

# Getting out of the Starting Blocks: Challenges with PY1 Portfolio Evaluations

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## ABSTRACT

A program evaluation, by its nature, is a complicated task that requires coordinating many different moving parts. However, this task becomes even more challenging when trying to coordinate multiple program evaluation activities, such as in-depth interviews, customer surveys, and billing analysis across different types of program designs. Add in the usual concerns of a first-time program evaluation, and this can become a daunting task even for the most experienced program evaluators.

This paper describes three separate approaches used by different utility organizations to field their first-ever program portfolio evaluations. These utilities — Central Hudson Gas & Electric, Columbia Gas of Virginia, and the Partners in Energy Savings Program (the last is a consortium of four natural gas utilities in Colorado) — took different approaches in planning and coordinating their portfolio program evaluations. Although these utilities implemented remarkably similar programs targeting residential and small commercial customers, the results were strikingly different.

These differences, along with the key lessons learned, are explored more fully in this paper. Specifically, we compare the evaluation strategies used for each organization regarding program evaluation timing, key evaluation objectives, and key metrics used to evaluate program operational effectiveness.

## Introduction

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This paper describes three separate approaches used by different utility organizations to field their first-ever program portfolio evaluations. These utilities — Central Hudson Gas & Electric, Columbia Gas of Virginia, and the Partners in Energy Savings Program (the last is a consortium of four natural gas utilities in Colorado) — took different approaches in planning and coordinating their portfolio program evaluations. Although these utilities implemented remarkably similar programs targeting residential and small commercial customers, the results were strikingly different.

We also summarize and compare the key findings and recommendations from three first-year program operations. These utilities share many characteristics which made it easier to compare these results across programs. These utilities are all relatively small, with less than 100,000 customers, offer similar programs targeting the residential and small commercial and industrial markets, and are new to developing and deploying demand-side management (DSM) programs.

We provide both encouragement and guidance regarding the challenges associated with planning

and implementing effective program evaluations. This paper will be especially helpful for staff new to the evaluation field, because we emphasize the “best practices” used to facilitate cost-effective and meaningful process and impact evaluations.

## Summary of Utility Programs

We first describe the utilities featured in this paper — Central Hudson Gas & Electric Corporation (Central Hudson), Columbia Gas of Virginia (CGV) and the Partners in Energy Savings Program.

**Central Hudson** is a regulated transmission and distribution utility serving approximately 300,000 electric customers and 74,000 natural gas customers in a defined service territory that extends from the suburbs of metropolitan New York City north to the Capital District at Albany. According to the U.S. Census Bureau,<sup>1</sup> the Central Hudson service territory has more than 40,000 small C&I customers. Table 1 summarizes the distribution of residential customers.

**Table 1: Total Number of Residential Customers in Central Hudson’s Service Territory**

Electric – Total	300,626
Electric – Residential	253,710
Natural Gas - Total Firm	74,159
Natural Gas – Residential	63,403

Central Hudson deployed three “expedited” energy efficiency programs based on the New York Department of Public Service (NYDPS) Order in Case 07-M-0548, dated June 23, 2009. These programs target both residential electric and natural gas customers as well as small commercial customers with electric demand of 100 kilowatts and less. These programs became operational on May 18, 2009 and are marketed as part of Central Hudson’s SavingsCentral brand.

**Columbia Gas of Virginia** (CGV), with headquarters in Chesterfield County, is one of the nine energy distribution companies of NiSource Inc. Serving approximately 240,000 residential, commercial and industrial customers, CGV is the third largest natural gas utility in the state (Source: <http://www.columbiagasva.com/en/about-us.aspx>). CGV received approval from the Virginia State Corporation Commission to implement a Conservation and Ratemaking Efficiency (CARE) Plan for a three-year period (2010-2012). The CGV CARE plan provides a portfolio of six programs with 27 conservation and energy efficiency programs for CGV’s residential and small general services customers.

The four natural gas utilities in Colorado — Atmos Energy Corporation, Colorado Natural Gas, Eastern Colorado Utilities and SourceGas Distribution — fund a portfolio of energy efficiency programs through the **Partners in Energy Savings (PIES) Program**, otherwise known as the Collaborative. On March 7, 2008, the Public Utilities Commission (PUC) of the State of Colorado issued a Decision No. C08-0248<sup>2</sup> related to gas efficiency programs in these utility territories in [Docket No. 07R-371G](#). The cost savings associated with using a collaborative approach allowed each natural gas utility to direct more of its DSM program dollars toward maximizing the installation of energy efficiency measures in its respective service territory. Additionally, designing collaborative programs with integrated marketing activities, efficiency measures and rebate structures permit consistent messaging by these utilities, which may lessen the potential for confusion among natural gas consumers in the utilities’

<sup>1</sup> <http://quickfacts.census.gov/qfd/states/36/3659641.html> accessed 10-11-09

<sup>2</sup> Source: [http://www.dora.state.co.us/puc/docketsdecisions/decisions/2008/C08-0248-E\\_07R-371G.pdf](http://www.dora.state.co.us/puc/docketsdecisions/decisions/2008/C08-0248-E_07R-371G.pdf)

service areas that could result from the implementation of substantially different DSM portfolios. These programs were delivered and administrated collaboratively; however, each utility partner tracked, documented, and reported program impacts, budgets, costs and other metrics separately.<sup>3</sup> Their program portfolio, marketed under the *Excess is Out* Brand, targets residential and small commercial customers to encourage them to make energy efficiency improvements through installing energy conservation measures.

