APPENDIX B

Nicor Gas Energy Efficiency Program - Plan Year 2019

Quarterly Report: First Quarter (January 1, 2019 - March 31, 2019)

Response to Evaluators' Recommendations

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Program	PY	Recommendation	Action Completion Date	Action(s) Taken
Multi-family	PY5	Navigant recommends research to understand why some Assessment customers do not receive no-cost direct install measures, if there is a trend in refusal of measures, and the graduation rate of customers from the Assessment to Rebate path within the offering	12/21/2018	(2/2/18) Upon completion of a building's assessment Franklin Energy updates a "SmartSheet" tracker created by Nicor Gas that capture all applicable prescreptive/custom opportunitites. The tracker also documents whether or not the building completes DI. (12/21/18) Franklin Energy now sends a monthly "rationale" spreadsheet of customers who do not install, based on agreed upon measures between Nicor Gas and subcontractors.
RNC	PY6	Continue to emphasize the higher efficiency tiers and encourage builders to g beyond standard improvements through program marketing, training sessions, and/or outreach to individual builders who have a large share of homes in the lowest tier level.	09/01/18	Beginning 9/1/18 the RNC program offered a bonus incentive to Builders and Raters for homes that meet the higher tier requirements. This encouraged Rating companies to work with their clients to implement EE improvements. Messaging is ongoing; the bonus is valid through 12/31/18 and will continue in 2019.
RNC	PY6	Continue to attract builders to the program through program marketing, direct outrea efforts, and training sessions offered to the wider trade ally network including both participating and non-participating builders.	09/01/18	Ongoing phone and e-mail outreach campaign to participating and non-participating builders. Also implementing more regular outreach and updates with participating Rating companies. Additionally, the RNC program is hosting a half-day event called "High-Performance Homes: Evolution and Innovation" on 9/27 at GTI. The event is intended for residential builders, developers, architects, remodelers, home and code inspectors, realtors, and anyone with interest in designing and constructing high-performance homes.
RNC	PY6	Revisit the savings calculations for lighting and appliances each year to ensure the inputs and calculations are from the TRM version for the corresponding program year.	10/01/18	For 2018, the program is not claiming appliance savings. However, Nicor Gas will track and attempt to claim savings in 2019+
CINC	PY6	The evaluation team recommends that the program ensures that projects consistently follow the approaches in ASHRE 90.1 or IECC when measuring ex ante program savings. For WWR, this includes accounting for the energy penalty for the excess window area. The evaluation team understands that the program shifted away from this practice in early 2016 after discussions with the evaluation team, but that these issues carried over from legacy projects started before the change in practice.	06/01/18	Four projects in the 2018 pipeline originally used the now-discontinued approach to neglecting WWR in energy modeling. Seventhwave has updated these energy models to reflect the code-compliant approach to modeling WWR, and eTRACK has been updated to reflect accurate savings information. For 2018 projects, customer incentives were NOT adjusted downward commensurately, in an effort to avoid negative impacts to customer experience. One project completing in CY2020 and still currently in the technical assistance phase also had the now-discontinued approach to WWR in first rounds of analysis. For that project, both the savings and customer incentive have been adjusted.
CINC	PY6	The evaluation team recommends the program ensures federal standards are appropriately incorporated into ex ante savings estimate	06/01/18	The program's modeling guidelines have been updated to address handling of measures covered by federal standards.
EEE	PY6	For ex ante savings calculation inputs, the TRM should be used for the split of electr versus gas water heater fuel type, and the student survey should be used for other custom inputs.	06/01/18	Nicor Gas will use the TRM split of gas and electric water heaters for ex ante estimates
EEE	PY6	Navigant recommends using the most recent student survey data to calculate IS values for participants that installed just one of the two aerators provided in the kits and the participants that installed both	06/01/18	Nicor Gas will use the most recent survey data for ex ante ISR in 2018. In 2019, we will apply the deemed TRM ISR value.
EEE	PY6	To increase the accuracy of the ex ante savings estimates, Navigant recommends calculating the ex ante savings separately for SF and MF households and using a SF-MF split for estimating the overall ex ante savings for all the measures included in the energy efficiency kits. Navigant recommends an ex ante SF-MF split based on most recent student survey data.	06/01/18	Nicor Gas will calculate the ex ante savings separately for SF and MF households and using a SF-MF split and use the most recent survey data to establish the SF-MF ratio.
