



# Memorandum

**To:** Nick Warnecke, AIC; Nida Khan, CAMI Energy; Seth Craigo-Snell, SCS Analytics; and Elizabeth Horne, ICC Staff  
**From:** The Opinion Dynamics Evaluation Team  
**Date:** September 15, 2023  
**Re:** AIC 2023 Business Midstream Initiative – HVAC Channel Net-to-Gross Research

---

## Introduction and Key Findings

As part of the 2023 evaluation of the Ameren Illinois Company (AIC) Business Midstream Initiative – HVAC Channel (referred to throughout this memo as “the Business Midstream HVAC offering”), Opinion Dynamics conducted research with distributors and contractors participating in the offering to update the net-to-gross ratios (NTGRs) for heating, ventilation, and air conditioning (HVAC), advanced thermostats, and heat pump water heater (HPWH) equipment for application in 2024. AIC’s midstream offerings target both residential and nonresidential customers and are closely coordinated. Given the overlap in engaged market actors across sectors, Opinion Dynamics conducted distributor and contractor research jointly for the two offerings; however, the results in this memo are specific to the Business Midstream HVAC offering.

The evaluation team used net-to-gross (NTG) methodology as prescribed in a working version of the Illinois Technical Reference Manual (TRM) Attachment A (Illinois Statewide Net-to-Gross Methodologies) dated April 27, 2023, modified with a set of deviations approved by the Illinois Stakeholder Advisory Group (SAG).<sup>1</sup> Specifically, we used the IL-TRM’s Midstream Free-Ridership (FR) Protocol.<sup>2</sup> Per this protocol, FR in midstream offerings may be calculated using distributor, intermediary (contractor or installer), and/or end-use customer research based on the offering design, contractor or installer involvement/influence, end-use customer awareness, and constraints for conducting high-quality research. The NTGR estimates presented in this memo include FR assessed from the distributor and contractor perspective but do not include the participant (end-use customer) perspective on FR or an assessment of spillover (SO). We discuss this research decision in greater depth in the Midstream Free Ridership Protocol section of this memo.

## Summary of NTG Results

The resulting FR score for the Business Midstream HVAC offering from the distributor research effort was 0.73 (NTGR of 0.27); the FR score from the contractor research effort was 0.57 (NTGR of 0.43). The evaluation team triangulated results from these two research efforts based on several considerations, detailed in this document, to estimate overall FR for the offering. The final FR score for the Business Midstream HVAC offering was 0.65 (NTGR of 0.35). Table 1 summarizes the results of our NTG analysis.

---

<sup>1</sup> <https://www.ilsag.info/wp-content/uploads/AIC-Midstream-NTG-Deviation-Memo-2023-08-21.docx>

<sup>2</sup> IL-TRM working version dated April 27, 2023 - Attachment A: Illinois Statewide Net-to-Gross Methodologies, Section 5.4: Midstream Free-Ridership Protocol.

Table 1. Research Specific and Overall NTG Results for the Business Midstream HVAC Offering

Research	FR	SO	NTGR (1 - FR)
Distributors	0.73	Not researched	0.27
Contractor	0.57	Not researched	0.43
<b>Overall</b>	<b>0.65</b>	<b>Not researched</b>	<b>0.35</b>

## Data Collection and Sampling Methodology

### Distributor Research

We conducted phone interviews, performed by a trained evaluation analyst, with distributors in Q3 2023. Given the large number of distributors who participated in both the Business and Residential versions of the offering, distributor research was condensed into a single effort, rather than two sector-specific research tasks. We attempted a census sampling approach based on a population of 18 distributors who participated in the Business Midstream HVAC offering between January 1, 2022 and May 15, 2023 according to tracking data.<sup>3</sup> We created the sample in June 2023 and outreach started in late July 2023 continuing through early September 2023. Distributors received an initial scheduling email and three follow-up emails (two from Opinion Dynamics and one from Leidos—the offering’s implementer). We conducted additional phone outreach as needed. The final completed interviews included 7 distributors for a yield of 39%.

The evaluation team monitored interview completion from a savings perspective. Table 2 summarizes the business MMBtu<sup>4</sup> savings captured by interviewed distributors overall and by measure.

Table 2. Business Distributor Interview Sample and MMBtu Coverage Summary

Measure <sup>a</sup>	Sample Count	Sample MMBtu Savings	Interviewed Count	Interviewed MMBtu Savings	Percent Coverage Count	Percent Coverage MMBtu Savings
Small HVAC	12	184	5	98	42%	53%
Large HVAC	1	21	0	0	0%	0%
Advanced Thermostats	12	5,638	5	508	42%	9%
HPWH	2	34	0	0	0%	0%
<b>Overall</b>	<b>18</b>	<b>5,876</b>	<b>7</b>	<b>605</b>	<b>37%</b>	<b>10%</b>

Note: Measure-specific values in this table do not sum to associated totals because many distributors offered multiple types of measures.

<sup>a</sup> One sale of notched V-belts was recorded in the tracking data used for this research effort but was not studied as part of this analysis.

### Contractor Research

The evaluation team fielded a web survey with contractors in Q3 2023. Given the large number of contractors who participated in both the Business and Residential versions of the offering, contractor research was condensed into a single effort, rather than two sector-specific research tasks. We attempted a census sampling approach based on a population of 32 contractors who participated in the Business Midstream HVAC offering between Jan 1, 2022 and May

<sup>3</sup> The full distributor sample included 34 distributors: 17 Residential and Business participants, 16 Residential participants only, 1 Business participant only.

