



**Energy Efficiency
Nicor Gas Plan Year 1
(6/1/2011-5/31/2012)**

**Evaluation Report:
Behavioral Energy Savings Pilot**

**Presented to
Nicor Gas Company**

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E. Executive Summary

This document presents Navigant’s findings from the evaluation of the Nicor Gas Behavioral Energy Savings Pilot (BESP) program. This evaluation covers Nicor Gas Plan Year 1 (GPY1) and focuses on program processes. Nicor Gas does not expect the BESP to start achieving participation and energy savings goals until GPY2. In fact, *ENERGYBUZZ*, the main program initiative, did not launch until the first quarter of GPY2. For this reason, Navigant did not conduct a full impact evaluation this year. Navigant will conduct a full evaluation of pilot processes and impacts in Plan Years 2 (GPY2) and 3 (GPY3).

E.1 Evaluation Objectives

Navigant organized the GPY1 evaluation around three objectives:

1. Develop a Program Theory and Logic Model
2. Outline a planned approach for GPY2 and GPY3 evaluations
3. Provide insight on anticipated data needs for GPY2 and GPY3 evaluations

E.2 Evaluation Methods

Navigant worked with BESP program administrative and implementation staff to develop a model of the program theory and logic and an evaluation approach for GPY2 and GPY3. Navigant conducted a series of in-depth interviews with staff from Nicor Gas and the program implementers Wisconsin Energy Conservation Corporation (WECC) and Conservation Services Group (CSG). These interviews allowed Navigant to collect information about the design and structure of the BESP and its two main components: *ENERGYBUZZ* and Take the Pledge. Navigant also performed a review of the program web portals and available literature on the subject of behavioral program evaluation.

E.3 Key Findings and Recommendations

Because the program implementers were in the process of designing the BESP program during GPY1, Navigant did not conduct a full evaluation this year. Instead, Navigant worked with BESP program administrative and implementation staff to develop a model of the program theory and logic and an evaluation approach for GPY2 and GPY3. Navigant’s key findings and recommendations from these tasks are presented here and primarily focus on ensuring that the program will appropriately track data necessary for successful GPY2 and GPY3 evaluation.

➤ Data Necessary for Future Evaluation

- **Finding:** Navigant can test for program impacts in GPY2 and GPY3 *only if* the necessary data described in this report are available.
- **Recommendation:** Nicor Gas and the BESP program implementers, WECC and CSG, should be sure to track the necessary data as it is described in this report. Doing so will allow Navigant to evaluate whether gas savings can be attributed to the BESP program in GPY2 and GPY3.

- **Finding:** Navigant can investigate whether BESP participants signed up for other Nicor Gas programs after visiting the BESP web portals by reviewing data from other Nicor Gas programs. Information about customer motivation for enrolling in the other Nicor Gas programs will enhance this review.
 - **Recommendation:** Nicor Gas should ensure that customer motivation for enrolling in other Nicor Gas programs is captured during the enrollment process. In addition to GPY2 and GPY3 survey data, information captured during program enrollment will allow Navigant to identify whether the BESP program effectively channeled customers into other Nicor Gas programs.
- **Target Audience is Unclear**
- **Finding:** The BESP program is open to all Nicor Gas residential customers with an online Nicor Gas account. The program marketing plan does not seem to incorporate insight from marketing segmentation or customer demographic data. It is unclear what type of customer the program intends to attract.
 - **Recommendation:** Nicor Gas and the BESP program implementers should consider studying participant demographics on an ongoing basis. Participant demographics could include housing characteristics and socio-economic data as well as participant levels of awareness, satisfaction, and energy use behaviors. Capturing and understanding this information will inform program design decisions, allow implementers to optimize marketing to customers that have not yet signed up for the program, and enhance ongoing evaluation efforts.

1. Introduction to the Program

1.1 Program Description

The current Nicor Gas Energy Efficiency Program (EEP) plan proposes saving 51 million therms over three years. While well-established energy efficiency measures are central to this goal, Nicor Gas recognizes the need to explore, test, and pilot innovative ideas for the future to gain a better understanding of both emerging technologies and of customer interest in more innovative program concepts. These concepts include behavioral programs.

Behavioral science research demonstrates that effective behavior change programs focus on a specific behavior to change, and actively address the barriers to making that change through multiple means, including a direct request for a commitment, comparison to a norm, specific calls to action, feedback on progress and ongoing reinforcement. The BEBP employs all of these concepts with Nicor Gas customers.

Nicor Gas implements the BEBP program via two main efforts:

- CSG and its subcontractor, MyEnergy.com, implement the primary program component: ENERGYBUZZ. Nicor Gas soft-launched ENERGYBUZZ in August 2012 (GPY2).
- The BEBP program administrator, WECC, implements a secondary program component: Take the Pledge. Nicor Gas launched the Take the Pledge in April 2012 (GPY1).¹

Branded as the ENERGYBUZZ program, the BEBP provides participants with access to a variety of tools and ongoing communications via an online platform. The platform, part of MyEnergy.com, intends to motivate customers to take energy-saving actions through behavior changes or participation in other Nicor Gas energy efficiency programs. Participating customers receive monthly email summaries of their energy use and have access to online tools that show them how to save energy, win rewards, and compare their savings with those of other customers. Nicor Gas drives participation in the ENERGYBUZZ Program with various marketing and outreach efforts, such as a partnership with the Kane County Cougars.

Separate from ENERGYBUZZ the BEBP program also promotes behavior change through the “Take the Pledge” campaign, a partnership with the Chicago Fire professional soccer team. The campaign invites Fire fans to pledge to save energy by signing up for an account on a Chicago Fire branded MyEnergy.com site. When participants sign up, they pledge to do three to five simple tasks and then come back to MyEnergy.com and check off what they have done.

The implementation period for the BEBP is three years, commencing with the GPY1 implementation year. Table summarizes the pilot objectives for each pilot year, as noted in the scope of work agreement

¹ Nicor Gas plans to discontinue Take the Pledge as a separate BEBP program component halfway through GPY2. The GPY2 evaluation will assess savings from the Take the Pledge program according to the plan included in this report; however, Navigant will not evaluate Take the Pledge in GPY3.

with CSG. Note that these goals were not changed to reflect the program’s late launch, meaning the program goals for GPY1 were added to GPY2 and GPY3.

