**Illinois Energy Efficiency Stakeholder Advisory Group**

**Evaluation Treatment of Heating Penalties and Negative Savings**

**SAG Edits and Comments Received (updated 3/24/2021)**

**Questions Discussed by SAG in 2020:**

1. How should evaluation treat gas heating penalties?
2. How should evaluation treat electric heating penalties?
3. How should evaluation treat projects that result in negative savings due to custom analysis?
4. How should evaluation treat projects that result in negative savings due to actions taken to meet code?

**SAG Process:**

* ***August 2020:***Guidehouse prepared a memo to ComEd regarding heating penalties and negative savings, requesting guidance on eight questions that arose while evaluating ComEd’s 2019 programs. In the memo, Guidehouse describes how the evaluator has historically treated these questions. Guidehouse requested clarification on how to treat these items in the future
  + [Guidehouse Memo to ComEd: Treatment of Negative Electric and Gas Savings by Evaluation (Aug. 4, 2020)](https://ilsag.s3.amazonaws.com/Guidehouse-Negative-Savings-Memo-to-ComEd-2020-08-04.docx)
* ***November 2020:***A small group SAG meeting was held on [November 13](https://www.ilsag.info/event/friday-november-13-small-group-sag-meeting/) to discuss evaluation topics. Due to the number of questions raised in the Guidehouse memo and time constraints due to the SAG Portfolio Planning Process, the discussion focused on four questions in the memo. Other questions raised are anticipated to be addressed in 2021.
  + To follow-up on the November 13 meeting, Guidehouse and Opinion Dynamics drafted proposed resolution for interested parties to review. Evaluators are interested in resolution being documented by the SAG Policy process, and in a future update to the Illinois Energy Efficiency Policy Manual.
  + Proposed Policy Resolution, circulated for review in Nov. 2020: [Heating Penalties and Negative Savings (Policy Resolution)](https://ilsag.s3.amazonaws.com/SAG-Policy-Res-Heating-Penalties-Negative-Savings-11-30.docx)
* ***December 2020:***Comments received by interested SAG participants.
* ***February 2021:***Interested SAG participants are requested to review proposed edits and comments received, and send the SAG Facilitator any additional comments by Friday, March 12.

**Proposed Policy Resolution – Edits in Redline:**

**Background:**

The evaluation teams (Guidehouse and Opinion Dynamics) presented these four questions and the relevant background details.

1. **Gas Penalties:** If gas penalties are added to the gas savings at the portfolio level, there are significant effects on the utility rebate program.
   * For ComEd (electric only), the impact is that it negates all gas savings from the portfolio.[[1]](#footnote-1) As a result, no gas savings would be converted using the language in the FEJA legislation.
   * For Ameren IL (dual fuel), the impact would be to negate a large share of achieved portfolio gas savings,[[2]](#footnote-2) making it more difficult to achieve statutory gas savings goals. It should be noted that Ameren IL is the only dual fuel program administrator in Illinois and therefore the only program administrator subject to this effect.

**Traditional Evaluator Action.** Guidehouse and Opinion Dynamics have not counted gas heating penalties against the utility programs’ gas savings for the purposes of goal attainment and savings conversion. The gas penalties have been accounted for in the Total Resource Cost tests.

1. **Electric Penalties:**

For ComEd and Ameren IL, electric penalties are currently counted against savings at the project-level when the heating system is known to be electric. This scenario is rare because the Illinois TRM instructs users to assume gas heat if unknown.

**Traditional Evaluator Action.** Guidehouse and Opinion Dynamics have typically added electric penalties to the project-level verified savings for the purposes of goal attainment and Total Resource Cost tests.

1. **Negative Savings due to Custom Analysis:**

A common example of this scenario involves the energy management system projects. It is not uncommon (several per year) to find that usage has increased after the installation of an EMS project. This is a prescriptive non-TRM measure for ComEd and a custom measure for Nicor and Peoples and North Shore Gas (PGL-NSG). In either approach, there are limiting factors that affect the analysis:

* + ComEd (prescriptive): the amount of post-installation data available is typically less than 12 months because the project is claimed in the same that it was installed.
  + Nicor and PGL-NSG (custom): the data currently is much less granular, typically monthly interval, compared to ComEd projects which have 30-minute interval AMI data. Additionally, these projects may also have less than 12 months of post-installation data available. In the near future, Nicor and PGL-NSG will also have interval AMI data available, which will improve evaluation of these gas projects.