EEE	PY6	Navigant recommends using the IL TRM v6.0 to estimate the ex ante energy savings for the "Shower Timer Install" measure	06/01/18	Nicor Gas will use the current version of the IL TRM to estimate the ex ante energy savings for the "Shower Timer Install" measure
Multi-family	PY6	Ensure that supplemental and clarification information collected from customers are readily transferred into the tracking system and readily available for evaluation.	9/1/2018	Nicor Gas has updated the PUP file playbook to require capacity of installed boiler for boiler reset control measures.
Multi-family	PY6	Use a baseline thermal efficiency of 0.80 when calculating savings for condensing boilers with heating capacities more than 300 kBtu/hr, as specified in the TRM.	12/18/2018	Nicor Gas has updated savings calculations to use a baseline thermal efficiency of 0.80 when calculating savings for condensing boilers with heating capacities more than 300 kBtu/hr
Multi-family	PY6	Check for errors in the algorithm and inputs used to calculate ex ante savings in the tracking data for storage water heaters	12/18/2018	Nicor Gas has reviewed storage water heater savings calculations and ensure they are consistent with the current TRM.
Multi-family	PY6	Provide all the heat loss ("Qbase" and "Qeff") algorithm inputs in the tracking data used to calculate savings for pipe insulation measures ("bare pipe heat loss" field and "insulated pipe heat loss" field respectively in the tracking system).	12/31/2018	Nicor Gas/IC has provided all the heat loss ("Qbase" and "Qeff") algorithm inputs in the tracking data used to calculate savings for pipe insulation measures. ("bare pipe heat loss" field and "insulated pipe heat loss" field respectively in the tracking system).
Multi-family	PY6	Navigant recommends that custom project measures claiming savings using IL TRI algorithms should meet the efficient equipment standards in the IL TRM. If the equipment does not meet the IL TRM requirements, a custom calculation approach should be used	12/31/2018	Nicor Gas ensured TRM measures meet minimum efficacy requirements.
Multi-family	PY6	Navigant recommends that all custom calculations use the proper measure-level efficiency values to reflect the baseline and efficient equipmer	12/31/2018	Nicor Gas has reviewed baseline inputs and use the appropriate measure-level efficiency values.
Multi-family	PY6	Navigant recommends that efficiency values are equivalent terms (i.e., thermal vs. combustion vs. AFUE efficiencies) when comparing baseline to efficient conditions.	12/31/2018	Nicor Gas ensured efficiency values are equivalent terms (i.e., thermal vs. combustion vs. AFUE efficiencie when comparing baseline to efficient conditions.
Multi-family	PY6	Navigant recommends using data from the nearest weather station to the project location when using weather data, unless a geographic feature justifies otherwise (e.g., Lake Michigan)	12/31/2018	Navigant shared their zip code by climate zone list with Nicor Gas, Nicor Gas aligned Navigant's list with NG list.
Multi-family	PY6	Navigant recommends that energy savings calculations which incorporate historical facility gas usage be normalized to historical weather data for that location.	12/31/2018	For energy savings calculations which incorporate historical facility gas usage, Nicor Gas will normalized consumption to historical weather data for that location
IQ	PY6	Navigant recommends using a standard conversion formula to convert infiltration at 75 pascals to infiltration at 50 pascals	12/31/2018	Nicor Gas/IC has update pascals for all 2018 air sealing and all air sealing moving forward
IQ	PY6	Whenever the tracking savings uses supplemental assumptions other than thos provided in the tracking system or that differ from the TRM, Navigant recommends that the implementation contractor include a note explaining why such assumptions were used.	12/31/2018	Nicor Gas/IC continues to provide measure notes, as needed.
IQ	PY6	Review the tracking data for accuracy and consistency with project documentation, especially custom projects documentatior	6/1/2018	IC ensures accurate measure notes are being captured through first passed PUP cycle 6/01/18
HES	PY6	Navigant recommends using the formula ηSystem = DEbefore * ηEquipment to calculate ηSystem for duct sealing	12/31/2018	IC ensures the changed calculations are implemented as proposed moving forward.