Table Participation and Savings Goals for the BEBP Program

Goal*	GPY1 6/1/11 – 5/31/12	GPY2 6/1/12 – 5/31/13	GPY3 6/1/13 – 5/31/14	Total
Participation (Number of customers)	0	50,000	100,000	150,000
Net Savings (Therms)	0	769,500	1,539,000	2,308,500

Source: Conservation Services Group and Nicor Gas Purchase Order, Appendix A

** Goals only pertain to the ENERGYBUZZ component of the program. The Take the Pledge campaign does not have specific goals at this time.*

1.2 Evaluation Questions

The GPY1 evaluation sought to answer the following researchable questions:

1. What is the program theory and logic?
2. What is an appropriate evaluation approach for GPY2 and GPY3?
3. What are the anticipated data needs for GPY2 and GPY3 evaluation?

2. Evaluation Methods

2.1 Data Collection

Navigant conducted a series of in-depth interviews with staff from Nicor Gas and the program implementers WECC and CSG. These interviews allowed Navigant to collect information about the design and structure of the BESS and its two main components: ENERGYBUZZ and Take the Pledge. The interview guide is found in Section 1.

Navigant also reviewed the program web portals and available literature on the subject of behavioral program evaluation. Table shows all of the data sources used for this evaluation. Since there was no impact evaluation this year, the process evaluation was the primary focus of the data collection.

Table Data Collection Methods, Sources, and Purposes

Collection Method	Source	Purpose
In-Depth Interviews	3 interviews with staff (Nicor Gas, WECC, CSG)	Collect information about the design and structure of the BESS; address expected benefits and desired outcomes of the program; inform evaluation approach for GPY2 and GPY3
Program Document & Secondary Literature Review	Marketing materials, evaluation plans and other documentation such as behavioral program design and evaluation research	Document program goals, activities, and outcomes; inform evaluation approach for GPY2 and GPY3
Web Portal Review	Web portal public interface	Understand portal structure and functionality

Source: Navigant

3. Evaluation Results

3.1 Program Theory and Logic

This section presents the results from Navigant’s review of the Nicor Gas BESP program theory and logic.

3.1.1 Program Theory

Program theory describes the various elements of a program’s design: goals, motivating conditions/barriers, target audience, desired actions/behaviors, strategies/rationale, and messages/communications vehicles. The following subsections describe the BESP program in these terms. As mentioned earlier, Nicor Gas implements the BESP program via two efforts:

- CSG and its subcontractor MyEnergy.com, implement the primary program component: ENERGYBUZZ. Nicor Gas soft-launched ENERGYBUZZ in August of 2012 (GPY2).
- The BESP program administrator, WECC implements a secondary program component: Take the Pledge. Nicor Gas launched the Take the Pledge in April of 2012 (GPY1).

3.1.2 Program Goals

The BESP program strives to achieve gas savings that will contribute to Nicor Gas’ overall DSM goals by motivating residential customers to change their energy use behavior. Table summarizes the BESP program goals for each program year. Note that these goals were not changed to reflect the program’s late launch, meaning the program goals for GPY1 were added to GPY2 and GPY3.

3.1.3 Motivating Conditions/Barriers

Behavioral programs face dynamic barriers. First, customer attitudes, knowledge levels, and behaviors are diverse and complex. One person may be motivated to save energy because they want to lower their energy bills, whereas another may want to appear “green” to their friends and neighbors. Second, customers may consider behavior change inconvenient, or may not consciously consider change at all. For example, habitual behaviors such as turning down the thermostat when leaving home for the day are not top of mind for most people. Third, customers may not view energy conservation as valuable. Since the cost of natural gas energy is relatively low in Nicor Gas territory, customers may not always view energy efficiency as cost effective. Finally, as with all energy efficiency programs, customers may not be aware that the BESP program exists.

The BESP program faces a few additional barriers. The program is different from a typical energy efficiency program in that the majority of expected savings are dependent on ongoing action by the participant, rather than installing a “widget” and applying for a rebate one time. In addition, the BESP program is web-based. Participants need to be comfortable using websites and web-based communications.

3.1.4 Target Audience

The BEBP program is open to all Nicor Gas residential customers with an online Nicor Gas account.² Because the program is opt-in and web-based, it may naturally attract customers who already have an interest in energy efficiency and/or tech-savvy customers. Similarly, because a large proportion of Chicago Fire soccer fans are Hispanic, Nicor Gas expects Take the Pledge will attract these hard-to-reach customers. ENERGYBUZZ, the main program component, will have two secondary target audiences: community partners for outreach collaboration, and businesses for rewards donations.

3.1.5 Desired Actions/Behaviors

The BEBP program encourages Nicor Gas customers to save energy through low-cost and no-cost behavior changes by providing a variety of tools and ongoing communications via an online platform. The platform, part of MyEnergy.com, motivates customers to save energy through behavior change and participation in other Nicor Gas energy efficiency programs. . Note that the Take the Pledge and ENERGYBUZZ components use these tips in a slightly different manner. See Section 0 for a detailed description of each program component’s strategy.

² Customers must have an online account with Nicor Gas to sync with their MyEnergy.com account.

Table shows the energy- saving tips promoted by the ENERGYBUZZ and Take the Pledge web portals. Note that the Take the Pledge and ENERGYBUZZ components use these tips in a slightly different manner. See Section 0 for a detailed description of each program component’s strategy.

