.5gpm Bath Aerator	118.93	0.41	9.00	79.0%	0.32		**30%**
1.5gpm Bath Aerator	118.93	0.41	9.00	79.0%	0.32		**30%**
Water Heater Setback		0.68	1.00	79.0%	0.53		**29%**
1.5gpm Kitchen Aerator	768.82	3.27	0.00	79.0%	2.59		**30.0%**
EEE Kit	**2,411.77**	**11.70**	**9.00**	**0.79**	**18.13**	**9.24**	

Household Assumption: 4.74

Lowered Water Heater		
	MeterCo	
Nicor	m-Ed	Total
35%	24%	29%

EEE Kit Incremental Cost Assumptions				
	Spend	**Total kits**	**Inc Cost**	**Month Particip**
CEE			18.13	
EEE Gas only			32.73	

PY2 Evaluation Table 7-2: Additional In-Service Rates for Efficiency Kits

Measure	Recommended TRM ISRs for Efficiency Kits	
	Renovated Kit	Not Renovated Kit
Showerheads	0.91	0.36
Kitchen Aerators	0.48	0.3
Bathroom Aerators	0.48	0.3

Kit Algorithms

Showerhead Therm Algorithm $\Delta Therms$ = NFossilDHW * (GPM_base * L_base - GPM_low * L_low * Household * 365.25 / EPG * EPG_gas * SR)

Showerhead Water Gallon Algorithm - 1.5 gpm $\Delta gallons$ = ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 / 3785.5 * SR)

Calculated Therms for Showerhead Kit 1	6.77
Calculated Therms for Showerhead Kit 2	6.98
Calculated Gallons for Showerhead Kit 1	1,350.69
Calculated Gallons for Showerhead Kit 2	1,392.25

Where:	Variable	Value Used in Calculation	Definition and Notes
	NFossilDHW =	100%	**consortion of water heatine suspiled by Natural Gas heatine**
	GPM_base	2.25	Flow rate of the baseline showerhead
	L_base	7.8	Shower length in minutes with baseline showerhead
	GPM_Low	1.5	As-used flow rate of the low-flow showerhead, which may, as a result of measurements of program evaluations deviate from rated flows, see table below:
	L_Low	7.8	Shower length in minutes with low-flow showerhead
	Household	2.56	Average number of people per household
	EPCD	0.6	Showers Per Capita Per Day - Deemed TRM Value
	365.25	365.25	**Days per year, on average**
	EPH	1.79	**Showerheads Per Household so that per-showerhead savings fractions can be determined**
	EPG_gas	0.00501	Energy per gallon of Hot water supplied by gas 8.33*(1.0*(ShowerTemp-SupplyTemp))/(RE_gas*100000)
	RE_gas	78%	Recovery efficiency of gas water heater
	ISR	0.65	KS 1
	SR	0.67	KS 2

Bath Aerator Therm Algorithm $\Delta Therms$ = NFossilDHW * ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * SR / EPG * EPG_gas * SR)

Bath Aerator Water Gallon Algorithm $\Delta gallons$ = ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * SR / EPG) * SR

Calculated Therms for Bath Aerator - 1.0 GPM	0.44
Calculated Gallons for Bath Aerator - 1.0 GPM	128.46

Where:	Variable	Value Used in Calculation	Definition and Notes
	NFossilDHW =	100%	**consortion of water heatine suspiled by Natural Gas heatine**
	GPM_Base	1.39	Average flow rate, in gallons per minute, of the baseline faucet *as-used.* This includes the effect of existing low flow fixtures and therefore the freerider rate for this measure should be 0.
	L_base	1.6	Average baseline daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	GPM_Low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator *as-used*
	L_Low	1.6	Average retrofit daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	Household	2.56	Average number of people per household
	365.25	365.25	**Days per year, on average**
	SR	90%	**Drain Factor based on deemed TRM values**
	EPH	2.03	**Faucets Per Household**
	EPG_gas	0.00341	Energy per gallon of Hot water supplied by gas 8.33*(1.0*(WaterTemp-SupplyTemp))/(RE_gas*100000)
	RE_gas		Recovery efficiency of gas water heater
	ISR	0.6	

Kitchen Aerator Therm Algorithm $\Delta Therms$ = NFossilDHW * ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * SR / EPG * EPG_gas * SR)

Kitchen Aerator Water Gallon Algorithm $\Delta gallons$ = ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * SR / EPG) * SR

Calculated Therms for Kitchen Aerator - 1.5 gpm	3.71
Calculated Gallons for Kitchen Aerator - 1.5 gpm	894.66

