Nicor Gas Energy Efficiency Program - Plan Year 2019

Quarterly Report: Second Quarter (April 1, 2019 - June 30, 2019)

Response to Evaluators' Recommendations

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Program	PY	Recommendation	Action Completion Date	Action(s) Taken
HEER	PY6	Navigant recommends that savings not be claimed for Verified Quality Maintenance projects that do not result in an increase in efficiency.	12/31/18	Discontinue the HVAC Save program, we are looking for new opportunities for quality maintenance measure.
HEER	PY6	Navigant has proposed that the Residential Gas Boiler measure in the IL TRM be updated to include combination boilers. If accepted, this update would apply to the seventh version of the IL TRM.	12/31/18	Nicor Gas has updated algorithem to align with current TRM.
SEM	PY6	Further evaluation research into the negative savings discussion should be conducted in CY2018 to better understand this issue. Evaluation will consider and work with program leads to research the source of negative savings in CY2018 or CY2019. * To further that research, the NREL Strategic Energy Management (SEM) Evaluation Protocol states "Evaluators should report point estimates of SEM program savings for the reporting period and standard errors or confidence intervals to indicate the program savings uncertainty." The implementer should consider including factors that indicate the level of uncertainty for program savings so that there can be more confidence in final results. These overall program error bands should be discussed internally with the evaluator and the utility to provide confidence in the final claimed savings.	12/31/18	Investigations are ongoing. Program will continue to investigate negative savings on a case-by-case basis and claim any negative savings attributed to SEM actions towards program metrics. Program remains open to discussing factors and confidence interval information regarding program savings (un)certainty.
SB	PY6	Use the TRM deemed savings per linear feet for small pipe insulation, and ensure they are consistent with the building type and climate zone. Otherwise, provide inputs in the tracking database to justify a custom savings calculation.	6/30/2018	Savings for small pipe insulation conform to the savings characterization in Section 4.4.24 in IL TRM v7 for program year 2018
RCx	PY6	Give explicit recommendations for preferred weather datasets. Include weather dataset selection in QC steps for ex ante savings. Add the Rockford weather station to the program calculators.	7/31/2019	The weather data is based on zip code and covers all the zip codes.
RCx	PY6	Where physical adjustments are integral to the measure implementation, e.g., damper adjustment for minimum outdoor air, require physical verification and unambiguous description in the report.	7/31/2019	Physical verification and description have been added to final verification steps.
SEM	2018	The program should justify the removal of any data points in the pre-condition based on site operational changes and not just its impact on the model.	N/A - this is a continuation process with no completion date.	Continue to collaboratively investigate statistical outlier data points with SEM participants.
SEM	2018	The implementer should continue to identify variable values that fall outside of accepted levels and account for them by testing their impact or removing them, as needed. Justification for removal of a data point should be clear and grounded in real-world effects, as much as possible, and not just model inconsistencies. Time periods with outliers in the baseline should be compared to the post condition to identify seasonal effects. If outliers require removal of data points, savings should be adjusted to represent 12 months of savings.	N/A - this is a continuation process with no completion date.	Continue to investigate data points outside of ±10% of the baseline maximum for validity and inclusion/exclusion from the modeled savings. Include the justification for removal of data points in the M&V reports.
SEM	2018	The implementer should investigate potential solutions or ways to quantify the impact of these production changes. These changes could be accounted for using a post-period variable if it was shown to be statistically significant. If a variable does not sufficiently account for this change, the implementer could attempt to collect specific onsite information to directly calculate the impact of these changes.	N/A - this is a continuation process with no completion date.	Continue to investigate trends in the measurment period for non-routine adjustments to the energy model. When applicable, and with confirmation from the facility, statisitcal analysis or measurement of systems will be applied to quantify changes.
SEM	2018	The methods closely follow the guidance of the National Renewable Energy Laboratory's (NREL) Uniform Methods Project (UMP) protocol for SEM, but the program should consider including the level of uncertainty as called out in the UMP.	N/A - this is a continuation process with no completion date.	Continue to investigate negative savings and relative uncertainty on a case-by-case basis and document any negative savings attributed to SEM actions towards program metrics.
SEM	2018	All sudden changes in energy use should be explained in the provided documentation for each site. If the change accounts for a large portion of the claimed energy savings it is especially important to understand what that change was and how it was related to the SEM activates occurring at the site.	4/26/2019	Explain any significant drops in energy intensity during the measurement period.