Table . Energy Saving Tips Promoted by Web Portal

Tip	Relevant Web Portals
Install Bathroom Faucet Aerators	Take the Pledge & ENERGYBUZZ
Keep Your Home Tightly Sealed	Take the Pledge & ENERGYBUZZ
ENERGY STAR Systems: Water Heater	Take the Pledge & ENERGYBUZZ
Wrap Hot Water Pipes	Take the Pledge & ENERGYBUZZ
Energy Efficient Heating	Take the Pledge & ENERGYBUZZ
Replace Your HVAC & Furnace Filters	Take the Pledge & ENERGYBUZZ
Get a Quick and Easy Home Energy Audit	Take the Pledge
Wash Clothes in Cold Water	Take the Pledge
Install A Kitchen Faucet Aerator	Take the Pledge
Program Your Thermostat	Take the Pledge
Lower Your Hot Water Temperature	Take the Pledge
Install Efficient Shower Heads	Take the Pledge
Use Window Shades	ENERGYBUZZ
Install a Hot Water Heater Blanket	ENERGYBUZZ
Install a Programmable Thermostat	ENERGYBUZZ
Install a Hot Water Heater Timer	ENERGYBUZZ
ENERGY STAR Appliances: Washers & Dryers	ENERGYBUZZ
ENERGY STAR Appliances: Dishwasher	ENERGYBUZZ
Have an Annual HVAC Tune-Up	ENERGYBUZZ
Landscaping Strategies for Home Energy Efficiency	ENERGYBUZZ
Energy Efficient Home Certification Options	ENERGYBUZZ
Insulate! Insulate! Insulate!	ENERGYBUZZ
ENERGY STAR Home: Windows	ENERGYBUZZ
ENERGY STAR Home: Doors	ENERGYBUZZ
Upgrade to a Biomass Stove	ENERGYBUZZ

Source: Navigant

3.1.6 Strategies/Rationale

Nicor Gas conducts BESP program efforts based on two overall strategies:

- Drive people to visit one of the program websites³ and create an account through marketing and outreach efforts.
- Engage account holders to save energy by distributing monthly email summaries of their energy use, providing access to online tools that show them how to save energy, and offering participants the opportunity to win prizes or earn points and redeem them for rewards.

Nicor Gas implements the BESP program via two main efforts. The primary component, called *ENERGYBUZZ*, gives participants access to a variety of tools and ongoing communications via an online platform at NicorGasEnergyBuzz.com. Once enrolled on the site, participants receive monthly email summaries of their energy use and have access to online tools that show them how to save energy, win rewards, and compare their savings with those of other customers. Nicor Gas drives participation in *ENERGYBUZZ* via various marketing and outreach efforts, such as a partnership with a Kane County Cougars. Nicor Gas launched *ENERGYBUZZ* in August 2012 (GPY2). CSG and its subcontractor MyEnergy.com, implement the *ENERGYBUZZ* program.

A second BESP effort promotes behavior change through the “Take the Pledge” campaign, a partnership with the Chicago Fire soccer team. The BESP program administrator, WECC, implements this campaign. The Take the Pledge campaign invites Fire fans to pledge to save energy by signing up for an account on a Chicago Fire branded MyEnergy.com site. When participants sign up, they pledge to do three to five simple tasks and then come back to MyEnergy.com and check off what they have done. Take the Pledge participants also have access to the same web portal tools as *ENERGYBUZZ* participants. The Take the Pledge campaign launched in April 2012 (GPY1).

3.1.7 Messages/Communications Vehicles

CSG is currently developing a marketing and outreach plan for *ENERGYBUZZ*; however, a few key components are apparent at this time. A variety of planned tactics will attract customers to the web portal including online campaigns, event attendance, speaking engagements, social media, earned media, and collaboration with other Nicor Gas program marketing efforts. CSG will also collaborate with key community groups (i.e., sustainability groups in key communities, large corporations, and sports teams such as the Kane County Cougars) to market the program and encourage use of the web portal’s group competition platform. CSG will target community groups based on their energy savings potential and density of Nicor Gas customers. *ENERGYBUZZ* marketing messages are also still in development, however the new website stresses the benefits of participating in the program by inviting customers to “earn rewards” and “make a difference”.

The Take the Pledge campaign implementer, WECC, promotes the program through printed materials, social media, online advertising, and a presence at Chicago Fire soccer games. Take the Pledge uses members of the Chicago Fire team to invoke social norms and provide a clear call to action. Messages include: “The Chicago Fire is doing it, now it’s your turn. Get on the ball and Take

³ *ENERGYBUZZ*: NicorGasEnergyBuzz.com; Take the Pledge: chicagofire.nicor.myenergy.com/pledge.

the Pledge to reduce energy waste,” and “Pledge. Track. Win.” Figure shows a sample Take the Pledge bill insert sent to Nicor Gas customers.

Figure Sample Take the Pledge Bill Insert

The graphic is a promotional flyer for the 'Take the Pledge' campaign. At the top right is the Chicago Fire logo. The main headline reads 'Get on the ball...'. Below this, a green flame-shaped graphic contains the text 'TAKE THE PLEDGE' and the Nicor Energy Efficiency Program logo. To the right of the flame, text states: 'Chicago Fire does more than save goals. They save energy. You can too. Prove you're the ultimate fan... This spring, prepare to do battle with your energy bill.' Below this, it says 'Chicago Fire needs your help to beat our toughest opponent yet: ENERGY WASTE. Come April, get ready to TAKE THE PLEDGE. Save energy at home.' A numbered list of four steps is provided: 1. It's FREE. 2. Take action by doing easy things that save energy. 3. Report progress and brag to other fans. 4. Win prizes! Game tickets, Chicago Fire merchandise or a road trip with the team. At the bottom left, it says 'Win with Chicago Fire' and 'Get in the game. TAKE THE PLEDGE. It's FREE and you'll have the inside edge to stop wasting energy and money. Plus, you could win two free tickets to see the Chicago Fire play at Toyota Park in the 2012 season.' At the bottom right, there is a QR code and the text 'GAME ON PLEDGE NOW' with the website 'chicago-fire.com/nicortakethepledge'.

Source: WECC Program Manager

Once customers have signed up for the web portal, either through ENERGYBUZZ or Take the Pledge, they receive ongoing communications about their energy use through email and the itself. For example, participants receive monthly email summaries of their energy use.

Figure shows an example email report.

Figure Example Email Report



Source: WECC Program Manager

Participants also have access to online tools via the web portal. These tools intend to show participants how to save energy, win rewards, and compare their savings with those of other customers. Web portal components include:

- **Dashboard:** Summarizes the participant’s energy use compared to friends, similar homes, and previous months. Users can toggle between simple comparisons, usage charts, billing statements, and personal goals.
- **Find Friends:** Allows the user to add friends from Facebook, Google, and email.
- **Competitions:** Allows users to compete to save energy within different groups. The section is still in development, and will include leader boards, rewards, and savings comparisons.
- **Tips and Rebates:** Communicates energy-saving tips and allows user to search for tips, set goals, keep track of completed tips, and make a “to-do list”.
- **Rewards:** When a user saves energy, they will earn rewards such as sports tickets, discounts on purchases of goods and services and gift cards. This section allows them to earn and redeem their rewards.⁴

⁴ This component only applies to the ENERGYBUZZ portal. The Take the Pledge program offered rewards through a monthly drawing rather than an ongoing web portal feature.