<sup>4</sup> Million British thermal units (Btu). We present savings in MMBtus to account for electric and gas impacts together.

15, 2023.<sup>5</sup> Due to the nature of the Midstream offering, AIC does not directly track contractors associated with each project. Instead, AIC maintains lists of active commercial and residential contractors who are likely to be engaged with the offering. We chose to use these lists as the source for our sample. AIC provided these lists of contractors in June 2023 and outreach started in late July 2023 continuing through early September 2023. Contractors received an initial survey invitation email and four follow-up emails. The final completed surveys included 4 contractors: 4 cross-sector and 5 residential only, for a yield of 12.5%. The commercial/cross-sector specific contractor response rate was 13%. The evaluation team did not have data available on savings associated with contractors, so we were not able to estimate coverage in terms of savings for this effort.

## Midstream Free Ridership Protocol

The IL-TRM Midstream FR Protocol directs evaluators to estimate FR for midstream offerings based on research with distributors, intermediaries (contractors or installers), and/or end-use customers dependent on the offering design, contractor or installer involvement/influence, end-use customer awareness, and constraints for conducting high-quality research. The NTGR estimates presented in this memo include FR assessed from the distributor and contractor perspective but do not include the participant (end-use customer) perspective on FR or an assessment of spillover (SO).

The evaluation team determined assessments of distributors' and contractors' perspectives on FR were critical to assessing attribution for the offering based on multiple factors. The offering's design includes significant direct interactions with and attempts to influence the behavior of distributors. On the other hand, the potential effect on distributor behaviors and the monetary incentive available through the offering have the potential to influence the jobs undertaken by participating contractors. End-use customers typically rely heavily on contractors' recommendations to inform their choice of equipment available through the offering (e.g., HVAC, HPWH, etc.). Given this, we expected contractors could speak better to the influence of the offering than end-use customers.

The evaluation team decided not to explore SO as part of the distributor and contractor research efforts. One of the main reasons for this decision was that the study of market effects from distributors and contractors in the residential sector was a priority for the Residential Midstream HVAC evaluation. As such, SO was not originally planned as part of the research efforts on the residential side. Given the amount of overlap within the distributor and contractor populations across the residential and business sectors, and considering the combined data collection activities, the evaluation team believed that adding a spillover battery of questions specific to the business sector would be too complicated and create issues among respondents when trying to disaggregate their thought process and responses between market effects on the residential side and SO on the business side. Additionally, in the case of contractors specifically, the evaluation team did not have sales/projects data to support calculation of SO.

## Free Ridership Algorithm

The evaluation team used NTG methodology as prescribed in a working version of the TRM Attachment A (Illinois Statewide Net-to-Gross Methodologies) dated April 27, 2023, modified with a set of deviations approved by the Illinois SAG.<sup>6</sup> This methodology calculates FR as the average of two FR sub-scores (Program Influence FR Score and Counterfactual FR Score). These scores are calculated based on two items: overall program influence and a percentage-based counterfactual. These items gauge the relative influence of the offering and likelihood of comparable outcomes

---

<sup>5</sup> The full contractor sample included 36 contractors: 30 Residential and Business participants, 4 Residential participants only, 2 Business participant only.

<sup>6</sup> <https://www.ilsag.info/wp-content/uploads/AIC-Midstream-NTG-Deviation-Memo-2023-08-21.docx>

in the offering's absence. Additional detail on the two sub-scores and how they are calculated is provided for the distributor and contractor research efforts in Appendix A. Distributor FR Sub-Scores and

Appendix B. Contractor FR Sub-Scores respectively.

## Distributor Free Ridership Algorithm

Given distributors' sales tactics and the offering's influence on sales likely vary by measure type, the evaluation team determined that the offering's design warranted calculating measure-specific FR scores across the following measure categories:

- (1) small/residential-sized HVAC < 65 kBtu – SMHVAC
- (2) large/commercial sized HVAC > 65 kBtu – LGHVAC
- (3) advanced thermostats - ADVTHERM
- (4) heat pump water heaters - HPWH

The evaluation team decided that, given the same measures are incentivized through both the Business and Residential Midstream HVAC offerings—except for HVAC units larger than 65 kBtu— asking distributors to respond to sector-specific questions was unnecessary as variation within each distributor was likely more meaningful by measure type than by sector. Additionally, distributors may not be able to disaggregate sales to residential vs. business end-users.

The evaluation team applied the FR algorithm to calculate measure-specific FR scores for each distributor as the average of (1) the measure-specific Program Influence FR Score, and (2) the measure-specific Counterfactual FR Score:

Equation 1. Measure-Specific Distributor FR Scores

$$FR_{Mid.Dist_{SMHVAC}} = Mean(Program\ Influence\ FR\ Score_{Mid.Dist_{SMHVAC}}, Counterfactual\ FR\ Score_{Mid.Dist_{SMHVAC}})$$