HEER	PY6	Navigant recommends that the tracking data include the input values used to calculate the ex ante savings.	12/31/2018	CLEAResult reviewed the "Illinois Zip Codes and Climate Zones Mapping" document provided by Naviga QC against CLEAResult's existing climate zone lookup table, and worked with Nicor and Navigant to resolve discrepancies. CLEAResult found that the heating and cooling zone lookup tables for savings matches what Navigant provided.
HEER	PY6	Navigant recommends that the tracking data continue to include the actual baseline efficiency values when they are applied	12/31/2018	For 2018 tracking data, it already includes the actual baseline efficiency values when they are applied or default baseline efficiency values
HEER	PY6	Navigant recommends that CLEAResult review the algorithms and inputs used to calculate ex ante savings for the quality installation measure.	12/31/2018	For 2018 HEER Interim Report, there was no recommendations on Verified Quality Installation measur CLEAResult had reviewed the algorithms and inputs used to calculate ex ante savings, which aligned with TRM V6.
BEER	PY6	Consider using building type specific usage values to estimate savings, or use "other" if building type is not listed in the TRM	12/31/18	CLEAResult confirmed that this task had been completed. Nicor Gas needs to verify it prior to uploading January Participation Data
BEER	PY6	Revise the program quality assurance and quality control processes to ensure th supplemental heating load information collected from customers is consistent with the generated project savings	12/31/18	CLEAResult confirmed that this task had been completed. Nicor Gas needs to verify it prior to uploading January Participation Data and ask CR what action has been done to improve the QC on these projects.
BEER	PY6	The ΔDailyIdleEnergy input value should be 48,900 Btu, a correction to the TRM value of 49,286 Btu.	05/31/18	Nicor Gas verifies the correction of ΔDailyIdleEnergy input value to the TRM value of 49,286 Btu
BEER	PY6	Provide documentation of the test conducted (utilizing ASTM Standard F1496) t measure custom or actual EffENERGYSTAR heavy load efficiency values. Verification of the custom values in the tracking system could increase the measure savings.	05/31/18	Methodology for this measure changed in 2018 TRM and IC is using this methodology to calculate savings. As of May 2018, IC is also using project-specific efficiency values to calculate savings
BEER	PY6	Provide additional notes in the tracking system for instances where, due to equipme configuration, the quantity field in the tracking database differs from the quantity used for savings estimates	05/31/18	Quantity data for ovens has been updated to be passed in the "Quantity" field. Nicor's rebate processor uses a quantity of 1 for single ovens. A quantity of 2 indicates a double oven
BEER	PY6	Provide documentation of the test conducted (utilizing ASTM Standard F1361 c F2144) to measure custom or actual EffENERGYSTAR heavy load cooking energy efficiency values. Verification of the custom values in the tracking system could increase the measure savings	05/31/18	As of May 2018, IC has updated the savings methodology for fryers to use the actual, collected ENERGY STAR efficiency of the installed equipment as the EFFENERGYSTAR input
BEER	PY6	Provide an additional field in the tracking data with the number of vats per fryer.	07/31/18	Nicor Gas provides the number of vats per fryer in the "number of pans" field.
BEER	PY6	Pipe Insulation: Update the tracking system to ensure all inputs to reproduce the pipe insulation savings calculation are tracked. Indicate when each project and heating system has year-round recirculation, seasonal recirculation, or non-recirculating configuration, and track the associated EFLH values from the TRM. Ensure savings are consistent with building type and climate zone.	12/31/18	System Recirculation is passed on the measures Tab of the PuP in Calculation Method column
BEER	PY6	Pipe Insulation: Correct the ex ante estimates For Pipe Insulation, Indoor HW Spac Heat and DHW using specified TRM savings inputs provided in the tracking system, and do not round input values to avoid rounding differences with verified savings. The thermal regain factor (TRF) for dry cleaner pipe insulation should be the custom value (0.4) used to calculate the savings of 4.351 therms/ln. ft., not 0.7 (the value for space heating).	07/31/18	IC has corrected reporting issues related to EFLH data. IC uses TRF = 0.4 for dry cleaner pipe insulation savings and will continue to do so in 2018. IC has corrected the tracking database accordingly.