3.2 Program Logic Model

This section presents how the BESP program activities logically lead to the desired program outcomes.

presents the Nicor Gas BESP program logic model diagram, shows the linkages between activities, outputs and outcomes, and identifies external influences. The diagram presents the key features of the program. The logic diagram presented here is at a slightly higher level than the tables in each section, aggregating some of the outcomes in order to provide an easier-to-read logic model. The remainder of this chapter presents the resources, activities, outputs, outcomes, and associated measurement indicators associated with the BESP program.

3.2.1 Resources

The BESP program’s ability to achieve its goals depends in part on the quality and effectiveness of the resources that go into the program. External influences can also help or hinder the program as it strives to achieve anticipated outcomes. Table lists the BESP program’s key inputs and potential external influences.

Table . BESP Program Inputs and Potential External Influences

Program Inputs
<ul style="list-style-type: none"> • Nicor Gas ratepayer funds • Nicor Gas staff time and expertise • Administrator (WECC) staff time and expertise • Implementer (CSG) staff time and expertise • Partner contributions to marketing and outreach efforts • Rewards such as game tickets, gift cards, and trips • MyEnergy.com platform, staff time and staff expertise
External Influences and Other Factors
<ul style="list-style-type: none"> • Perceived need to save money • Perceived need for conservation • Competition for customer attention • Internet access availability to target customers • Level of concern about the environment • Energy prices • Affinity to a sports team • Self-selection bias; the program may only attract a certain type of customer

Source: Navigant

3.2.2 Activities

The BEBP program encourages Nicor Gas customers to save energy through low-cost and no-cost behavior changes by providing tools and ongoing communications via an online platform. The program will reach customers through activities designed to overcome barriers to achieving longer term energy savings. outlines these activities.

Table . BEBP Program Activities

Conduct marketing and outreach to Nicor Gas customers

- Collaborate with other Nicor Gas outreach efforts and opportunities
- Conduct online advertising campaigns
- Engage Nicor Gas customers through social media channels such as Facebook, Twitter and YouTube
- Attend speaking engagements and community events
- Attract earned media attention
- Implement other marketing plan tactics as identified
- Implement the Take the Pledge outreach campaign through partnership with the Chicago Fire soccer team
- Networking and engagement opportunities with current and potential business customers and trade allies at the Chicago Fire games

Recruit and collaborate with community partners

- Coordinate with community partners to promote the program
- Coordinate with community partners to initiate social group competitions

Engage existing participants through the web portals

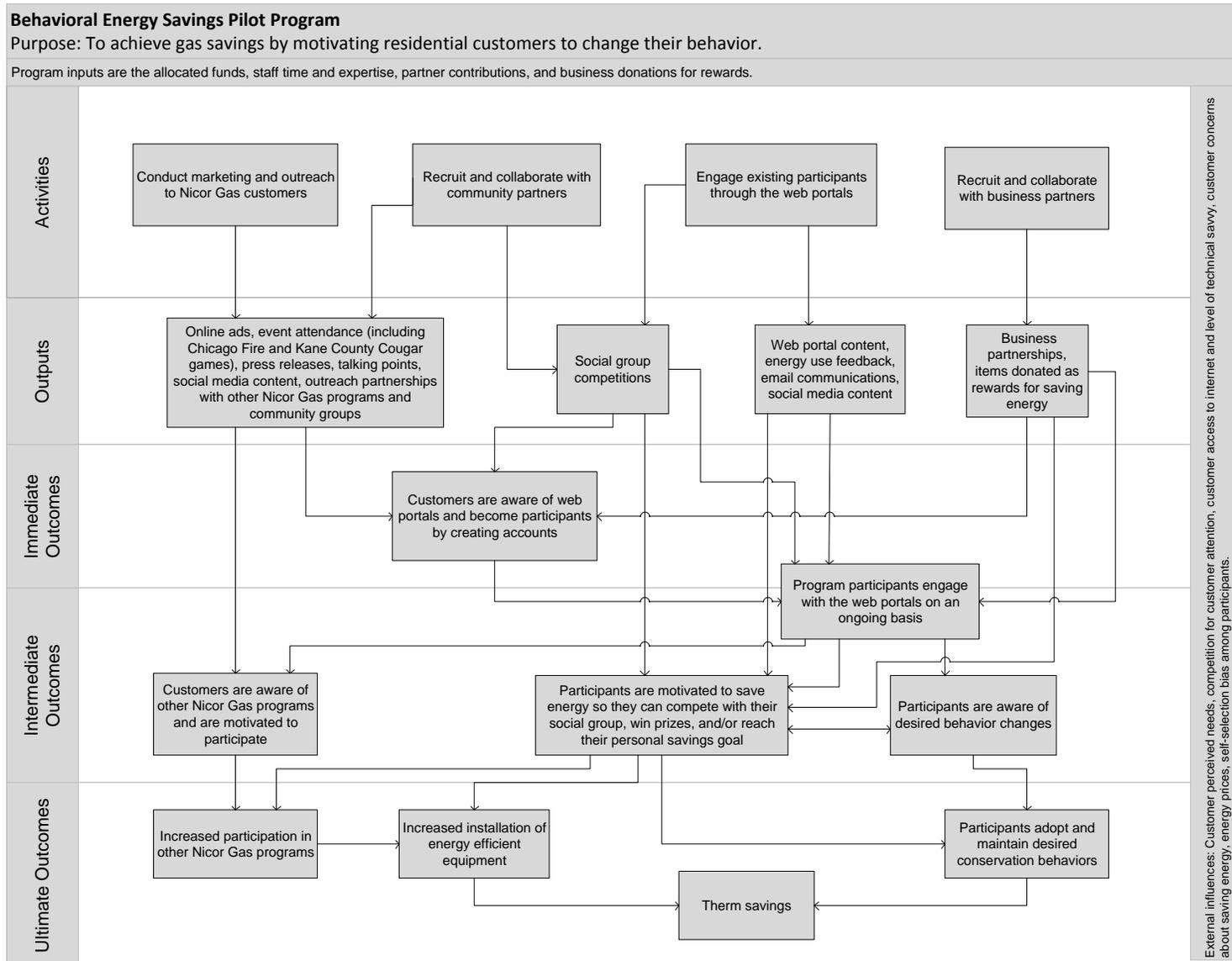
- Maintain ENERGYBUZZ and Take the Pledge web portals
- Distribute monthly energy usage feedback reports via email to participants
- Refresh social media content