Table 2 provides an overview of each utility portfolio that will be discussed more fully in this paper. It also illustrates the similarities that these three utility program portfolios share and thus provides the context for discussing the challenges each portfolio faced during the first year of program operations.

**Table 2: Comparison of Utility Program Portfolios**

Utility	Central Hudson Gas & Electric	Columbia Gas of Virginia	Partners in Energy Savings
<b>Residential Programs</b>			
Energy Efficient Equipment Rebate Programs	✓	✓	✓
On Line Audits		✓	
Self/Direct Install Energy Efficiency Kits		✓	✓
<b>Small Commercial &amp; Industrial Programs</b>			
Energy Auditing & Equipment Rebates	✓	✓	✓
Custom Measures Program	✓	✓	✓

## Challenges with PY1<sup>4</sup> Evaluations

### Challenge 1: How soon is too soon?

These utilities operated on different program “years,” and the timing of the process evaluation during the first year was critical to identifying and correcting operational issues. Central Hudson commissioned process evaluations of its three programs in its first year of program operation. The goals of this process evaluation were to document program history and program flow, and identify areas for program improvement. The Year 1 process evaluation included the following activities:

- Task 1 - Review current program materials
- Task 2 - Review current program tracking methods
- Task 3 - Develop logic model and assess program flow
- Task 4 - Collect data from staff/program implementer; trade allies; and customers

Many key recommendations made after the process evaluation was completed (late 2009) – for example, ways to streamline program reporting and enhance customer and contractor interactions – are already being undertaken.

Central Hudson had difficulty getting their program processes in place and worried about meeting their overall goals. Rather than waiting for the program to complete its first year of operation, the utility staff decided to initiate a process evaluation after the first six months. While this is not the “normal” timing for most process evaluations, this early process evaluation led to several significant

<sup>3</sup> SourceGas 08A-43CG DSM Application, 9-29-2008, p. 19.

<sup>4</sup> PY is Program Year

findings and ultimately benefited the utility and its third-party implementer. For example, it was clear after a few months of program operations that Central Hudson's Small Commercial Program was not on track to meet its objectives. Only four customer installations had been completed during the first six months of program operations. Although Central Hudson contracted with its third-party implementer to provide "turnkey" program implementation, this has not been the case. Many of the proposed marketing and outreach activities had not been delivered by the contractor, due to staffing shortages. It took more than six months to hire the "circuit riders" needed for contractor outreach, customer recruitment and follow-up. Currently, there has been limited customer follow-up, even for those that have completed energy audits.

The process evaluations documented that this program had not been a high priority for this third-party implementer. Rather than developing tools customized to the specific needs of this smaller utility, the process evaluation noted that the contractor relied on a variety of ad-hoc activities to help with contractor recruitment, and that these activities were not well-coordinated, either internally or externally. The process evaluation also identified the communications issues and "disconnects" between the two organizations, for example:

- **Operations Center:** There was no "feedback loop" from the Customer Call Center back to Central Hudson staff. This explained why the Central Hudson staff reported that they were not receiving program communications in a timely manner during the time of the process evaluation.
- **Contractor Recruitment:** The Central Hudson staff was not pleased with the level of resources dedicated to this program by the third-party contractor. The program was severely under-staffed during the start-up phase, which adversely affected overall program participation and contractor outreach. Therefore, the Central Hudson staff had to "pinch-hit" for the implementation contractor in terms of contractor outreach and marketing.

The process evaluation was effective in getting everyone's attention focused on the program and the challenges it was going to have to meet its savings objectives. Because the process evaluation was conducted early in the program cycle, important changes to the reporting database were made, and the development of program management tools that had been placed on the "back burner" was accelerated. The third-party implementer was not aware of some of these issues, and through the staff interviews, these disconnects were identified and subsequently resolved, almost immediately.

As the California Evaluators' Protocols (2006) recommend, it is highly appropriate to conduct process evaluations when programs are underperforming. By not deciding to wait until the problems became even more challenging, Central Hudson staff effectively used a process evaluation to head off problems before they became significant obstacles to program operations.