Combining these limitations with myriad unknown factors like existing HVAC control strategies, changes in occupancy patterns, and changes in internal loads, the evaluation teams recognize that regression analyses in these cases can be imperfect tool.

**Traditional Guidehouse Action.** In these cases, Guidehouse has not counted the negative savings as verified savings, but rather as zero verified savings.

1. **Negative Savings due to Code Compliance:**

Occasionally, scenarios where negative energy savings is a result of the customer becoming compliant with local energy code. These scenarios commonly involve increasing ventilation which increases the energy needed to condition the air (heat or cool) and may also increase the fan energy required to distribute it.

**Traditional Guidehouse Action.** Guidehouse has not counted the negative savings resulting from code compliance as verified savings, but rather as zero verified savings. Guidehouse felt it inappropriate to penalize the program for actions that would benefit the health and safety of the public.

**Final Draft Resolution:**

The preliminary conclusions of these discussion items are provided below.

1. **How should evaluation treat gas heating penalties from efficiency measures designed to save electricity?**

Evaluation should account for gas heating penalties from efficiency measures designed to save electricity where they occur, but the resulting values should only be applied as a TRC test input. The gas heating penalties will not factor into the conversion calculation of gas savings to electric savings, per the FEJA legislation. The gas heating penalties will not factor into an electric utility’s (ComEd) ability to sell gas savings to a gas utility, nor will the gas heating penalties factor into a dual-fuel utility’s (Ameren IL) ability to claim achieved portfolio gas savings against statutory gas savings goals under Section 8-104.

If a project results in both gas savings and a gas heating penalty from efficiency measures designed to save electricity (i.e., customer with gas heat installs a kitchen hood DCV control and upgrades lighting), the gas penalty is ignored when calculating the project’s verified savings.

1. **How should evaluation treat electric heating penalties from efficiency measures designed to save electricity?**

Evaluation should account for electric heating penalties from efficiency measures designed to save electricity where they occur, and the resulting values should be included when calculating verified savings (i.e., penalty + savings = verified savings).

Note: Evaluation should account for gas heating penalties or negative gas savings from efficiency measures designed to save gas where they occur, and the resulting values should be included when calculating verified savings (i.e., penalty + savings = verified savings).

1. **How should evaluation treat projects that result in negative savings due to custom analysis?**

If evaluation is not confident in the precision of a custom analysis and the result is negative, it is at the evaluator’s discretion to verify a negative result, or in the event the negative result cannot be verified, to cap the savings at a value of zero. However, if evaluation has sufficient confidence in a custom analysis and the result is a negative savings value, the verified savings should be the negative savings value. An exception to this approach, depends on whether the negative savings is a result of code compliance. This exception is described in response to question 4.

To provide sufficient evaluation confidence in the analysis conducted, evaluators will delay assigning savings values for projects that are identified as having negative savings based on initial analysis until it accumulates 12 months of usage data to increase post-installation data quantity. This will also allow the program to help the customer achieve the expected savings, through follow-up communication and remedial actions. This practice may result in project savings being claimed in years that are different from their installation year.[[3]](#footnote-3)

1. **How should evaluation treat projects that result in negative savings due to actions taken to meet code?**

If evaluation determines that the cause of the negative savings is due to the customer achieving code compliance (i.e., repairing outside air dampers that were stuck closed, increasing minimum outside air requirements), then evaluation should attempt to use code compliant conditions as the baseline. If that approach is prohibitively difficult to apply, evaluation should cap the savings at a value of zero.