Recruit and collaborate with business partners

- Recruit local businesses to participate in the rewards process
- Distribute rewards to customers

Source: Navigant

Figure . BEBP Program Logic Model



Source: Navigant

3.2.3 Outputs, Outcomes and Associated Measurement Indicators

It is important to distinguish between outputs and outcomes. For the purposes of this logic document, outputs are defined as the immediate results from specific program activities. These results are typically easily identified and can often be counted by reviewing program records. An example for the BESP program would be the number of active web accounts. Outcomes are distinguished from outputs by their less direct (and often harder to quantify) results from specific program activities. Outcomes represent anticipated impacts associated with Nicor Gas program activities and will vary depending on the time period being assessed. An example would be energy savings. On a continuum, program activities will lead to immediate outputs that, if successful, will collectively work toward achievement of anticipated immediate, intermediate, and ultimate program outcomes.

The following tables list outputs (Table) and outcomes (), taken directly from the logic model, and associated measurement indicators. Each table presents possible data sources and collection approaches for each key performance indicator.

Table . BESP Program Outputs, Associated Indicators and Potential Data Sources

Outputs	Key Performance Indicators	Data Sources and Potential Collection Approaches
Online advertisements, event attendance (including Chicago Fire and Kane County Cougar games), press releases, talking points, social media content, outreach partnerships with other Nicor Gas programs and community groups	Number of ads placed Number of events attended Number of posts Number of videos Number of contacts made with community partners Number of outreach agreements	Marketing analytics provided by implementer or administrator Interviews with program implementer and administrator Program tracking data
Web portal content, energy use feedback, email communications, social media content	Number of emails sent Number of updates made	Marketing analytics provided by implementer or administrator Program tracking data Website and email analytics provided by implementer or administrator
Social group competitions	Number of active groups Number of group participants Number of group interactions	Program tracking data Website and email analytics provided by implementer or administrator
Business partnerships, items donated as rewards for saving energy	Number of contacts made Number of rewards donated	Interviews with program implementer and administrator Program tracking data

Source: Navigant

Table . BEBP Program Outcomes, Associated Indicators and Potential Data Sources

Outcomes	Key Performance Indicators	Data Sources and Potential Collection Approaches
Immediate Outcomes		
Customers are aware of web portals and become participants by creating accounts	Number of overall site visits Number of unique visitors Number of click throughs Number of impressions made Percent of target customers aware of portal	Program tracking data Website and email analytics provided by implementer or administrator Customer surveys
Participants engage with the web portals on an ongoing basis	Number of accounts created Number of social media followers Number of likes, shares, or views Number of emails opened Number of account logins Average time on site Number of pledges made Number of rewards distributed Number of participants Frequency of interactions	Program tracking data Website and email analytics provided by implementer or administrator
Intermediate Outcomes		
Customers are aware of other Nicor Gas programs and are motivated to participate	Percent of participants, including hard to reach customers, aware of other Nicor Gas programs Percent of participants, including hard to reach customers, motivated to participate in other Nicor Gas programs by BEBP program	Customer surveys
Participants are motivated to save energy so they can compete with their social group, win prizes, and/or reach their personal savings goal	Percent of participants motivated to save energy	Customer surveys
Participants are aware of potential behavior change opportunities.	Percent of participants aware of potential behavior change opportunities	Customer surveys
Ultimate Outcomes		
Increased participation in other Nicor Gas programs	Percent of web account holders signed up for other Nicor Gas programs after account activation date Percent of other Nicor Gas program participants channeled into program by web portal Nicor Gas Business Customers and Program Trade Allies participate in the program more after attending Chicago Fire game	Program tracking data Customer surveys Project pipeline information

Increased installation of energy-efficient equipment	Percent of participants that install energy-efficient equipment after participating in the BESP program	Customer surveys
Outcomes	Key Performance Indicators	Data Sources and Potential Collection Approaches
Ultimate Outcomes		
Program participants adopt and maintain desired behavior changes	Percent of participants changing behavior	Customer surveys
Therm savings	Verified therm savings attributable to BESP program	Program tracking database Engineering review of deemed savings Billing analysis

Source: Navigant

3.3 Evaluation Approach for GPY2 and GPY3

This section outlines Navigant’s proposed approach for evaluating GPY2 and GPY3 of the BESP program. The GPY2 and GPY3 evaluations will include both process and impact evaluation tasks. Navigant developed this approach based on its experience evaluating energy behavior programs, from knowledge gathered via a literature review of behavioral program evaluation approaches and protocols⁵, and through discussions with Nicor Gas, WECC, and CSG staff. The discussion in this section assumes the following:

1. The BESP program is an opt-in program, rather than opt-out, that is, customers choose to participate in the program voluntarily as opposed to being automatically enrolled.
2. Enrollment in both ENERGYBUZZ and Take the Pledge will occur throughout the program evaluation period (rolling enrollment).
3. It is not possible to target the marketing of the BESP program to a set of randomly selected households, with a smaller, randomly selected set of non-targeted households serving as control households.⁶
4. The data identified in Section 3.4 will be available to Navigant.

3.3.1 GPY2 and GPY3 Process Evaluation

This section provides details on Navigant’s proposed tasks for the GPY2 and GPY3 process evaluation of the BESP program. The process evaluation will address research objectives related to program processes, customer behavior, and satisfaction with the program. Information provided through the process evaluation will support the impact evaluation by allowing for assessment of correlations between

⁵ Such as: State and Local Energy Efficiency Action Network. 2012. *Evaluation, Measurement and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations*. Prepared by A. Todd, E. Stuart, S.Schiller, and C. Goldman, Lawrence Berkley Laboratory. <http://behavioranalytics/lbl.gov>.