Where:	Variable	Value Used in Calculation	Definition and Notes
	NFossilDHW =	100%	**consortion of water heatine suspiled by Natural Gas heatine**
	GPM_Base	1.39	Average flow rate, in gallons per minute, of the baseline faucet *as-used.* This includes the effect of existing low flow fixtures and therefore the freerider rate for this measure should be 0.
	L_base	4.5	Average baseline daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	GPM_Low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator *as-used*
	L_Low	4.5	Average retrofit daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	Household	2.56	Average number of people per household
	365.25	365.25	**Days per year, on average**

DF	75%	**Drain Factor based on deemed TRM values**
FPH	1.00	**Faucets Per Household**
EPG_gas	0.00415	Energy per gallon of hot water supplied by gas
		8.33*1.0*(WaterTemp-SupplyTemp)/(RE_gas*100000)
RE_gas		Recovery efficiency of gas water heater
GR	0.63	

Showerhead Kit Equations

Showerhead 1 Annual Therms Saved by Kit (Kit 1)	$Therms	= Household * (GPM_base * L_base - GPM_kit * L_kit) * Household * 365 * (1/EPG_gas - 1/EPG_gas * DF)
Showerhead 1 Annual Gallons Saved by Kit (Kit 1)	$gallons	= (GPM_base * L_base - GPM_kit * L_kit) * Household * 365.25 * 365.25 / 8Hr * GR

Calculated Therms for Showerhead	0.94
Calculated Gallons for Showerhead	1,385.11

Where		Value	Drain Factor Calculation
	Household	100%	**proportion of water heating supplied by Natural Gas heating**
	GPM_base	2.35	Flow rate of the baseline showerhead
	L_base	7.8	Shower length in minutes with baseline showerhead
	GPM_kit	1.5	As used flow rate of the low-flow showerhead, which may, as a result of measurements of program evaluations deviate from rated flows, see table below:
	L_kit	7.8	Shower length in minutes with low-flow showerhead
	Household	4.74	Average number of people per household; note using the number provided for Elem Ed Kits
	EPG_gas	0.6	Showers Per Capita Per Day - Deemed TRM Value
	365.25	365.25	**Days per year, on average**
	FPH	1.72	**Showerheads Per Household so that per-showerhead savings fractions can be determined**
	EPG_gas	0.00501	Energy per gallon of hot water supplied by gas
			8.33*1.0*(ShowerTemp-SupplyTemp)/(RE_gas*100000)
	RE_gas		Recovery efficiency of gas water heater
	DF	36.0%	

Kitchen Aerator Equations

Kitchen Annual Therms Saved by Kit	$Therms	= Household * (GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * DF / FPH / EPG_gas * GR
Kitchen Annual Gallons Saved by Kit	$gallons	= ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 *DF / FPH) * GR

Calculated Therms for Kitchen Aerator	0.41
Calculated Gallons for Kitchen Aerator	518.03

Where		Value	Drain Factor Calculation
	Household	100%	**proportion of water heating supplied by Natural Gas heating**
	GPM_base	1.28	Average flow rate, in gallons per minute, of the baseline faucet "as-used." This includes the effect of existing low flow fixtures and therefore the freerider rate for this measure should be 0.
	L_base	1.6	Average baseline daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	GPM_low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator "as-used"
	L_low	1.6	Average retrofit daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	Household	4.74	Average number of people per household; note using the number provided for Elem Ed Kits
	365.25	365.25	**Days per year, on average**
	DF	30%	**Drain Factor based on deemed TRM values**
	FPH	2.83	**Faucets Per Household**
	EPG_gas	0.00341	Energy per gallon of hot water supplied by gas
			8.33*1.0*(WaterTemp-SupplyTemp)/(RE_gas*100000)
	RE_gas		Recovery efficiency of gas water heater
	DF	30.0%	

Kitchen Aerator Equations

Kitchen Annual Therms Saved by Kit	$Therms	= Household * (GPM_base * L_base - GPM_low * L_low) * Household * 365.25 * DF / FPH / EPG_gas * GR
Kitchen Annual Gallons Saved by Kit	$gallons	= ((GPM_base * L_base - GPM_low * L_low) * Household * 365.25 *DF / FPH) * GR

Calculated Therms for Kitchen Aerator	1.27
Calculated Gallons for Kitchen Aerator	788.82

Where		Value	Drain Factor Calculation
	Household	100%	**proportion of water heating supplied by Natural Gas heating**
	GPM_base	1.28	Average flow rate, in gallons per minute, of the baseline faucet "as-used." This includes the effect of existing low flow fixtures and therefore the freerider rate for this measure should be 0.
	L_base	4.5	Average baseline daily length faucet use per capita for faucet of interest in minutes, if not use table below
	GPM_low	0.94	Average flow rate, in gallons per minute, of the low-flow faucet aerator "as-used"
	L_low	4.5	Average retrofit daily length faucet use per capita for faucet of interest in minutes, if available custom based on metering studies, if not use table below
	Household	4.74	Average number of people per household; note using the number provided for Elem Ed Kits
	365.25	365.25	**Days per year, on average**
	DF	75%	**Drain Factor based on deemed TRM values**
	FPH	1.00	**Faucets Per Household**
	EPG_gas	0.00415	Energy per gallon of hot water supplied by gas
			8.33*1.0*(WaterTemp-SupplyTemp)/(RE_gas*100000)
	RE_gas		Recovery efficiency of gas water heater
	DF	30.0%	