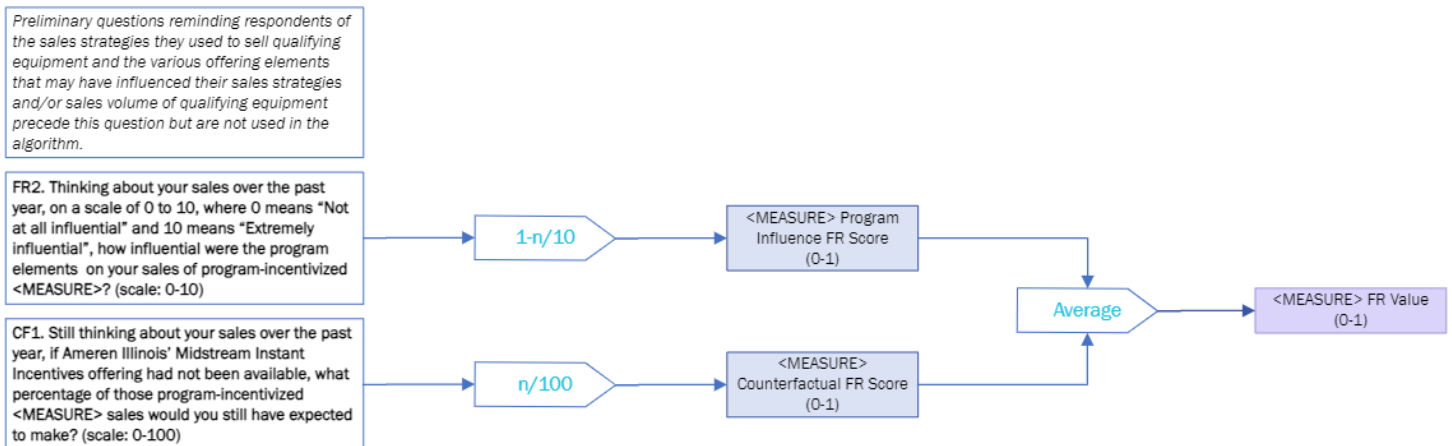
$$FR_{Mid.Dist_{LGHVAC}} = Mean(Program\ Influence\ FR\ Score_{Mid.Dist_{LGHVAC}}, Counterfactual\ FR\ Score_{Mid.Dist_{LGHVAC}})$$

$$FR_{Mid.Dist_{ADVTHERM}} = Mean(Program\ Influence\ FR\ Score_{Mid.Dist_{ADVTHERM}}, Counterfactual\ FR\ Score_{Mid.Dist_{ADVTHERM}})$$

$$FR_{Mid.Dist_{HPWH}} = Mean(Program\ Influence\ FR\ Score_{Mid.Dist_{HPWH}}, Counterfactual\ FR\ Score_{Mid.Dist_{HPWH}})$$

For each distributors' individual measures, the evaluation team averaged the two elements to assess the degree of FR on a scale of 0 to 1, where 0 means the respondent is a non-free rider and 1 means the distributor is a full free rider. The distributor FR algorithm is graphically depicted in Figure 1 below.

Figure 1. Distributor Free Ridership Algorithm



To obtain measure-specific FR scores for the offering overall, the evaluation team weighted distributors' measure-specific FR scores by their business ex ante gross MMBtu savings relative to the total business ex ante gross MMBtu savings for that measure across the entire interviewed sample and then calculated a weighted average.

Next, the evaluation team weighted the measure-specific FR scores for the offering overall by the proportion of business ex ante gross MMBtu savings the measure accounted for across the entire population of distributors (interviewed and non-interviewed) to compute the overall offering level FR score.<sup>7</sup> The vast majority of business MMBtu savings came from advanced thermostats (97%), with only 3% of MMBtu savings attributed to small HVAC.

The final offering level distributor NTGR was equal to  $1 - \text{Offering Level Distributor FR Score}$ .

## Contractor Free Ridership Algorithm

The IL-TRM does not give guidance specific to midstream FR research with intermediaries like contractors and installers. The evaluation team determined that the general methodology used to calculate distributor FR was also appropriate for contractors. Unlike in distributor research, the evaluation team determined that asking measure-specific FR questions was not feasible given the lack of data detailing the types of measures contractors installed through the offering. Conversely, the evaluation team decided that measuring FR separately for the Business and Residential Midstream HVAC offerings was warranted given that, unlike distributors, contractors may be able to disaggregate the influence of the offering on their number of high efficiency jobs by sector.

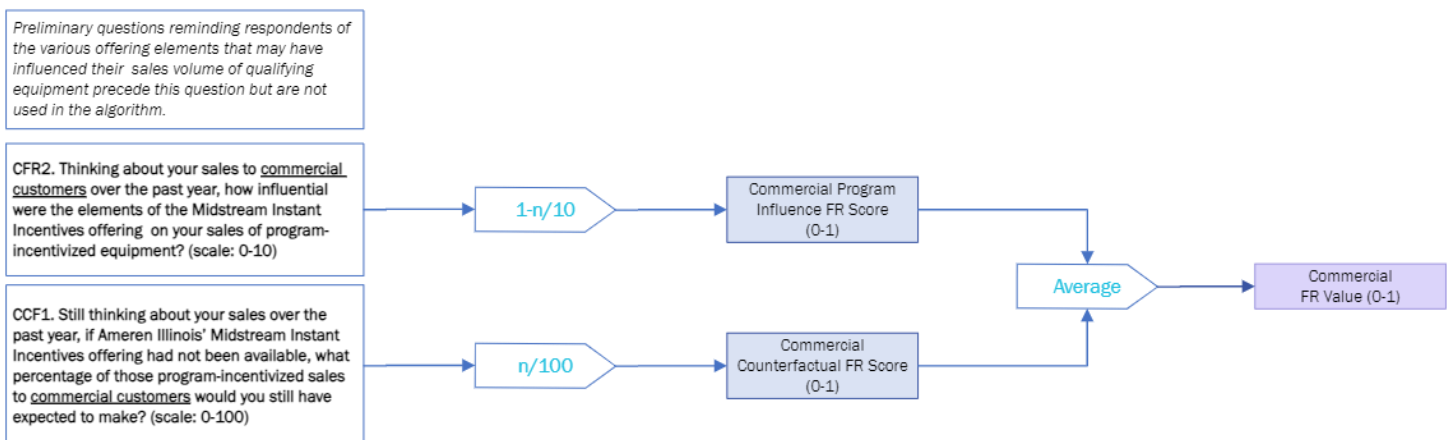
A single FR score was calculated for each contractor as the average of two elements: (1) the Program Influence FR Score, and (2) the Counterfactual FR Score:

Equation 2. Contractor FR Score

$$FR_{Mid.Cont} = \text{Mean}(\text{Program Influence FR Score}_{Mid.Cont}, \text{Counterfactual FR Score}_{Mid.Cont})$$

The evaluation team averaged the two elements to assess the degree of FR on a scale of 0 to 1, where 0 means the contractor is a non-free rider and 1 means the contractor is a full free rider. The contractor FR algorithm is graphically depicted in Figure 2 below.

Figure 2. Contractor Free Ridership Algorithm



<sup>7</sup> Given measure-specific FR scores were not calculated for large HVAC and heat pump water heaters, MMBtu savings for these measures were excluded when calculating this weighting scheme.

The evaluation team calculated the offering level contractor FR score as the average of contractors' individual FR scores.

The NTGR was then equal to  $1 - \text{Offering Level Contractor FR Value}$ .

## Triangulation of Distributor and Contractor Free Ridership Scores

In alignment with the IL-TRM, the evaluation team combined results from the distributor and contractor research to arrive at a final FR score and NTGR for the Business Midstream HVAC offering. The evaluation team weighted results from each research effort based on a range of considerations in accordance with IL-TRM guidance. To develop these weights, the evaluation team identified five key considerations, detailed below in Table 3.

Table 3. Business Midstream HVAC Offering Distributor and Contractor FR Score Triangulation

Consideration	Scale	Notes	Distributor Research	Contractor Research	Importance Score
How was the sample created and what implications does the quality of the sample have on the execution of the research and analysis of results?	0 (Low Quality) - 10 (High Quality)	<p><b>Sampling</b>  <i>Distributor Sample:</i> Drawn from tracking data covering January 2022 through May 2023. Includes all participating distributors in that timeframe as well as the quantity of equipment sold and the associated energy savings.  <i>Contractor Sample:</i> Drawn from contact lists sent by AIC. Only includes contractors registered as program allies, does not include contractors who participated in the program without becoming an ally. Multiple contractors confirmed a different sector than contact lists suggested.</p> <p><b>Larger Implications</b>  <i>Distributor Research:</i> Having measure quantities and savings allowed the evaluation team to weight measure level scores by distributors' measure-specific MMBtu savings and weight the overall score by the measures' full sample MMBtu savings.  <i>Contractor Research:</i> Given there was not tracking data specific to contractors, the evaluation team had little to no information to understand the population/contextualize results.</p>	10	3	High
Which population is closer to the point of program influence in terms of distance	0 (Far) - 10 (Close)	<p><i>Distributors:</i> Distributors have little direct engagement with end-users. The only direct touchpoints distributors have</p>	4	8	High

from decision-makers?		with end-users are in the form of any end-user facing marketing/outreach they do about qualifying units/the available incentive. <i>Contractors:</i> Contractors are directly interfacing with end-users and influencing/guiding their purchasing decisions.			
Where is there the potential for bias given the program structure and data collection approach?	0 (High Chance of Bias) - 10 (Low Chance of Bias)	<i>Distributors:</i> Given the interview was fielded by a trained analyst and questions were read aloud (with follow-ups where needed) it is possible that some bias could have been introduced (in contrast to the contractor survey which was a web survey and therefore did not have this possibility). The interview instrument did not include any process-related satisfaction questions; however, distributors brought up process-related concerns unprompted. <i>Contractors:</i> The contractor survey included a battery of offering satisfaction questions; however, they were at the end of the survey after influence scores were already collected.	4	7	Medium
What is the level of granularity of the scores given the data collection and analysis approach?	0 (Low Granularity) - 10 (High Granularity)	<i>Distributors:</i> Scores were asked at the measure level. Distributors' responses suggest there were notable differences in program influence by measure with, in general, advanced thermostat sales being the least influenced and HPWH sales being the most influenced. Scores were not asked at the sector level. Distributor's responses to qualitative questions about differences in sales strategies and sales volume by sector suggest there may be some sector-level differences within individual measures that were not captured in scoring. <i>Contractors:</i> Due to the lack of tracking data for contractors, scores were asked at the sector level rather than the measure level. The evaluation team hypothesized contractors would be better able to disaggregate influence by	8	6	Low



		sector than distributors. The results suggested differences in influence by sector overall, with influence being higher in the residential sector than the business sector; however, nuances by measure could not be captured.			
How representative are those interviewed of the larger population?	0 (Low) - 10 (High)	<p><i>Distributor Research:</i> Tracking data allowed the evaluation team to assess the proportion of overall MMBtu savings captured in interviews and the distribution of measure types across distributors. The interviewed business distributors only accounted for 10% of total MMBtu savings, the distribution of interviewed savings across measures is not closely comparable to the distribution across the entire population and two of the four measures (albeit measures that do not account for significant MMBtu savings) were not captured by the interviews.</p> <p><i>Contractor Research:</i> Given the uncertainty as to whether the sample includes all recent participating contractors and the lack of tracking data for contractors, the representativeness of the interviewed population could not be assessed.</p>	3	NA	High