⁶ That this is not possible is indicated by the CSG scope of work for program implementation, which states that marketing will include community-based efforts. If in fact it is possible to target the marketing at the household level, then an experimental design with well-defined participant and control groups is possible, in which case estimation of program energy savings is far less likely to suffer the issues of bias and imprecision in savings estimates that can arise with the quasi-experimental approach described below.

reductions in consumption and certain behavior changes and equipment purchases. Navigant will collect this information primarily through a combination of staff interviews and customer surveys. The process evaluation will address the following researchable issues:

1. What opportunities are there for program improvement?
2. What challenges are the program staff and implementers encountering?
3. What are current levels of customer satisfaction with the program?
4. What actions are customers taking to achieve natural gas savings? Specifically, are customer actions behavioral or equipment-related? How does the program influence those actions?
5. Does participation in the BEBP program influence participation in other Nicor Gas programs?
6. Does the program attract a specific type of customer?

To address these issues, Navigant proposes the data collection and analysis activities outlined in Table .

Table Activities for GPY2 and GPY3 Process Evaluation

Activity*	Subject / Data	Purpose
In-Depth Interviews	3-5 interviews with staff (Nicor Gas, WECC, CSG)	Collect information about program progress, challenges and lessons learned; identify areas for improvement
Customer Surveys	Surveys of participant and non-participant customers. Participant sample will include a minimum of 140 customers with a MyEnergy.com account (70 from ENERGYBUZZ and 70 from Take the Pledge); Non-participant sample will include a minimum of 70 customers with a Nicor Gas online account, but no MyEnergy.com account. Navigant will also look for mentions of the ENERGYBUZZ and Take the Pledge programs in survey responses collected via other Nicor Gas program evaluations to understand how the BEBP program influences participation in other programs.	Assess customer satisfaction levels and supplement impact evaluation to determine specific behavior changes contributing to savings; surveys will also identify participant demographics and web use behaviors. Navigant will compare non-participant answers to participant responses to gain insight into differences between the two groups.
Web Portal Analytics Review	Review website analytics for MyEnergy.com portals	Identify frequently used features of the sites and highlight usage patterns among users
Program Channeling Analysis	Review Nicor Gas participation records for relevant programs	Understand whether the program effectively channeled participants into other Nicor Gas programs
Tracking System Review	Review pilot tracking databases	Identify whether systems gather appropriate tracking data; examine timeliness of internal feedback systems and use of key performance indicators

Source: Navigant

*Navigant will conduct these activities for both the Take the Pledge and ENERGYBUZZ program components.

3.3.2 GPY2 and GPY3 Impact Evaluation

This section outlines Navigant’s proposed approach for evaluating the energy savings impacts of the BESP program and includes separate approaches for ENERGYBUZZ and Take the Pledge. The GPY2 and GPY3 impact evaluation objectives will be to estimate the evaluation-adjusted gross energy savings and evaluation net energy savings of the BESP program, and to identify separately the savings attributable to ENERGYBUZZ and Take the Pledge. Navigant will address the following researchable issues:

1. Can Nicor Gas attribute gas savings among participants to the ENERGYBUZZ program?
2. Can Nicor Gas attribute gas savings among participants to the Take the Pledge campaign?
3. Is the BESP program meeting its energy saving goals?
4. Is the BESP program meeting its participation goals?
5. What actions are participants taking to achieve gas savings?

3.3.2.1 ENERGYBUZZ Impact Evaluation

The scope of work for the program presented by CSG indicates an enrollment of 50,000 households in GPY2 and an additional 100,000 in GPY3. Based on this anticipated sample size, and assuming that enrollment occurs throughout the program year, a quasi-experimental method called the variation in adoption (VIA) approach is appropriate. The fundamental insight of the approach is that both late enrollees and early enrollees reveal an important commonality by virtue of the decision to enroll in the program. It follows that a good estimate of the “counterfactual” energy consumption of households already enrolled in the program –that is, the energy consumption these households *would have* consumed in the absence of the program –is the energy consumption of future enrollees not yet in the program.

A version of the VIA approach was used by Harding and Hsiaw (2011) to examine a behavioral energy program.⁷ The method uses a fairly simple, but flexible, linear fixed effects regression model of energy consumption by activated households. The model casts monthly gas consumption as a function of household-specific fixed effects, month/year fixed effects, and the time-distance from activation (both pre-activation and post-activation). This is a two-way fixed effects model that accounts for all time-invariant customer characteristics, and all month/year factors affecting all customers (such as weather and the inflation rate). Formally, we have the following:

Model 1

$$ADU_{kt} = a_k + b_t + \sum_{j=-\bar{m}}^{\bar{m}} g_j^E D_{kt}^j + \varepsilon_{kt}$$

where,

- | | | |
|------------|---|--|
| ADU_{kt} | = | Average daily energy use by household k in month t ; |
| \bar{m} | = | The maximum number of months before and after program activation that a distinct effect of activation is examined. In our analysis, $\bar{m} = 12$. |
| a_k | = | Household-specific constant (fixed effect); |
| b_t | = | Month/year specific constant (fixed effect); |

⁷ Harding, M. and A. Hsiaw (2011): “Goal Setting and Energy Efficiency”. Working paper. Matthew Harding, Stanford University; Alice Hsiaw, College of the Holy Cross.

D_{kt}^j	=	A 0/1 indicator variable, taking a value of 1 if month t is the j^{th} month before/after household k activates the web portal. In our analysis, following Harding and Hsiaw (2011), any month that occurs 12 months before or after household activation is assigned a value of 1 for D_{kt}^{12} .
g_j^E	=	Evaluated coefficient on the indicator variable D_{kt}^j ;
ε_{kt}	=	Model error term.