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				CLEAResult has provided a table to Navigant with mapping for these variables to the tracking da
BEER	PY6	The thermostat data field mapping to existing data columns of other measures is confusing. To facilitate timely evaluations, Nicor Gas should create separate data fields for programmable thermostats.	12/31/2018	For all programmable thermostat measures, CLEAResult applies the following assumptions: -For Baseline case and Efficient ("Proposed") case - Fan mode during occupied period is Continuous (per TRM, commercial mechanical code requires continuous fan operation during occupied periods to meet ventilation requirements) -Fan mode during unoccupied period: oFor Baseline case – Fan mode during unoccupied period is continuous (Fu = 0) For the Efficient ("Proposed") case - Fan mode during unoccupied period is Intermittent (fan mode set to "auto". Fu = 1)
BEER	PY6	For dry cleaner steam traps, update the tracking system to use the deemed stea loss value of 19.1 b/hr/trap, and the deemed boiler efficiency value to 80.7 percent. Since the deemed value of 2,425 hours is used rather than the tracked custom values, Nicor Gas should indicate or track the deemed valu	09/30/18	Nicor Gas will correct this in the tracking data going forward. IC used 2,425 Hours for savings and passed that same value for dry cleaner steam traps in the Equivalent Full Load Hours Field in the tracking system
BEER	PY6	For commercial (HVAC) steam traps, update the tracking system to use the deeme 80.7 percent boiler efficiency value. It appears the steam traps were not audited, hence the tracking 0.27 Leaking & blow-thru factor should be applied to adjust the savings. The hours of use should be based on deemed values by climate zone. The source of the custom ex ante value of 4,040 hours for all projects was a PY4 savings assumption.	07/31/18	IC has made the adjustments and corrections recommended to the commercial steam traps factors and deemed values used in question
BEER	PY6	Navigant acknowledges Nicor Gas is now including the rated volume in gallons heating equipment in the tracking system to enable calculation of HotWaterUse input for the savings calculation. Navigant recommends that Nicor Gas consider including rated standby loss (Btu/hr) for a more accurate application of inputs to the savings calculation for storage water heaters	12/31/18	Complete, Standby Loss was included in the PUP for 2018 and used for calcs in 2016
SB	PY6	We recommend that Nicor Gas update the tracking system to include a field that provides the data collected on the application form indicating when a heating system has a year-round recirculation, seasonal recirculation or non-recirculation, and track the associated EFLH value provided in the TRM (there is already a field for EFLH)	12/31/18	Nicor Gas confirms location of recirculation type in within data and ensure it is being passed on to evaluators.
SB	PY6	Use the verified per unit savings for DHW WH Pipe Wrap and Pipe Insulation, and Indoor Hot Water DHW, while minimizing rounding errors, and ensuring that results are consistent with the building type and climate zone. For Dry Cleaner Pipe Insulation, correct the thermal regain factor in the tracking system to the custom average value (0.4), to be consistent with the calculation of 4.35 therms/ln	05/31/18	IC has updated the tracking file to reflect the 0.4 average TRF that is used in the savings calculations
SB	PY6	Navigant recommends that the implementation contractor not update savings facto with degradation based on visible observations. The accumulation of a film on a material will likely be similar on the existing and proposed surfaces over time, and th the difference in SHGC values between existing and proposed materials will stay consistent.	05/31/18	Nicor Gas has updated methodology to not update savings factors with degradation based on visible observations
SB	PY6	For custom calculations that use HDDs, Navigant recommends calculating the HDD base temperature using a building-specific base temperature, identified using a grid-search approach such as that described above. Typical base temperatures will range from 50°F to 70°F, though extreme circumstances such as high internal heat gains (e.g., industrial ovens) or overheating (e.g., poorly controlled steam systems in multifamily buildings) may result in base temperatures outside of that range.	05/31/18	Nicor Gas has updated their methods to calculate the HDD base temperature using a building-specific base temperature, identified using a grid-search approach
SB	PY6	Navigant recommends when calculating average therms/day values to calculate baseline and post-install gas usage in a billing analysis, to calculate the average values by dividing the cumulative sum of therms by the cumulative number of days those therms were used. This avoids calculating average baseline and average post-install therm usage using already calculated average therms/day values.	05/31/18	Nicor Gas has updated their methodology to calculate the average values by dividing the cumulative sum of therms by the cumulative number of days those therms were used.
