

DATE October 1, 2010

FROM Sandra Henry, ComEd; Tate Walker, Energy Center of Wisconsin

SUBJECT Comments on Navigant Consulting *Energy Efficiency/ Demand Response Plan: Plan Year 2 (6/1/2009 – 5/31/2010)*
Evaluation Report: Nonresidential New Construction

We appreciate the opportunity to review and respond to Navigant Consulting *Evaluation Report: Nonresidential New Construction*. We are very pleased that Navigant found program participants are ‘satisfied’ or ‘very satisfied’ with the program and find it valuable¹. We have drafted comments for your consideration in an effort to frame additional discussion and to request additional data. The overarching intent of these comments is to support the ongoing improvement of the program between all of its stakeholders: ComEd, the Energy Center, the evaluation team, and program participants.

Process Comments

We’ve taken many of the process improvement suggestions into account, and have already implemented some of them in the day-to-day operation of the program. For example,

- Minimum codes and standards are specifically identified in the site verification report. (pg 2)
- At this time the program is no longer tracked by spreadsheets, but by a centralized online database in SharePoint. Currently, the cost of a customized relational database is outside the budget for this program. (pg 3)
- The training topics are reviewed and discussed by members of the Energy Center and ComEd, and include conference calls with the speakers to confirm target audiences and content. Also new construction training topics will be coordinated with the Trade Ally training topics to ensure each offering targets the appropriate audience. (pg 3)

A unique feature of the Commercial New Construction Program is the use of sustainable buildings outreach, education and training as communication channels to reach the program’s target market of architects, engineers and building professionals. A considerable amount of program resources (such as materials development, logistics, accreditation, etc.) are devoted to leveraging these channels. As such, the implementation team requests the inclusion of the program’s educational offerings in future program evaluation. Formal evaluation should

¹Navigant Consulting *Evaluation Report: Nonresidential New Construction*, pgs 23 and 31

quantify the effects of education and training on the building community and will identify if (and how) they contribute to energy impacts and to market transformation.

On Page 30, the report states:

"However, none of the participants we interviewed had attended any trainings² and a few expressed surprise that they even existed."

With regard to training efforts, the evaluation team interviewed 6 people representing 14 projects, whereas 390 attended the trainings. Additionally, 5 people attended trainings prior to submitting an application, and 12 firms representing 15 projects have had individuals attend the trainings. There is concern that the interview sample may not have been comprised of the appropriate respondents. A more in depth analysis would assist the program in making resource decisions.

The comments on the marketing plan for the program were insightful and are will be addressed in the upcoming year. In general, the expansion and definition of the program's marketing approach will be outlined in the operations manual to facilitate the evaluation process.

Gross Program Impact Comments

We strongly disagree with Navigant's decision to disallow all savings from the lighting measures on project number 10. See page 14, paragraph 3 and tables 3-1 and 3-2 for a description of the evaluation team approach.

The Energy Center verified that lighting was installed per plans and specs provided by the owner. However, the plans and specs provided only cover 76% of the store by area. Therefore, we request that the portion of the store that was verified be awarded the savings that were verified:

Total Store square footage: 66,430
Area verified by Energy Center: 50,613 (76% of the total store by area)
Total installed watts: 64,173
Annual Hours of operation: 6,916
Allowable LPD: 1.5 w/ sf
Initial Claimed LPD: 0.97
Actual LPD*: 1.27
Revised kWh Savings: 81,239
Revised kW Savings: 11.7

*Actual LPD is based on the total installed watts divided by the verified area instead of the total store area.

² One market actor stated that another person within the design organization had attended a ComEd training but did not know about the details.

The Energy Center feels this is a conservative estimate of the savings achieved by this customer because the calculations include all of the high wattage display lighting in the main areas of the store. Only 15,817 square feet of the total 66,430 square feet was not verified (23% of the total area), but inspection indicated these areas were all 'back of house' with low lighting power densities for storage of goods and using all new T8 lighting. If the additional area and fixtures were added to the total LPD, the result would be lower than the proposed LPD of 1.27.

This proposed adjustment would restore 81,239 kWh and 11.7 kW in savings to bring the program's lighting kWh realization rate from a 0.81 to a 0.84 (table 3-2), and overall kWh realization rate from a 0.85 to 0.89 (table 3-1). Again, disallowing all savings from the entire project for a small percentage of missing information is not appropriate.

Net Program Impact Comments

The implementation team would like to request more information on the Net-to-Gross (NTG) assessment of the program. The report states:

"The net-to-gross ratio was 0.59 for the program (compared to the program tracking assumption of 0.85). This somewhat low value is due to three customers who represent 30% of the expected savings indicating the program had no influence on the choices made within their building." (pg 2)

Since the program is primarily evaluated on Net targets, the implementation team requests more information on these projects due to the magnitude of their savings impacts and the corresponding negative effect on the program as a result of their exclusion. We ask the identification of the three projects that were excluded from the net calculation, the team member interviewed, a detailed explanation of the reasons or logic employed for their exclusion, and a copy of the interview transcripts. Additionally, the inclusion of a Table (similar to Table 3-1) showing the NTG adjustment per project, changes to the algorithm, and the size of adjustments. The intent of these requests is that the program could improve its design and delivery processes to maximize its cost effectiveness and serve more clients more efficiently.

The report states *"At least one participant we interviewed gave inconsistent responses, which implied that they might be purposely trying to give credit to the program in the hopes of continuing to benefit from the program."* (pg 12) However, another plausible conclusion is that they did not understand the question. Determining which program or entity caused a person to take an efficiency-based action does not mesh well with basic notions of consumer behavior. Purchase decisions are complex, difficult to model, and driven by both rational and emotional factors. Furthermore, those decisions are most likely made by simultaneously considering multiple factors, rather than being attributable to the actions of a single entity. For these reasons, we'd like to review the complete transcript of those projects that were considered free riders.