Note that there is no “post” variable in the model indicating entry in the program. The model uses dummy variables to indicate the months before and after household entry in the program, and one expects the effect on consumption of the dummy variables indicating the months before entry to be equal to zero –that is, the program does not generate effects before the customer enters the program. Formally, we test whether $g_j^E = g_0$ for all values of j , $-m \leq j < 0$. An alternative specification is to impose no effect of the program before entry by including only the dummy variables for the months after entry. An advantage to including the months before entry in the specification is that it allows the analyst to test the model specification. That is, because it is basically absurd in this situation to observe a program effect before entry in the program, finding statistical evidence for such an effect is a strong indication that the VIA approach is inappropriate – in particular, the assumption that late entrants are good controls for early entrants is likely untenable. If this assumption is rejected, the model is misspecified, most likely because late enrollees are in fact poor controls for early enrollees. If indeed this assumption is rejected, Navigant will amend the model by using matching methods to assure that the set of early and late enrollees used in the analysis are reasonably similar in their pre-program consumption behavior (i.e., a test of equivalency).

An advantage of this particular program is that participants indicate the actions that they take. This provides an opportunity to parse program savings according to the actions taken. As a simple example, suppose there are only two possible program actions, one of which is always taken and the other of which is not always taken. Then letting $D2_k$ indicate that participant k took the second program action, the model is amended as follows:

$$ADU_{kt} = a_k + b_t + \sum_{j=-\bar{m}}^{\bar{m}} g_j^E D_{kt}^j + \sum_{j=1}^{\bar{m}} \delta_j D2_k * D_{kt}^j + \varepsilon_{kt}$$

where the set of interaction terms $\sum_{j=1}^{\bar{m}} \delta_j D2_k * D_{kt}^j$ accounts for the incremental effects on savings of taking the second action. The ability to isolate the savings effects of particular actions as indicated by participants depends on whether such differential effects truly exists (that is, whether participants do what they say they do, and if so, whether the action generates savings), and whether the sample is large enough to detect the associated savings.

3.3.2.2 Take the Pledge Impact Evaluation

As mentioned earlier, the Take the Pledge partnership with the Chicago Fire does not currently include enrollment or savings goals. Without confidence in the sample size, and based on the number of enrollees in the program at this time, Navigant believes that there will not be enough participants to test for evaluation-adjusted gross energy savings via a billing analysis.⁸ The impact evaluation approach proposed here takes this into consideration.

⁸ For example, we would need approximately 400 households enrolled by the end of summer 2012, and another 400 enrolled at the end of summer 2013. As of August 2012, Take the Pledge had ~115 participants enrolled.

Navigant will review MyEnergy.com web analytic information to identify which actions participants pledged to take, and which they checked off as complete. Navigant will also use information collected via the customer surveys to assess which actions participants report having taken. Then, Navigant will calculate the evaluation-verified gross savings of these actions using the state-wide Technical Resource Manual (TRM). For actions that do not include a deemed savings value in the TRM, Navigant will work with Nicor Gas to identify appropriate values using the data from the ENERGYBUZZ impact evaluation, secondary literature, and team expertise. These values will then be used to calculate the evaluation-adjusted gross savings for these actions.

3.4 Anticipated Data Needs for GPY2 and GPY3

Navigant will review the databases and tracking systems Nicor Gas, WECC and CSG have developed for the BEBP during the GPY2 and GPY3 evaluation.

Table outlines the data Navigant anticipates it will need to conduct an evaluation of the program processes and impacts in GPY2 and GPY3.

Table . Anticipated Data Needs for GPY2 and GPY3 Evaluations⁹

Data	Description	Purpose	Component	Source
Participant contact information	Name, address, email, and phone number for participant customers	Participant surveys	ENERGYBUZZ Take the Pledge	Nicor Gas
Non-participant contact information	Name, address, email, and phone number for non-participant customers	Non-participant surveys	ENERGYBUZZ Take the Pledge	Nicor Gas
Monthly billing data for all participants*	Billing data for all participating households for the 12 months before and after the program inception date; data should indicate the date of the bill, the number of days covered by the billing period, and the amount of gas consumed during the period	Impact Evaluation	ENERGYBUZZ	Nicor Gas
MyEnergy.com account activation date*	Date each participant created web account	Impact Evaluation	ENERGYBUZZ	CSG
Actions Pledged/Added to Personal Plan*	Indication of which actions participants committed to take by adding to personal plan or taking a pledge	Impact Evaluation	ENERGYBUZZ Take the Pledge	CSG WECC
Actions Taken*	Indication of which actions participants confirmed were taken	Impact Evaluation	ENERGYBUZZ Take the Pledge	CSG WECC
Other Nicor Gas Program Participation	Indication of which Nicor programs BESP participants participated in after interacting with MyEnergy.com portal	Program Channeling Analysis	ENERGYBUZZ Take the Pledge	Nicor Gas

⁹ Nicor Gas plans to discontinue Take the Pledge as a separate BESP program component halfway through GPY2. The GPY2 evaluation will assess savings from the Take the Pledge program according to the plan included in this report; however, Navigant will not evaluate Take the Pledge in GPY3.

Website Analytics	Usage patterns within portal such as number of accounts and page views	Process Evaluation	ENERGYBUZZ Take the Pledge	CSG WECC
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Source: Navigant

* See additional description below.

Navigant can estimate ENERGYBUZZ evaluation-adjusted gross savings and evaluation estimated net savings by using the VIA approach described in the previous section *if* the following data are available:

1. Monthly billing data for all ENERGYBUZZ participants for 12 months before the start of the program and 12 months after the start date of the program regardless of when each individual household joined the program. This assumes that Navigant will evaluate the program 1 year after the program begins in August 2012. The data should indicate the date of the bill, the number of days covered by the billing period, and the amount of energy (gas) consumed during the period.
2. The activation date for all customers that enter the program. For ENERGYBUZZ, this will be the date that the participant created their account on the MyEnergy.com portal.
3. For parsing evaluation-adjusted gross savings across sets of actions (as in Model 2), variables indicating these actions (presumably this data is recorded via the web portal).