We assigned each consideration an Importance Score of “Low”, “Medium”, or “High” based on its value to the overall quality of the research relative to the other considerations. These Importance Scores translated into the following weights: “High” – 1, “Medium” – 0.66, “Low” – 0.33. For each consideration, the evaluation team rated the distributor and contractor research on the relevant 0 to 10 scale. The evaluation team calculated the final distributor and contractor triangulation weights by calculating the weighted average score for each research effort and dividing each by the sum of the weighted averages. The resulting triangulation weights amounted to 0.49 for the distributor research and 0.51 for the contractor research.

## Detailed NTG Results

### Distributor NTG Results

Table 4 below summarizes the measure-specific FR scores for the offering overall after weighting distributors’ measure-specific FR scores by their business MMBtu savings relative to the total business MMBtu savings for that measure across the interviewed sample and then calculating a weighted average.

Table 4. Business Midstream HVAC Offering Measure-Specific Results from Distributor Research (2023)

Measure	FR	SO	NTG (1-FR)
Small HVAC (residential-sized; <65 kBtu)	0.65	Not researched	0.35
Large HVAC (commercial-sized; >65 kBtu)*	NA	Not researched	NA
Advanced Thermostats	0.73	Not researched	0.27
Heat Pump Water Heaters*	NA	Not researched	NA

\*In the full sample, there were business MMBtu savings associated with large HVAC and heat pump water heater equipment. However, no distributors with large/commercial-sized HVAC or heat pump water heater records were interviewed. As such, weighted FR scores could not be calculated for those measures.

After weighting the measure-specific FR scores for the offering overall by the proportion of business MMBtu savings each measure accounted for across the entire population of distributors, the resulting FR score for the Business Midstream HVAC offering from the distributor research effort was **0.73** (NTGR of **0.27**).

## Contractor NTG Results

The resulting FR score for the Business Midstream HVAC offering from the contractor research effort was **0.57** (NTGR of **0.43**).

## Overall NTG Results

The evaluation team applied the triangulation weights to the FR scores for the offering overall from each research effort to calculate a weighted average representing the overall FR score for the offering. The final FR score for the Business Midstream HVAC offering was **0.65** (NTGR of **0.35**). (See Table 5)

Table 5. Research Specific and Overall NTG Results for Business Midstream HVAC Offering

Research	FR	SO	NTG (1 - FR)
Distributors	0.73	Not researched	0.27
Contractor	0.57	Not researched	0.43
<b>Overall</b>	<b>0.65</b>	<b>Not researched</b>	<b>0.35</b>

## Appendix A. Distributor FR Sub-Scores

The following sections go into detail as to how phone interviews captured distributor FR sub-scores (including extracts from the interview guide) and any adjustments that were made to sub-scores due to inconsistencies in responses.

### Sales Strategies

In the first section of the interview, the interviewer read the distributor a list of sales strategies they may or may not have used to sell qualifying equipment. This list identified the sales strategies that the Midstream HVAC offering seeks to promote among its participating distributors and was developed based on the offering program theory logic model (PTLM). Distributors were also asked to think of any other not listed strategies they could have used to sell qualifying equipment. Distributors that sold more than one type of measure were asked to identify if their sales strategies varied by measure type. This list and its associated follow-ups were used to prime distributors to think about the various sales strategies they employed to promote qualifying equipment by measure type and prepared them for a mention of such strategies in FR2, CF1, CC1, CC2, CC3, and CC4.

SS1. I am going to read a list of sales strategies you may have used to sell program-qualified equipment in the past year. After each, please indicate if your company has or has not used that strategy to sell program-qualified equipment in the past year. [RANDOMIZE LIST]

- a. Upsold your customers (contractors/installers/design professionals) to purchase program-qualified units
- b. Conducted training workshops for your customers (contractors/installers/design professionals)
- c. Increased marketing of program-qualified units
- d. Reduced the prices of program-qualified units via the base incentive, also known as the pass-through incentive
- e. Reduced the prices of (or otherwise promoted) program-qualified units via the pay-for-performance incentive, provided for use at distributors' discretion
- f. Increased the stocking or assortment of program-qualified units
- g. Discussed the benefits of program-qualified units with your customers (contractors/installers/design professionals)
  1. Yes
  2. No

SS1a. Are there any other sales strategies your company used in the past year to sell program-qualified equipment that I did not list?

1. Yes, please specify: [OPEN-ENDED RESPONSE]
2. No

[ASK IF COUNT\_MEASURES>1]

SS2. Our records indicate that, in the past year or so, you sold the following types of equipment through Ameren Illinois' Midstream Instant Incentives offering:

- [SHOW IF SM\_HVAC\_QTY>0] HVAC units smaller than 65 kBtu (i.e., residential sized)
- [SHOW IF LG\_HVAC\_QTY>0] HVAC units larger than 65 kBtu (i.e., commercial sized)
- [SHOW IF ADVTHERM\_QTY>0] Advanced thermostats
- [SHOW IF HPWH\_QTY>0] Heat pump water heaters

SS3. Did the sales strategies you used to sell program-qualified equipment vary at all by the type of equipment you were selling? If so, how?