BEER	2018	Navigant recommends Nicor Gas and CLEAResult track custom inputs when collected, specifically the pan capacity from Combination Oven specification sheets.	6/21/2019	Nicor Gas has modified the tracking database to show that the pan capacity was assumed to be 16
BEER	2018	CLEAResult should review Navigant's recommended water usage values in Table 6 1 in Appendix and update the tracking system. Navigant recommended changing the mapping for the building types assembly, office mid-rise, restaurants and garage space. CLEAResult has indicated they will consider recommended changes in 2018.	6/21/2019	Nicor Gas has modified the measure savings configuration to align with recommended usage values for certain building types
BEER	2018	Navigant recommends that the ex ante per unit savings for Office – Low Rise measures be changed to 14.4 therms.	6/21/2019	Nicor Gas has modified the measure savings configuration so that savings for Office low rise programmable tstats will be 14.4 therms.
BEER	2018	The ex ante custom hours of use for industrial-type steam traps are inconsistent with the claimed savings. Navigant recommends Nicor Gas and CLEAResult review the tracking system inputs and update the ex ante savings assumptions.	7/31/2019	Tracking database was modified to ensure that custom operating hours are populated in the hours field when utilized for savings calculations

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BEER	2018	Review the savings calculations in the tracking system for storage water heaters and ensure the inputs are consistent with the claimed savings.	6/31/2019	Nicor gas has modified the measure savings configuration (from 100 to 110)
Custom	2018	Navigant recommends that corresponding process variables such as temperature and flow rates reflect full-load conditions when full-load hours are used.	1/1/2019	Nicor gas is using process variables such as temperature and flow rates reflect full-load conditions when full-load hours are used.
Custom	2018	In projects that utilize heating degree-days, Navigant recommends calculating site-specific heating degree-day base temperatures if the usage data is available and of sufficient quality. This will more accurately account for unknown factors (e.g., internal heat loads, temperature setpoints) unique to that facility.	1/1/2019	Nicor gas now calculates site-specific heating degree-day base temperatures if the usage data is available and of sufficient quality.
Custom	2018	Navigant recommends the implementer update the boiler burner replacement workbook with additional instruction for the user. Specifically, the boiler size should be clarified as input or output values and turndown should be clarified to refer explicitly to turndown steps or turndown ratios, to avoid confusion.	1/1/2019	Nicor Gas has updated the boiler burner replacement workbook with additional instruction for the user, clarifying as input or output values and turndown steps.
Custom	2018	Navigant recommends the implementer support assumptions and input values with references.	1/1/2019	Nicor gas will support all assumptions and input values with references.
Custom	2018	Navigant recommends the implementer use actual hours of use if metered data is of sufficient quality to do so.	1/1/2019	Nicor Gas is using actual hours of use if metered data is of sufficient quality to do so.
Custom	2018	Navigant recommends using default values from the effective version of the IL TRM.	1/1/2019	Nicor gas is using default values from the effective version of the IL TRM where custom values are not warranted.
Custom	2018	Navigant recommends accounting for equipment loading when heat is being recovered from said equipment.	1/1/2019	Nicor Gas will account for equipment loading when heat is being recovered from said equipment.
Custom	2018	Navigant recommends adjusting thermodynamic and physical properties (e.g., density, heat capacity, etc.) to reflect the installed conditions.	1/1/2019	Nicor Gas will adjusts thermodynamic and physical properties (e.g., density, heat capacity, etc.) to reflect the installed conditions.
SB	2018	Navigant recommends the tracking system be reviewed to ensure it properly tracks the hours of use and efficiency values for calculating savings from salon sprayers.	1/1/2019	Nicor Gas agrees that hours of use per day for Salon Sprayers should be 0.5 and equipment efficiency should be 0.80. These values were used to calculate saving for the measure, however, 0.58 was erroneously entered in the tracking file. Nicor Gas has corrected this error and changed 0.58 to 0.80.
SB	2018	Navigant recommends that the ex ante per unit savings for Office – Low Rise measures be changed to 14.4 therms	6/22/2019	Office Low Rise had been mistakenly assigned the average value after the interim evaluation result. Nicor Gas has changed the value back to 14.4.
SB	2018	Navigant recommends CLEAResult review the savings algorithm and the application of the algorithm used to calculate ex ante savings for storage water heaters and ensure the inputs are consistent with the claimed savings.	6/23/2019	Nicor Gas was able to replicate the verified savings values for these two measures by changing “100” to “110” and had reconfigured savings calculations accordingly.
PHES	2018	The evaluation team suggests consistently providing educational materials to all PHA residents at the time of measure installation. Additionally, some housing authorities have had success holding periodic meetings with their residents to educate them on the upgrades they would receive.	5/1/2019	At customer request, educational flyer was created and disseminated at site receiving wall insulation. Flyer is available for use at future wall insulation projects if requested.