**SAG Comments Received – updated March 2021:**

| **Evaluation Treatment of Heating Penalties and Negative Savings** | |
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| **SAG**  **Participant** | **Comments** |
| Ameren Illinois | **Q1: How should evaluation treat gas heating penalties from efficiency measures designed to save electricity?**  Ameren believes that all heating penalties should be calculated and counted in cost-effectiveness analysis per current evaluation practice. Ameren does not believe that gas heating penalties from efficiency measures should be counted against gas savings goals, also consistent with current evaluation practice.  With regard to measures for gas savings, if a measure is primarily for gas savings but has a small electric penalty, the electric penalty should not count against the electric goals (but the electric penalty should be used in cost-effectiveness analysis). For example: a High Temperature Heating and Ventilation (HTHV) system is mainly installed to save natural gas but due to the high pressure motors that supply the air there is a small electric penalty for the increased fan use. In this example, the electric penalty should not count versus the electric savings goal.  **Q2: How should evaluation treat electric heating penalties from efficiency measures designed to save electricity?**  Ameren agrees that counting electric heating penalties toward savings goals is acceptable if the measure producing those penalties produces electric savings, but agrees with current TRM practice to only calculate these effects if a customer can be verified to have electric space heating.  **Q3: How should evaluation treat projects that result in negative savings due to custom analysis?**  Ameren is supportive of the recommendation relative to negative savings due to custom analysis. If evaluation is not confident in the precision of a custom analysis and the result is negative, it is at the evaluator’s discretion to verify a negative result, or in the event the negative result cannot be verified, to cap the savings at a value of zero. However, if evaluation has sufficient confidence in a custom analysis and the result is a negative savings value, the verified savings should be the negative savings value.  To provide sufficient evaluation confidence in the analysis conducted, evaluators will delay assigning savings values for projects that are identified as having negative savings based on initial analysis until it accumulates 12 months of usage data to increase post-installation data quantity. This will also allow the program to help the customer achieve the expected savings, through follow-up communication and remedial actions. This practice may result in project savings being claimed in years that are different from their installation year.  **Q4: How should evaluation treat projects that result in negative savings due to actions taken to meet code?**  Ameren is supportive of the treatment suggested for negative savings due to action taken to meet code, though this situation has not been experienced by Ameren's independent evaluator. |
| ComEd | It is our understanding that the SAG discussion of these issues resulted in no changes to policy or to how evaluation should treat negative savings – 1) count all negative savings in the TRC 2) only count kWh (not therm) negative savings where the customer is known to have electric space heating, and 3) for projects that appear to have negative savings where the evaluator is unable to separate out multiple effects (Custom and Code Compliance examples), the savings will be set to zero. We do want to emphasize that evaluators should adjust savings only where the data shows a customer has electric space heat. |
| Peoples Gas &  North Shore Gas | Peoples Gas and North Shore Gas agree with the policy resolution proposed by the evaluators, as edited by Nicor Gas. |
| Natural Resources Defense Council | • Gas heating penalties should be included in cost-effectiveness calcs but should not be counted as negatives relative to electric utility goals as that undermines the statutory purpose for allowing electric utilities to count gas savings from measures or programs or participants with dual fuel savings that are not co-funded by gas utilities. The one exception may be for whole building or other multi-measure approaches that estimate the net impacts of multiple measures – e.g. a new construction project – from an integrated approach to design and delivery. • Electric heating penalties – and cooling bonuses – should continue to be calculated as today. • Negative custom savings. Project savings should not be added to a utility tracking system until the project is fully commissioned. As we understand it, that will address many of the cases in which this comes up. For other circumstances, NRDC is comfortable with the evaluator proposal to treat savings as negative if they believe there are sufficient data to support such a conclusion. If not, treat as zero. • Negative savings due to code compliance. In cases in which code compliance leads to zero savings NRDC believes the baseline should be revised to reflect the code. That should either result in zero savings or even positive savings (e.g. if a ventilation system is required, but the system installed is more efficient than the standard option). |
| Nicor Gas | Nicor Gas agrees with approach outlined by the evaluators.  Nicor Gas proposes four edits to clarify: 1. That gas utilities will also have AMI data available in the near future 2. That evaluators should take into consideration the impacts of changing baseline conditions before assigning negative savings 3. That language on code changes are in “Section D” rather than “the next bullet” (The bullet language is confusing because there are no bullets.) 4. The language around the extension of data collection to a full 12 months, i.e., changing questions raised in the draft into actual policy directives. |

1. In CY2019, ComEd generated 7,612,287 therms (gross) of savings and converted 3,761,357 (gross). During the same period, ComEd generated gas penalties of 20,596,383 therms (gross). [↑](#footnote-ref-1)
2. In 2019, Ameren IL generated 5,676,341 therms (gross) of savings. During the same period, Ameren IL generated gas penalties of 4,257,255 therms (gross). [↑](#footnote-ref-2)
3. This refers to an EMS installed in 2020 not being claimed until 2021 when sufficient data has accumulated, and any commissioning issues have been addressed. [↑](#footnote-ref-3)