1. Yes, please specify: [OPEN-ENDED RESPONSE]
2. No

## Program Influence FR Score

Following the discussion of sales strategies, the interviewer read the distributor a list of elements of the Midstream HVAC offering that may or may not have influenced their sales strategies for and sales volume of qualifying equipment. This list identified the key elements the offering staff employed to influence distributor behavior and was developed based on the PTLM. Distributors were also asked to think of any other elements of the offering that influenced their sales strategies or sales volume of qualifying equipment. This list and its associated follow-up were used to prime distributors to think about the various elements of their participation that may have influenced their sales strategies or sales volume and prepared them for the mention of such influence in FR2, CF1, CC1, CC2, CC3, and CC4.

There are a number of elements of Ameren Illinois' Midstream Instant Incentives offering that might have influenced your company's sales strategies and sales volume of high-efficiency equipment within the past year. These elements include:

- Incentives from Ameren Illinois to help distributors increase sales and/or reduce final prices for end customers, including:
  - Base incentives that are passed through to customers (i.e., pass-through incentives)
  - Pay-for-performance incentives provided for use at distributors' discretion
- Marketing and promotional tools, materials, and trainings provided by Ameren Illinois
- Increases in marketing by Ameren Illinois directly to contractors/installers and/or end-users
- Distributor roundtables hosted by Ameren Illinois
- Contractors/installers receiving support and training from Ameren Illinois

FR1. Are there any other elements of the Midstream Instant Incentives offering that influenced your sales strategies or sales volume of high efficiency equipment in the past year?

1. Yes, please specify: [OPEN-ENDED RESPONSE]
2. No

The measure-specific Program Influence FR Scores were assessed by asking respondents about the influence of all the applicable offering elements on their sales of incentivized equipment.

FR2. Thinking about your sales over the past year, on a scale of 0 to 10, where 0 means "Not at all influential" and 10 means "Extremely influential", how influential were the program elements I listed [IF FR1=1, "and any other program elements you provided"] on **your sales** of program-incentivized <POPULAR\_EQUIP>?

[If multiple equipment types, follow-up with:]

How influential was the Midstream Instant Incentives offering on **your sales** of program-incentivized:

- a. [ASK IF SM\_HVAC\_QTY>0] HVAC units smaller than 65 kBtu (i.e., residential sized)
- b. [ASK IF LG\_HVAC\_QTY>0] HVAC units larger than 65 kBtu (i.e., commercial sized)
- c. [ASK IF ADVTHERM\_QTY>0] Advanced thermostats
- d. [ASK IF HPWH\_QTY>0] Heat pump water heaters

Measure-specific Program Influence FR Scores were then computed for each distributor as:

Equation 3. Measure-Specific Distributor Program Influence FR Scores

$$\text{Program Influence FR Score}_{Mid.Dist_{SMHVAC}} = 1 - \left( \frac{FR2a_{Mid.Dist_{SMHVAC}}}{10} \right)$$

$$\text{Program Influence FR Score}_{Mid.Dist_{LGHVAC}} = 1 - \left( \frac{FR2b_{Mid.Dist_{LGHVAC}}}{10} \right)$$

$$\text{Program Influence FR Score}_{Mid.Dist_{ADVTHERM}} = 1 - \left( \frac{FR2c_{Mid.Dist_{ADVTHERM}}}{10} \right)$$

$$\text{Program Influence FR Score}_{\text{Mid.Dist}_{\text{HPWH}}} = 1 - \left( \frac{\text{FR2d}_{\text{Mid.Dist}_{\text{HPWH}}}}{10} \right)$$

## Counterfactual FR Score

The Counterfactual Score was assessed by asking distributors to consider how their sales volume of incentivized equipment would have differed if the offering was not available. The interviewer asked distributors to consider, if the offering had not been available, what percentage of their incentivized sales they would have still expected to make for each relevant measure type.

CF1. Still thinking about your sales over the past year, if Ameren Illinois' Midstream Instant Incentives offering had not been available, what percentage of those program-incentivized <EQUIPMENT> sales would you still have expected to make? [NUMERIC OPEN END 0%-100%]

Measure-specific Counterfactual FR Scores were then computed for each distributor as:

Equation 4. Measure-Specific Distributor Counterfactual FR Scores

$$\begin{aligned} \text{Counterfactual FR Score}_{\text{Mid.Dist}_{\text{SMHVAC}}} &= \left( \frac{\text{CF1}_{\text{Mid.Dist}_{\text{SMHVAC}}}}{100} \right) \\ \text{Counterfactual FR Score}_{\text{Mid.Dist}_{\text{LGHVAC}}} &= \left( \frac{\text{CF1}_{\text{Mid.Dist}_{\text{LGHVAC}}}}{100} \right) \\ \text{Counterfactual FR Score}_{\text{Mid.Dist}_{\text{ADVTHERM}}} &= \left( \frac{\text{CF1}_{\text{Mid.Dist}_{\text{ADVTHERM}}}}{100} \right) \\ \text{Counterfactual FR Score}_{\text{Mid.Dist}_{\text{HPWH}}} &= \left( \frac{\text{CF1}_{\text{Mid.Dist}_{\text{HPWH}}}}{100} \right) \end{aligned}$$

## Consistency Check

The interviewer was instructed to complete measure-specific consistency checks if a distributor's measure-specific Program Influence FR Score and Counterfactual FR Score contradicted each other. In alignment with the IL-TRM, this contradiction was defined as a: (1) Program Influence FR Score greater than 0.7 (suggesting high FR) and Counterfactual FR Score less than 0.3 (suggesting low FR), or (2) Program Influence FR Score less than 0.3 (suggesting low FR) and Counterfactual FR Score greater than 0.7 (suggesting high FR).