The efficacy of the proposed ENERGYBUZZ evaluation approach relies on a reasonable amount of variation in the enrollment of customers over time. In particular, the data should include some customers who enroll before the start of the first heating season, some who enroll during the heating season, and some who enter after the heating season. Given the expected enrollment of 50,000 customers during GPY2, and presuming that it is after this program year that the first evaluation will take place, this requirement of large numbers of customers enrolling before, during, and after the heating season should be easily met. Nonetheless, we emphasize this issue here because the VIA method is not appropriate for evaluation after the first full year of the program if the vast majority of customers who enroll during GPY2 do so after the year’s heating season is over (that is, after March 2013). Finally, Navigant can alter the model to examine the effect on evaluation-adjusted gross savings of a variety of housing/household characteristics, if data for these characteristics is available, depending on Nicor Gas evaluation goals.

4. Findings and Recommendations

Because the program implementers were in the process of designing the BESP program during GPY1, Navigant did not conduct a full evaluation this year. Instead, Navigant worked with BESP program administrative and implementation staff to develop a model of the program theory and logic and an evaluation approach for GPY2 and GPY3. Navigant’s key findings and recommendations from these tasks are presented here and primarily focus on ensuring that the program will appropriately track data necessary for successful GPY2 and GPY3 evaluation.

4.1 Key Findings and Recommendations

➤ Data Necessary for Future Evaluation

- **Finding:** Navigant can test for evaluation-adjusted gross savings in GPY2 and GPY3 *only if* the necessary data described in Table are available.
- **Recommendation:** Nicor Gas and the BESP program implementers, WECC and CSG, should be sure to track the necessary data as it is described in this report. Doing so will allow Navigant to evaluate whether evaluation-adjusted gross savings can be attributed to the BESP program in GPY2 and GPY3.
- **Finding:** Navigant can investigate whether BESP participants signed up for other Nicor Gas programs after visiting the BESP web portals by reviewing data from other Nicor Gas programs. Information about customer motivation for enrolling in the other Nicor Gas programs will enhance this review.
- **Recommendation:** Ideally, other Nicor Gas program implementers can confirm how their program’s participants heard about the program upon enrollment. This information should be captured in the program database and made available to BESP program implementers and Navigant. In addition to GPY2 and GPY3 survey data, information captured during program enrollment will allow Navigant to identify whether the BESP program effectively channeled customers into other Nicor Gas programs.

➤ Target Audience is Unclear

- **Finding:** The BESP program is open to all Nicor Gas residential customers with an online Nicor Gas account. The program marketing plan does not seem to incorporate insight from marketing segmentation or customer demographic data. It is unclear what type of customer the program is intended to attract.
- **Recommendation:** Nicor Gas and the BESP program implementers should consider studying participant demographics on an ongoing basis. Participant demographics could include housing characteristics and socio-economic data as well as participant levels of awareness, satisfaction, and energy use behaviors. This data can be easily collected by asking a series of simple survey questions via the web account creation form. Or, implementers could add a module to the web portal that allows users to update their personal preferences and demographic information. If individual customer demographic information is available through Nicor Gas, Nicor Gas should consider making that data available to the BESP program implementers. Capturing and

understanding this information will inform program design decisions, allow implementers to optimize marketing to customers that have not yet signed up for the program, and enhance ongoing evaluation efforts.

5. Appendix

5.1 Data Collection Instrument: Program Staff In-Depth Interview Guide

Nicor Gas: Behavioral Energy Savings Pilot Program GPY1 Evaluation Program Staff In-Depth Interview Guide

Name of Interviewee: _____ Date: _____

Title: _____ Company: _____

[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program's design and operation, i.e., where they have significant experiences for meaningful responses.

<i>Topic Area</i>	<i>Topic Objective</i>
Roles and Responsibilities	Determine how program staff spend their time; determine specific processes and roles within program; identify key individuals for future conversations if appropriate
Program Goals, Objectives, and Structure	Understand the motivation for creating the program, and what they would like to do with it moving forward; what information do they need from this evaluation
Data Tracking	How is data handled within the program; where is there room for improvement; is the program tracking the appropriate data; how can we gain access to tracking systems for review
Other	Miscellaneous and wrap-up questions

Roles and Responsibilities

Key objective: Find out how program staff spends their time on this program. Prompt for verbs and actions and get them to describe specific processes and roles. Listen for key functions to dive deeper on later in the conversation.

1. What's your role with the program?
2. What activities do you complete on a day-to-day basis?
3. How many people work on this program?
4. Besides funding, are there other resources invested in the program? Examples include in-kind marketing, volunteer time, etc.

Program Goals, Objectives and Structure

Key objective: Understand the motivation for creating the program, and what they would like to do with it moving forward; what information do they need from this evaluation?

5. What does Nicor Gas want to accomplish with this program? Why did Nicor Gas create this program?
6. What barriers are being addressed by this program?
7. Who is the program targeting?
8. The Rider cites participation and energy saving goals for the CSG/MyEnergy program. Can you describe these and explain how they were set?
9. Are there specific goals for the Take the Pledge/Chicago Fire partnership?
10. Are there any external factors beyond your control that affect the program?
11. What specific actions are you hoping to encourage with the program? Includes everything from signing up for an account to turning off the lights; what do you want participants to do?
12. When are you expecting these actions to be taken, and for how long?
13. How can we gain access to the web portal so we can see how it works?
14. Are there specific pages or tools in the portal that you want users to visit more than others?
15. How does a participant move through each component of the program?
16. How do you communicate with participants throughout the program?
17. What is the status of each of the program components?
18. Is the marketing plan accessible for our review?
19. How are you coordinating with local community advocates?
20. What is the definition of “participant”?
21. What other tangible products does the program create? Brochures, emails, commercials, event materials, etc.
22. What messages are you using in the marketing and outreach for this program?
23. How can we get examples of the materials used for the program?

Data Tracking

Key objective: How is data handled within the program; where is there room for improvement; is the program tracking the appropriate data; how can we gain access to tracking systems for review?

24. What sort of metrics are you tracking for the program? What data is being tracked for each program component?
25. Timing of enrollment in the program will be important to the impact evaluation. Is the account “activation” date being tracked? For each program component?
26. Since anyone can enroll for Take the Pledge, how do you indicate whether someone is a Nicor Gas customer?
27. How can we get access to the data tracking system(s)?

Other

Miscellaneous and wrap-up questions.

28. What questions are most important for you to answer through our evaluation?
29. What are the current challenges, concerns, things that could work better, etc.?
30. What is working well?
31. Is there anything I didn’t ask about that you would like to add?