PHES	2018	Provide all variable inputs in accordance with the IL TRM for measures that incorporate custom calculations (i.e., gas furnace, boiler tune-up, refrigerator, room air conditioner, air sealing, attic insulation), to allow for more transparent comparison between ex ante and verified savings.	5/14/2019	For PY-2019 we provided all of the variables used to calculate Ex Ante Gross Savings for all of the applicable measures
HES	2018	Navigant recommends the implementer correct the climate zones of projects installed in the zip codes identified in Table 5-2 to match the Illinois TRM.	5/24/2019	Corrected zip codes mapping
HES	2018	Navigant recommends the implementer investigate the duct sealing calculation inputs and algorithm in the tracking system to determine why the tracking inputs do not produce the verified savings and correct any errors (see Appendix 1 for example verified savings inputs for duct sealing).	5/24/2019	System efficiency updated to 0.7
HES	2018	The program implementer should investigate the tracking savings inputs and algorithm for air sealing to determine how they differ from the verified savings and correct any errors (see Appendix 1 for example verified savings inputs for air sealing).	7/12/2019	Issue with ηHeat resolved.
HES	2018	The program implementer should investigate the tracking savings inputs and algorithms for attic and wall insulation to determine how they differ from the verified savings and correct any errors (see Appendix 1 for example verified savings inputs for attic and wall insulation).	5/24/2019	R-5 no longer double counted in algorithm.
HES	2018	Nicor Gas should track efficiency of heating system (both the nEquipment and ηDistribution efficiency values) or use the 72 percent assumed value allowed by the TRM (v6.0 and v7.0) needed to calculate actual savings for attic and wall insulations. Nicor Gas currently tracks the nEquipment values but not the ηDistribution values.	7/12/2019	Issue with ηHeat resolved.

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HES	2018	The program implementer should investigate the tracking savings inputs and algorithm for basement and sidewall insulation to determine how they differ from the verified savings and correct any errors (see Appendix 1 for example verified savings inputs for basement/sidewall insulation).	7/9/2019	The second +R5 removed from savings equation. TRM deemed value of 0.72 to be used
HES	2018	Navigant recommends the implementer distinguish between domestic hot water pipe insulation and boiler pipe insulation projects in the measure name.	7/19/2019	Pipe type currently passed along in the measure notes column
HES	2018	Navigant recommends the implementer investigate and correct the ex ante savings calculations of the pipe insulation projects highlighted in Table 5-3.	5/24/2019	HW recirculating conditions taken into account in calculations.
HES	2018	Navigant recommends the program claim savings for only one programmable thermostat, one advanced thermostat, or one thermostat education performed per household.	6/11/2019	FES took steps to ensure that savings are only claimed on one thermostat per home. Measures are now split out by the first installed thermostat, for which savings are claimed, and additional thermostats, which have no therm savings. This adjustment ensures thermostat savings are always equivalent to 1 thermostat.
HES	2018	Navigant recommends savings be determined on a project-specific basis and that the Gas_Heating_Consumption value used for each project correspond to that project's climate zone. Navigant recommends the program implementer add quality control steps to ensure the tracking system references the appropriate inputs based on the reported climate zones.	1/1/2019	Corrected zip codes mapping
HES	2018	Navigant recommends the implementer correct the ClimateZone field in the tracking system so it is consistent with the TRM mapping values.	1/1/2019	Corrected zip codes mapping
HES	2018	Navigant recommends that the correct household factor for the residential building types participating in the HES Program be used in ex ante therms savings calculations and that savings be calculated on a project-specific basis for thermostat measures.	7/11/2019	MF household factor removed from calculations where present, with extra layer of QC through RI added
HES	2018	Navigant recommends that the site-specific baseline be used in ex ante therms savings calculations and that savings be calculated on a project-specific basis for advanced thermostat measures, using data fields that exist in the tracking system.	5/24/2019	Site specific consumption tracked
MF	2018	Nicor Gas and the implementation contractor should review the equation and the savings inputs in the tracking system for pipe insulation (indoor HW space heating), to ensure inputs are consistent with the calculated the ex-ante savings.	5/24/2019	HW recirculating conditions taken into account in calculations.
MF	2018	Nicor Gas should update the tracking data to track the appropriate deemed boiler efficiency values for the boiler type and space defined in the tracking database. Nicor Gas should ensure that the space type in the field "EquipmentLocation" of the tracking data corresponds with the Thermal Regain Factor (TRF) used in the ex ante calculations, as per the IL TRM v6.0.	5/24/2019	HW recirculating conditions taken into account in calculations.
MF	2018	Nicor Gas should consider adding a tracking field that specifies the fan mode during the occupied period as part of the tracking data.	1/1/2019	This is noted within the PUP file in "Baseline Number of Preheats per Day" and "Energy Star Preheat Rate" All thermostats are assumed to be intermittment.