If a consistency check was triggered for a given measure, the interviewer asked one of two questions depending on the direction of the inconsistency to gather more context on the influence of the offering on the distributor's sales of qualified equipment:

[ASK IF EQUIPMENT SPECIFIC PI\_SCORE<0.3 AND CF\_SCORE>0.7]

CC1. When I asked how influential the Midstream Instant Incentives offering was on your sales of program-incentivized <EQUIPMENT> in the last year, you provided a response of <FR2 RESPONSE>, suggesting that the **Midstream Instant Incentives offering was highly influential**. However, your response to the question regarding what would have happened if the Midstream Instant Incentives offering had not been available suggest that you would have **sold a comparable number of program-qualified <EQUIPMENT>** regardless of your participation.

In your own words, can you describe how the Midstream Instant Incentives offering did or did not influence your sales of program-incentivized <EQUIPMENT> in the last year? [OPEN-ENDED RESPONSE]

[ASK IF EQUIPMENT SPECIFIC PI\_SCORE>0.7 AND CF\_SCORE<0.3]

CC2. When I asked how influential the Midstream Instant Incentives offering was on your sales of program-incentivized <EQUIPMENT> in the last year, you provided a response of <FR2 RESPONSE>, suggesting that the **Midstream Instant Incentives offering was not influential**. However, your response to the question regarding what would have happened if the Midstream Instant Incentives offering had not been available suggest that you would have **sold substantially fewer units of program-qualified <EQUIPMENT>** if you had not participated.

In your own words, can you describe how the Midstream Instant Incentives offering did or did not influence your sales of program-incentivized <EQUIPMENT> in the last year? [OPEN-ENDED RESPONSE]

To add additional clarification, the interviewer asked a straightforward, binary question as to whether the offering did or did not positively influence the distributors' number of incentivized sales.

CC3. Overall, did the Midstream Instant Incentives offering positively influence the number of program-incentivized <EQUIPMENT> you sold within the last year?

1. Yes
2. No

At the request of the AIC team, the interviewer asked those who indicated they would have still made more than 70% of their incentivized sales without the offering, how they would have been able to achieve those sales without the incentive.

[ASK IF EQUIPMENT SPECIFIC CF\_SCORE>0.7]

CC4. Your responses suggest that you would have sold a similar number of program-qualified <EQUIPMENT> in the past year regardless of your participation in the Midstream Instant Incentives offering. Can you elaborate on how you would have been able to achieve that number of sales without the incentives from Ameren Illinois?  
[OPEN-ENDED RESPONSE]

The evaluation team used the responses to the consistency check questions to contextualize distributors' responses and determine if either the Program Influence FR Score or the Counterfactual FR Score needed to be modified or dropped.

One distributor triggered the consistency check for their responses regarding their sales of small HVAC. The distributor's responses suggested their Program Influence FR Score was more representative than their Counterfactual FR Score. Rather than calculating a pure average of the scores for FR, the evaluation team calculated a weighted average, weighting the Program Influence FR Score 0.66 and the Counterfactual FR Score 0.33 for that particular distributor.

## Appendix B. Contractor FR Sub-Scores

The following sections go into detail as to how the web survey captured contractor FR sub-scores (including extracts from the survey instrument) and any adjustments that were made to sub-scores due to inconsistencies in responses.

### Program Influence FR Score

The first section of the survey asked contractors to review a list of elements of the Midstream HVAC offering that may or may not have influenced their sales of qualifying equipment. This list identified key elements the offering staff employed to influence contractors directly or that participating distributors may have employed to engage contractors. The list was developed based on the offering PTLM. Contractors were asked to think of any other elements of the offering that influenced their sales of qualifying equipment. This list and its associated follow-up were used to prime contractors to think about the various elements of their participation that may have influenced their sales of qualifying equipment and prepared them for the mention of such influence in RFR2, RCF1, RCC1, RCC2, RCC3, and RCC4.

There are a number of elements of Ameren Illinois' Midstream Instant Incentives offering that might have influenced your sales of high efficiency HVAC, smart thermostat, and heat pump water heater equipment to commercial customers within the past year or so.

These elements include:

- Incentives or rebates from distributors passed on from Ameren Illinois
- Educational materials or training on high-efficiency equipment and participation in the Midstream Instant Incentives offering provided by distributors and/or Ameren Illinois' Midstream Instant Incentives team
- Sales, marketing, and promotional materials/tools provided to you by distributors and/or Ameren Illinois' Midstream Instant Incentives team
- Increases in marketing from distributors and/or Ameren Illinois directly to end-users/customers
- Distributors encouraging the purchase of high-efficiency, program-qualifying equipment
- Listing or endorsement of your company on Ameren Illinois' website or directory

[DISPLAY ON SAME PAGE AS PROGRAM INFLUENCE INTRO]

CFR1. Are there any other elements of the Midstream Instant Incentives offering that influenced your sales of high-efficiency equipment to commercial customers within the past year?