Water Heating Equations

Water Heating Therms Saved	$Therms	= (UA * (Tpre – Tpost) * Hours) / (100,000 * RE_gas)

Calculated Therms for Water Heater	0.676000363

Where			
	UA	0.08	**Overall heat transfer coefficient of tank (Btu/Hr-°F-ft2). Actual if known,if unknown assume 8-12, U=0.083**
	A	24.99	**Surface area of storage tank (square feet). Actual if known. If unknown use table below based on capacity of tank. If capacity unknown assume 50 gal tank; A = 24.9916**
	Tpre	120.00	Actual hot water setpoint prior to adjustment; based on recommendation from PY3 Evaluation - "The program should calculate savings for water heater setback using the degree settings defined in the parent/guardian survey." Page 6, Recommendation for Finding 3. File Link for evaluation report Below. Per Surveythe degree of setback is 130 for if they have a dishwasher then 110F, if no Dishwasher, assumer 120
	Tpost	110.00	Actual new hot water setpoint, which may not be lower than 120 degrees
	Hours	8,766.00	**Deemed TRM Value**
	100,000.00	100,000.00	**Converts Btus to Therms**
	RE_gas	76%	**Recovery efficiency of gas water heater; 76% for SF Homes, 67% for MF Homes**
	GR	0.29	**Value given by Evaluator**

Tables for Algorithm Inputs - Shower Head

Total fuel	%Food_DHW
Electric	0%
Natural Gas	100%
Unknown	84%

Household Unit	Household
Single-Family - D	2.56
Multi-Family - Dx	2.1
Custom	Actual Occupancy or Number of Bedrooms

Program	GPM_base
Direct-Install	2.67
Retrofit or TOS	2.35

FPH	
Single Family	1.79
Multi-Family	1.3
Custom	Actual

GPM_Low Table	
Rated Flow	
2	GPM
1.75	GPM
1.5	GPM
Custom or Actual	GPM

EPG_gas	
Single Family	0.00501
Multi-Family	0.00581

EPG_gas	
Single Family	78%
Multi-Family	67%

L_Base and L_Low Table		
L_Base TRM Deemed Value	7.8	Minutes
L_Low TRM Deemed Value	7.8	Minutes

PY4 Evaluation Table 4

Measure	Kit from PY4 Evaluation
	Requested Kit
Showerheads (Kit 1)	0.65
Showerheads (Kit 2)	0.67
Kitchen Aerators (Kits 1 & 2)	0.63
Bathroom Aerators (Kits 1 & 2)	0.6

Tables for Algorithm Inputs - Bath Aerator and Kitchen Aerator

Total fuel	%Food_DHW
Electric	0%
Natural Gas	100%
Unknown	84%

Household Unit Type	Household
Single-Family - Deemed	2.56
Multi-Family - Deemed	2.1
Custom	Actual Occupancy or Number of Bedrooms

GPM_base	
Deemed TRM	1.39
Custom / Measured during DI	=Measured full throttle flow *0.83 Throttling Factor

DF	
Kitchen	75%
Bath	90%
Unknown	79.50%

GPM_low	
Deemed TRM	0.94
Custom / Measured during DI	=Measured full throttle flow *0.95 Throttling Factor

EPG_gas	
Single Family Bath	0.00341
Single Family Kitchen	0.00415
Single Family Unknown	0.00394
Multi Family Bath	0.00397
Multi Family Kitchen	0.00484
Multi Family Unknown	0.00459

Faucet Type	L_base (min/person/day)
Kitchen	4.5
Bathroom	1.6
If location unknown (total for household):	
Single Family	9
If location unknown (total for household):	
Multi Family	6.5

Faucet Type	L_low (min/person/day)
Kitchen	4.5
Bathroom	1.6
If location unknown (total for household):	
Single Family	9
If location unknown (total for household):	
Multi Family	6.5

Faucet Type	FPH
Kitchen Faucets per Home (RFPH)	1
Bathroom Faucets per Home (RFPH) Single Fam	2.83
Bathroom Faucets per Home (RFPH) Multi Fam	1.5
If location unknown (total for household):	
Single Family	3.83
If location unknown (total for household):	
Multi Family	2.5

EPG_gas	
Single Family	78%
Multi-Family	67%

Tables for Algorithm Inputs - Waterheater Setback

Input table for A - the surface area of storage tank	
Capacity (gal)	A (ft²)
30	19.16
40	23.18
50	24.99
80	31.84

EPG_gas	
Single Family	78%
Multi-Family	67%