SB	PY6	Navigant recommends that for projects with a savings estimate split over two program years that the implementer indicate a multi-year assessment in the first-year tracking data. The supporting documents for the first year of the project should include a thorough explanation of why the project savings are being analyzed in two steps, the method of initial savings calculation, and what the initial savings were. The supporting documents for the second year should describe the updated method and savings of the final calculation (this was done for NG06-056).	05/31/18	Nicor Gas has updated their methodology so that projects with a savings estimate split over two program years that the implementer indicate a multi-year assessment in the first-year tracking data
Custom	PY6	Navigant recommends avoiding taking the average of other average values. Thes values should be estimated by dividing the sum of the numerators by the sum of the denominators (i.e., a weighted average	08/31/18	This practice is in place. Nicor Gas will estimate averages by dividing the sum of the numerators by the sum of the denominators (i.e., a weighted average).
Custom	PY6	In projects that utilize heating degree-days, Navigant recommends calculating sit specific heating degree-day base temperatures if the usage data is available and of sufficient quality. This will more accurately account for the internal heat gains unique to that facility	12/31/18	Nicor gas will create a process for when questionable climate zones exist. When this occurs, Nicor Gas will discuss ex ante climate zone with navigant to agree on appropriate applied zone. Navigant shares its Zip Code by Climate Zone list with Nicor Gas, Nicor Gas shares with all ICs.
Custom	PY6	Navigant recommends incorporating the heating system efficiency in energy saving calculations.	08/31/18	Nicor gas will work on improving internal peer review and QA/QC processes to catch this type of oversight.
Custom	PY6	Navigant recommends documenting justifications for excluding portions of historical usage and production data from engineering analyse	08/31/18	The engineering team will follow the recently drafted guidelines which states the baseline should include 12-24 months of pre-installation data unless there is justification to devia
Custom	PY6	Navigant recommends that algorithm input values in energy savings calculations t consistent with project documentation. If several different values for the same input are available in the project documentation, provide justification for choosing one over the others.	10/31/18	The program will be more cognizant of providing additional information in special cases like this project moving forward.
IQ	PY6	Navigant recommends the implementation contractor ensure that each project clima zone is accurately tracked to obtain accurate values of heating degree days and gas furnace heating load	1/1/2019	Starting in 2019, projects are automatically assigned climatezones based on zipcodes within Salesforce.
IQ	PY6	Navigant recommends the project documentation include at a minimum: the final application, invoice with relevant equipment information (e.g., manufacturer and moc numbers), calculation file, any pre- and post-inspection documents, and any other documents that may help explain the ex ante savings estimate.	1/1/2019	Starting in 2019, Nicor Gas is capturing the final application, invoice with relevant equipment information (e.g., manufacturer and model numbers), calculation file, any pre- and post-inspection documents, and any other documents that may help explain the ex ante savings estimate.
HES	PY6	Navigant recommends the implementer use unconditioned HDD values if a hom does not have central air conditioning and conditioned HDD values if a home has central air conditionin	1/1/2019	Process and algorithms are reviewed to ensure unconditioned HDD values are used for homes without central air conditioning, and conditioned HDD values for homes with central air conditioning
HES	PY6	Navigant recommends the implementer use unconditioned HDD values if a hom does not have central air conditioning and conditioned HDD values if a home has central air conditionin	1/1/2019	Process and algorithms are reviewed to ensure unconditioned HDD values are used for homes without central air conditioning, and conditioned HDD values for homes with central air conditioning
HES	PY6	For projects with installed insulation R-value above 49, Navigant recommends calculating savings with the actual R-value above 4!	1/1/2019	Process and algorithms are reviewed to ensure projects with installed insulation R-value above 49 reflect savings on actual R-value
HES	PY6	Navigant recommends the implementer ensure that the "Post Install Value" field accurately reflects the R value of pipe insulation installed for each project.	1/1/2019	Savings are reviewed to assure R-value alligns with savings
HES	PY6	Navigant recommends the implementer make the following corrections when calculating savings for thermostats: (1) cap savings of thermostats at one per project for single family homes, (2) use assumptions for the site's correct climate zone, (3) use SF assumptions for residential building types that are designated as SF, and (4) use assumptions for the correct installed thermostat (whether smart or basic programmable thermostat) and baseline thermostat.	1/1/2019	Processes and algorithms are reviewed to ensure: (1) Savings are capped at one thermostat per project (2) Correct climate zones are used (3) SF assumptions are used for building types designated as SF (4) Correct baseline thermostat (manual/programmable) assumptions are used