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Memorandum

To: Fernando Morales, Ameren Illinois Company; Jennifer Morris, Illinois Commerce Commission

From: Opinion Dynamics Evaluation Team

Date: December 21, 2020

Re: Updated AIC Small Business Direct Install Net-to-Gross Ratio

Introduction

In 2020, the evaluation team conducted research with Small Business Direct Install (SBDI) participants to update the net-to-gross ratio (NTGR) for measures available through this offering for future application. We developed the NTGR using self-reported information from computer-assisted web interviewing (CAWI) surveys with program participants. The evaluation team also conducted follow-up telephone interviews with survey respondents to inform spillover analysis. We used both participant survey and follow-up telephone interview responses to develop estimates of free-ridership (FR) and participant spillover (PSO). We also asked participants some process-related questions in the survey. This memo presents NTGR, which is summarized in Table 1, and process findings for the Small Business Direct Install (SBDI) offering.

Table 1. Updated SBDI NTGR from 2020 Research

Offering	Number of Responses (n)	Free-Ridership (FR)	Participant Spillover (PSO)	NTGR (1-FR+PSO)
SBDI	75	10.9%	0.01%	89.1%

Data Collection and Sampling Methodology

The evaluation team fielded CAWI surveys with customers who participated in the SBDI offering in 2020. The survey focused on installation verification, satisfaction with program processes, and attribution (free-ridership and spillover). The sample of SBDI participant projects came from the September 2020 extract of the AMPLIFY database we received.

The data extract included 1,604 unique SBDI projects. As in previous evaluations, we sampled by project contact, rather than by project, because many customers completed more than one project in 2020. These customers generally submitted the same contact name for each of the different projects. To reduce respondent burden and to facilitate question wording, we asked each contact only about the project with the largest savings. Note that we also dropped contacts for whom no valid email was available (since this was a web survey) and contacts who completed Core and Custom projects along with SBDI projects.[1] We formed a sample frame of 752 unique customer contacts for the SBDI survey (see Table 2).

[1] Given the limited sample sizes for efforts to evaluate the Core and Custom offerings, the evaluation team excluded these participants from the SBDI survey sample and instead included them in the samples of these other offerings.

Table 2. SBDI Offering - Data Supporting 2020 NTGR Research

Offering	Number of Survey Completes (*n*)	In Sample	Number of Projects in Population	% of Projects Covered in Survey	% of Electric Savings Covered in Survey
SBDI	75	752	1,604	5%	6%

NTGR Overview

Net impact evaluation is generally described in terms of determining program attribution. Program attribution accounts for the portion of gross energy savings associated with a program-supported measure or behavior change that would not have been realized in the absence of the program. The share of program-induced savings, indicated as a NTGR, is made up of FR and PSO. FR is the portion of the program-achieved verified gross savings that would have been realized absent the program and its interventions. PSO occurs when participants take additional energy-saving actions that are influenced by the program interventions but did not receive program support.

The formula to calculate the NTGR is:

$$NTGR = 1 - FR + PSO$$

The Illinois evaluation teams have worked with the Illinois Commerce Commission (ICC) and the Illinois Stakeholder Advisory Group (SAG) to create a standard Illinois Statewide NTG approach for use in Illinois energy efficiency evaluation, measurement, and verification work. This evaluation conforms with the requirements of Version 8 of the IL-TRM.

Free-Ridership (FR)

Free-riders are program participants who would have installed the same energy-efficiency measure(s) or taken the same energy-saving actions without program support. FR estimates are based on a series of questions that explore the influence of the program on participants' purchasing decisions as well as actions the participant likely would have taken had the program not been available.

As prescribed by the Small Business Protocol in the NTG Methods attachment, we implemented the algorithm in Equation 1 for SBDI projects. The algorithm consists of two scores: (1) influence of program components (PC) score, and (2) no-program (NP) score (counterfactual), as well as a timing adjustment, which is applied to the no-program score. Each sub-score serves as a separate estimator of FR and can take on a value of 0 to 1, where a higher score means a higher level of FR. The overall free-ridership score for a project is the average of the PC and the adjusted NP score. The FR score for each project thus ranges from 0 (no FR) to 1 (100% FR).

Equation 1: Free-Ridership Algorithm

$$FR = \left(\frac{PC\ Score + [NP\ Score * Timing\ Adjustment]}{2}\right)$$

The scores included in the algorithms, their variations, and the timing adjustment are described below.

1. **Influence of Program Components**. This score is based on a series of questions that ask respondents to rate the importance of program and non-program components in their decision to install the energy-efficient equipment, using a scale of 0 to 10 (where 0 is "Not at all important" and 10 is "Very important").

   Program Components considered include items such as the availability of the discount, information from the Lighting Assessment, and a recommendation from Program Ally. Non-Program Components considered include standard business practice and corporate policy. Other components, such as payback period and

previous experience with incented equipment, could qualify as either program or non-program components based on responses to follow-up questions included in the survey. We estimate the Program Components score as per Equation 2:

Equation 2. Program Components Score

$$PC\ Score = 1 - \left(\frac{PF_{max}}{10}\right)$$

where PF_{max} is the highest score given to a program factor.