The Energy Center was given the opportunity to review and comment on the 'depth interview' instrument produced by Opinion Dynamics that uses a self-report approach for determining NTG. The template is included as Appendix A in the Evaluation Report: Nonresidential New Construction. In general, the instrument is a useful tool for gaining insight into how the

program is actually perceived and used, especially with respect to the *PROCESS SECTION* questions. However, implementation team feels that the *NET-TO-GROSS (Attribution) SECTION* does not reflect the unique challenges of the new construction market. While some of our comments were incorporated into the instrument, they were generally slight changes to the wording of the questions. The implementation team requires the redesign of the attribution section of the depth interview instrument before using it on PY3 projects.

For example, the following are excerpts from *Appendix A* followed by commentary from the implementation team:

FR1. When did you first learn about the Com Ed's New Construction Program? Was it BEFORE or AFTER you first began to THINK about including the energy efficient measures that the program incented?

This is a particularly problematic question for new construction projects for several reasons:

- In all cases, the need for a new building was established before the program was involved. Since the incentives cover measures that are required for building operation (such as lighting, envelope, and HVAC systems), the respondent must answer 'AFTER', making this question a foregone conclusion.
- Interest and desire for energy efficiency is high among the design community, owners, and developers. Yet, we often see these good intentions fall to budgetary and schedule pressures (ex: value engineering). It does not appear that this question differentiates between early, good intentions ("pre-disposition") and free ridership.
- Even in the best case scenario where the respondent is interviewed as soon as the building is completed and verified, there is a significant amount of time between the program intervention and final project completion. The long timeline significantly impairs the accuracy of the respondent's memory, which could lead to a false response. In addition, remembering when one 'first thought' of an idea is not a milestone that is substantial enough to track.

This question is best suited to a retrofit project where the scope is limited to energy efficiency improvements to an existing facility. For these reasons we recommend deleting it or coming up with a question that is suitable to new buildings.

FR6. You indicated that there was a <FR5 RESPONSE> in 10 likelihood that you would have [designed/installed] the same level of efficiency if the program had not been available. Do you think the building would EVER have reached this same level of efficiency if you had not included it at this point in time?

- 1. Yes***
- 2. No [SKIP TO FR7]***
- 3. Don't Know***

The free ridership percentage can never be directly observed as it is by definition a counterfactual result. That is to say, when estimating free ridership, consumers are asked what they would have done if the world were different, i.e., if there were no incentive available. The ability of humans to process counterfactual evidence is limited, at best. This opens the door to a

variety of cognitive biases that call into question the reasonableness of the concept of free ridership estimates, and therefore of net savings estimates. These comments also apply to question FR6a.

FR6b. How much later would you have installed this equipment? Would you say...

- 1. Within 6 months?**
- 2. 6 months to 1 year later**
- 3. 1 - 2 years later**
- 4. 2 - 3 years later?**
- 5. 3 - 4 years later?**
- 6. 4 or more years later**
- 8. (Don't know)**

New equipment typically has a lifespan of 10 years minimum, and would be installed regardless of program influence because the project scope is a new building, not the equipment being installed. Again, we feel this question is more geared toward retrofit projects, and recommend removing it, or replacing it with a question that reflects challenges related to building a new building. Furthermore, it is unclear if you are asking the respondent when they would replace the equipment they just installed or when they would upgrade it with more efficient equipment.

The implementation team appreciates the careful coordination that the evaluation team took to ensure that the appropriate subject was interviewed to determine program influence.

We used a purposive sample for all in-depth interviews. We attempted to reach the most highly engaged participants in the program as indicated by the program implementer. Where that person was unavailable, we called one of the other names available for a participant site. (pg 13)

However, program administrators should have been notified that the appointed lead for the program could not have been contacted and been able to specify an alternative contact. Often, new construction projects maintain large project teams of project managers and technical staff that rotate on and off as needed to maintain the budget while fulfilling a broad scope. For this reason, interviewing the wrong entity on the team can lead to underestimating program influence. Additionally, the speed by which a building can be built is often the driving factor for selecting the design and construction team members. As such, one of the biggest concerns voiced by new program participants is that the addition of the program will slow the design or construction process down. Therefore, implementation staff strive to assume a supporting role to the appointed design professionals, which can easily be misconstrued by non-primary contacts as the program having little or no influence. If any person not identified by the implementation team as the primary contact was interviewed and the project was determined to be a free-rider, the NTG result should be discarded and substituted with the overall program NTG.

Summary of Requests:

1. Provide a plan and budget for a formal evaluation of the Education and Training efforts in New Construction Program in the scope of work for upcoming program years. Include a methodology for assessing spillover from trainings.
2. Revise lighting savings from project 10 to reflect verified areas of the project.
3. The implementation team would like to request more information on the Net-to-Gross (NTG) assessment of the program.
 - a. Identify the three projects that were excluded from the net calculation.
 - b. Identify the team member who was interviewed for each of these projects.
 - c. Include a detailed explanation of the reasons or logic employed for their exclusion.
 - d. Provide a copy of the interview transcripts for each of the excluded projects.
 - e. Include a Table (similar to Table 3-1) showing the NTG adjustment per project, changes to the algorithm, and the size of adjustments.
4. If any person not identified by the implementation team as the primary contact was interviewed and the project was determined to be a free-rider, the NTG result should be discarded and substituted with the overall program NTG.
5. Revise the Attribution section of the In-depth Interview Guide to reflect new construction practices instead of general energy efficiency upgrades before it is used to attribute savings for program year 3.