1. Yes, please specify: [OPEN-ENDED RESPONSE]
2. No

The Program Influence FR Score was assessed by asking respondents about the influence of all the applicable offering elements on their sales of incentivized equipment.

[DISPLAY ON SAME PAGE AS PROGRAM INFLUENCE INTRO AND CFR1]

CFR2. Thinking about your sales to commercial customers over the past year, how influential were the listed elements of the Midstream Instant Incentives offering [IF CFR1=1, "and any other program elements you provided"] on **your sales** of program-incentivized equipment? [SCALE: 0 (Not at all influential) to 10 (Extremely influential)]

The Program Influence FR Score was then computed for each contractor as:

Equation 5. Contractor Program Influence FR Score

$$Program\ Influence\ FR\ Score_{Mid.Cont} = 1 - \left( \frac{CFR2_{Mid.Cont}}{10} \right)$$

## Counterfactual FR Score

The Counterfactual FR Score was assessed by asking contractors to consider how their sales volume of incentivized equipment would have differed if the offering was not available. The survey asked contractors to consider, if the offering had not been available, what percentage of their incentivized sales they would have still expected to make.

CCF1. Still thinking about your sales over the past year, if Ameren Illinois' Midstream Instant Incentives offering had not been available, what percentage of those program-incentivized sales to **commercial customers** would you still have expected to make? [NUMERIC OPEN END 0%-100%]

The contractor level Counterfactual FR Score is then computed as:

Equation 6. Contractor Counterfactual FR Score

$$\text{Counterfactual FR Score}_{Mid.Cont} = \left( \frac{CCF1_{Mid.Cont}}{100} \right)$$

## Consistency Check

The survey asked contractors to answer consistency check questions if their Program Influence FR Score and Counterfactual FR Score contradicted each other. In alignment with the IL-TRM, this contradiction was defined as a: (1) Program Influence FR Score greater than 0.7 (suggesting high FR) and Counterfactual FR Score less than 0.3 (suggesting low FR), or (2) Program Influence FR Score less than 0.3 (suggesting low FR) and Counterfactual FR Score greater than 0.7 (suggesting high FR).

If the consistency check was triggered, the survey asked one of two questions depending on the direction of the inconsistency to gather more context on the influence of the offering on the contractors' sales:

[ASK IF COM\_PI\_SCORE<0.3 AND COM\_CF\_SCORE>0.7]

CCC1. When asked how influential the Midstream Instant Incentives offering was on your sales of program-incentivized equipment to **commercial customers** in the last year, you provided a response of <CFR2 RESPONSE>, suggesting that the **Midstream Instant Incentives offering was highly influential**. However, your response to the question regarding what would have happened if the Midstream Instant Incentives offering had not been available suggest that you would have **sold a comparable number of program-qualified equipment to commercial customers** regardless of your participation.

In your own words, can you describe how the Midstream Instant Incentives offering did or did not influence your sales of program-incentivized equipment to **commercial customers** in the last year? [OPEN-ENDED RESPONSE]

[ASK IF COM\_PI\_SCORE>0.7 AND COM\_CF\_SCORE<0.3]

CCC2. When asked how influential the Midstream Instant Incentives offering was on your sales of program-incentivized equipment to **commercial customers** in the last year, you provided a response of <CFR2 RESPONSE>, suggesting that the **Midstream Instant Incentives offering was not influential**. However, your response to the question regarding what would have happened if the Midstream Instant Incentives offering had not been available suggest that you would have **sold substantially fewer units of program-qualified equipment to commercial customers** if you had not participated.

In your own words, can you describe how the Midstream Instant Incentives offering did or did not influence your sales of program-incentivized equipment to **commercial customers** in the last year? [OPEN-ENDED RESPONSE]

To add additional clarification, the survey asked a straightforward, binary question as to whether the offering did or did not positively influence the contractors' number of incentivized sales.



[ASK IF (COM\_PI\_SCORE<0.3 and COM\_CF\_SCORE>0.7) OR (COM\_PI\_SCORE>0.7 and COM\_CF\_SCORE<0.3)]  
CCC3. Overall, did the Midstream Instant Incentives offering positively influence the number of program-incentivized equipment you sold to **commercial customers** within the last year?

1. Yes
2. No

At the request of the AIC team, the survey asked those who indicated they would have sold more than 70% of the same incentivized equipment without the offering, how they would have been able to achieve those sales without the incentive.

[ASK IF COM\_CF\_SCORE>0.7]

CCC4. Your responses suggest that you would have sold a similar number of program-qualified equipment to **commercial customers** in the past year regardless of your participation in the Midstream Instant Incentives offering. Can you elaborate on how you would have been able to achieve that number of sales to **commercial customers** without the incentives from Ameren Illinois? [OPEN-ENDED RESPONSE]

The evaluation team used the responses to the consistency check questions to contextualize contractors' responses and determine if either the Program Influence FR Score or Counterfactual FR Score needed to be modified or dropped.

One contractor triggered the consistency check. The contractor's responses suggested their Counterfactual FR Score was more representative than their Program Influence FR Score. Rather than calculating a pure average of the scores for FR, the evaluation team calculated a weighted average, weighting the Counterfactual FR Score 0.66 and the Program Influence FR Score 0.33 for that particular contractor.