MF	2018	Nicor Gas should collect the apartment number information for projects for thermostat measures, to verify that the savings are claimed for just one thermostat per household as required by the TRM.	1/1/2019	*Multiple thermostats per household will not duplicate savings in 2019+.Unit numbers are included in participation data.*
MF	2018	Nicor Gas should be consistent with the savings algorithm and input parameters used to calculate the ex ante savings for all furnace measures.	5/24/2019	Savings algorithm consistently applied to all furnace measures.
MF	2018	Navigant recommends using the savings algorithm and input parameters from the appropriate measure of the IL TRM v6.0 based on the type of equipment installed.	n/a	No actions required - these water heaters slipped through. We do not plan to incentivize tankless water heaters in the near term.
MF	2018	Nicor Gas should provide a note for hard-coded values in the savings calculator. The remaining useful life of the existing boilers should be a tracked parameter to determine the correct baseline for projects. Nicor Gas should ensure the ex ante savings in the tracking data and the project calculator file are consistent.	5/31/2019	Additional custom QC processes added in place; calculators to be included in any custom measures.
IQ - SF	2018	Navigant recommends the implementer review the installed unit and not incentivize units that are less efficient or no more efficient than a baseline unit.	n/a	none
IQ - SF	2018	Navigant recommends the implementer justify the increase of ex ante savings in the Nicor Gas data in comparison to the ComEd data or be consistent with savings across utilities .	7/31/2019	Resource Innovations agrees and will correct this issue and ensure consistency between Nicor Gas and ComEd data sets moving forward.
IQ - SF	2018	Navigant recommends the implementer record pre-install and post-install R values insulation projects consistently across utility data.	7/31/2019	Resource Innovations agrees and will correct this issue and ensure consistency between Nicor Gas and ComEd data sets moving forward.
IQ - MF	2018	Navigant recommends using the Household, EPG_Gas and FPH values valid for the Multi-Family household type for this program.	7/31/2019	Using correct MF values

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IQ - MF	2018	Navigant recommends using the EPG_Gas and ISR values valid for the Multi-Family household type for this program.	7/31/2019	Using correct MF values
IQ - MF	2018	Navigant recommends using the HF value of 0.65 valid for the Multi-Family household type for this program.	7/31/2019	Using correct MF values
HEER	2018	Navigant recommends the implementer review the AFUE values they are using as the post-installation efficiency values and ensure that these are accurate to the AHRI ratings.	7/31/2019	HVAC Save has been suspended, but if the program is restarted, Nicor Gas will consider this approach.
HEER	2018	Nicor Gas should include quality control checks to remove or adjust projects with invalid post-efficiencies.	7/31/2019	HVAC Save has been suspended, but if the program is restarted, Nicor Gas will consider this approach.
HEER	2018	Nicor Gas should review and observe the contractor field procedures for this quality maintenance measure to identify the cause of the significant number of projects recording no efficiency improvement or invalid post-efficiencies.	7/31/2019	HVAC Save has been suspended, but if the program is restarted, Nicor Gas will consider this approach.
HEER	2018	Navigant recommends the implementer ensure the tracking data from the therms purchased from ComEd are reviewed and savings consistent with the TRM climate zone mapping.	7/31/2019	Nicor Gas will continue to use the climate zone of the site address to map to consumption information. Our QC process will continue to check these inputs are accurate.
EEE	2018	The evaluation team recommends tracking carryover savings on an ongoing basis and including carryover savings estimates in the ex ante energy and demand savings.	7/17/2019	Carried over savings applies to lighting only and did not effect Nicor Gas savings
NRNC	2018	The evaluation team recommends that the program continues to ensure that projects consistently follow the approaches in ASHRAE 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.	1/1/2019	As noted, program practices were changed in 2016 to include penalties for WWR in excess of code maximums.
NRNC	2018	Due to the sampling strategy used in CY2018, the evaluation team could not provide separate realization rates by gas utility because of insufficient sample sizes. The team will work with the program implementer in CY2019 to determine if the differences in measures and buildings by service territory warrant updating the sampling strategy to support utility-specific realization rates.	1/1/2019	Since WWR adjustments have already been accounted for in CY2019 and beyond, we do not see need for utility-specific realization rates related to WWR adjustments.
NRNC	2018	The evaluation team recommends the program ensures that, where possible, savings from complementary measures are not double counted.	7/1/2019	Slipstream reviewed calculation tools related to refrigeration and other special equipment to identify possible redundancies. We incorporated code updates and TRM updates into existing quality checks.
AHNC	2018	Exclude gas heating penalties when calculating gas savings. This is consistent with how heating penalties are managed in other areas within the state. Since heating penalties account for 28% of the total ex ante therm savings, including them has a significant impact on the overall program realization rate. Had ex ante savings excluded heating penalties, the gas realization rate would be closer to 102%.	1/1/2019	Project calculation workbooks now include both interactive and non-interactive savings.