Greater importance of the program components means a lower level of FR. In this approach, if a respondent rated the program discount 10 out of 10, the recommendation from Program Ally 8 out of 10, and the information from the Lighting Assessment 8 out of 10, PF_{max} would be 10 and the PC score would be 0.

2. **No-Program Score.** This score is based on the likelihood that equipment of the same level of efficiency would have been installed without the program, using a scale of 0 to 10 (where 0 is "Not at all likely" and 10 is "Very likely") and is calculated as per Equation 3:

Equation 3. No-Program Score

$$NP\ Score = 1 - \left(\frac{Likelihood\ to\ Install\ Same\ Equipment}{10}\right)$$

A greater likelihood of installing equipment of the same level of efficiency without the program means a higher level of FR. For example, if the participant provides a likelihood rating of 7 to install equipment of the same level of efficiency in the absence of the program, their NP FR score would be a 0.70.

The NP score incorporates a timing adjustment (discussed next) as per Equation 4:

Equation 4: Adjusted No-Program Score

$$NP\ Score\ Adjusted = \left(\frac{Likelihood\ to\ Install\ Same\ Equipment}{10}\right) * Timing\ Adjustment$$

3. **Program Timing Adjustment.** The program timing adjustment is based on whether the installation would have occurred at the same time without the program; and if the installation would have occurred later, how much later. Later purchases without the program means a lower level of FR. It is calculated on a 0 to 1 scale. A timing adjustment of 1 means that there is no evidence that the program changed the time frame in which the project would have occurred, while a lower value of the timing adjustment means that the program caused the project to occur sooner. It provides the program with some credit for accelerating the project. Timing Adjustment is calculated as per Equation 5:

Equation 5: Timing Adjustment

$$Timing\ Adjustment = 1 - (Number\ of\ Months\ Expedited - 6) / 42$$

Free-Ridership Value

Using the algorithm as outlined in Equation 1 by participant with responses weighted by participant savings, the FR estimate for the SBDI offering is 10.9% (n=75).

Participant Spillover

Participant spillover (PSO) refers to the installation of energy-efficient measures by program participants who were influenced by the program but did not receive an incentive. An example of PSO is a customer who installed incented equipment in one facility and, as a result of the positive experience, installs additional equipment at another facility but does not request an incentive (outside PSO). In addition, the participant may install additional equipment, without an incentive, at the same facility because of the program (inside PSO).

We examined both inside and outside PSO in projects from the SBDI offering using participant responses to the CAWI surveys and follow-up telephone interviews. We conducted an engineering analysis of participant responses to determine the savings associated with measures identified as SO.

After calculating the PSO savings reported by participants in our sample, we used Equation 6 to develop the program PSO rate.

Equation 6. Participant Spillover Rate

$$PSO\ Rate = \frac{Total\ Net\ PSO\ Savings_{Participant\ Sample}}{Total\ Ex\ Post\ Gross\ Program\ Savings_{Participant\ Sample}}$$

Table 5 presents the results of the PSO analysis for the SBDI offering.

Table 3. 2020 SBDI SO Results

Initiative	Verified Gross Savings (Survey Completes)		Participant Spillover	
	MWh	MW	MWh	MW
SBDI	3,559.07	0.54	0.01%	0.02%

Process Findings

We asked respondents a few questions about their experience with the SBDI offering. Surveyed participants most commonly heard about the offering from a contractor or Program Ally (30%), an Ameren Illinois email (15%), their energy bill (10%) or another business that participated in the offering (10%, n=75). More than half of the participants (55%) were most influenced to participate by the opportunity to lower their monthly energy bills, while the rest were most influenced by the offering discount (23%) or the free Lighting Assessment (21%, n=75).

Prior to their participation in the SBDI offering, most surveyed participants (80%) recalled receiving a Lighting Assessment (n=75) and most those who received the assessment (83%) found the information useful (n=60). Most respondents also reported satisfaction with their Lighting Assessment (80%) and the Program Ally who conducted it (75%, n=59).[2] Similarly, most surveyed participants reported satisfaction with their Program Ally who installed the equipment (86%, n=74) and the SBDI offering's program staff (84%, n=74). Overall, most respondents reported satisfaction with the SBDI offering (85%, n=74) and with Ameren Illinois (85%, n=75).

A few respondents (7%), however, faced some problems during their participation in the offering such as receiving faulty fixtures or their Program Ally's work not meeting their expectations. In addition, some of the

[2] Respondents were asked to rate their satisfaction on a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied. We considered a rating of 8 or more as satisfied.

surveyed participants suggested greater publicity or marketing of the program (43%) and/or larger equipment discounts (34%, n=44) as potential improvements to the SBDI offering.