Conversely, an impact evaluation requires data collected over an extended period of time. For many programs, especially new programs, anticipated participation rates among small business and commercial customers were significantly lower than expected. Therefore, the timing for the impact evaluation activities was modified to adapt to these circumstances. For Central Hudson, the impact evaluation for the Small Business Program was not planned until PY2, and that seemed prudent after the initial participation rates were reported.

Central Hudson's two residential programs were planned and launched in a compressed time frame. Overall, the residential rebate program achieved about 50 percent of its anticipated first-year participation goals, in spite of the downturn in the economy and the lower energy costs. Both customers and contractors were satisfied with the overall program. In general, the contractors reported that the program rebates, combined with the tax credits, led to increased sales of energy-efficient equipment.

CGV anticipated a more robust participation rate among its 5,000 commercial customers. However, there were only four program participants during the first year. This was partially based on a shortened first year: the programs were launched in April 2010 and ran through December 2010 for the first year. This launch date meant that many of the marketing materials that could have reached

commercial customers and trade allies during the “peak season” (summer) for these types of activities were delayed until mid-summer. This delay meant that the data initially planned for savings estimates were not available to perform an impact evaluation, other than a review of engineering calculations. Accordingly, the timing for the impact evaluation was shifted to the second and third year of program operations. However, like Central Hudson, several key elements of the process evaluation—including in-depth interviews with the staff and third-party implementers—became the main focus for the first year to identify the current barriers and develop appropriate strategies to remedy them. As a result of this shift in resources, second-year program operations are expected to focus more directly on marketing and outreach activities to key trade allies as a way to boost participation rates.

Conversely, the Partners in Energy Savings (PIES) program evaluations were not conducted until the end of the first two years of program operations. The process evaluation, which was completed in March 2010, identified several areas for program improvement that, if identified at the end of the first year program, would have helped the Collaborative refine and improve overall operations. The process evaluation identified strategies to encourage cross-marketing between the in-home audit program and the equipment rebate program. Other recommendations included seeking alternative third-party implementers for its faltering low-income program, and developing a more comprehensive delivery strategy for its energy efficiency kit distribution program. Conducting a process evaluation earlier in the program cycle, after the first year instead of waiting until the end of the second year, may have led to more effective program delivery and enhanced overall program operations.

The PIES impact evaluation, also completed in March 2010, reviewed the current engineering assumptions regarding savings estimates and revealed some critical discrepancies that required reevaluating the saving assumptions used for program impacts.

## **Challenge #2: Tracking the “right data”**

A major challenge for program designers, implementers, and evaluators is to ensure that the program database tracks the correct metrics in a comprehensive manner to facilitate program operations. This has been a challenge for all three utility organizations. CGV brought a program evaluator into the design phase, and by using this approach, a standardized reporting approach was developed and implemented across their programs. However, there were oversights in collecting data on critical fields, which were discovered during the first-year process evaluation, and that led to delays in fielding customer surveys and conducting site visits. Although the utility tried to follow best practices, even those best intentions needed to be followed up with spot checks throughout the first year to ensure that the critical data were being collected throughout the program year. Several key recommendations as a result of the PY1 process evaluations for CGV’s residential programs, completed May 2011, focused on strategies to enhance and streamline the reporting processes among and between its third-party implementers. For example, critical information from the program rebate applications were not being captured in the equipment rebate database while other information, such as self-reported free ridership<sup>5</sup> questions, were ignored entirely. The inability to locate these data fields made it difficult to complete a comprehensive review of program records or monitor customer activities or identify areas for program improvement. Therefore, the process evaluation identified several key data fields that must be captured going forward by the third-party implementer:

- Customer contact information including phone numbers and email addresses
- Contractor contract information for those measures installed by contractors

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<sup>5</sup> Free ridership is defined as determining the number of customers who would have purchased qualifying equipment in the absence of the program.

- Additional measure characteristics and household characteristics currently captured on the program application but not included in program extracts
- Self-reported responses to the three customer “free ridership” questions currently asked on all rebate applications

Central Hudson’s third-party implementer developed a database to support energy efficiency programs for their customers, called BBCS (Backbone Client Service). However, the process evaluation found that while this was potentially a powerful system for managing applications and rebate information, at the time of this process evaluation, it was still being configured because this program was not viewed as a “top priority” by the third-party implementer, and, therefore, they did not dedicate the proper resources to ensure the tracking system was operating efficiently. One issue that affected the reporting requirements for Central Hudson was that BBCS tracked data by application, and it was difficult to report data by measure. While this did not prevent the system from generating required reports, it did affect the ability to generate these reports in a timely manner. Rather than revising the proprietary database to meet the utility’s specific needs, the third-party implementer relied on using a standard template for reports rather than configuring the report format to the specific utility needs. However, that capability was not in place during the first year, and, as a result, effective program tracking was hampered.

The challenges of consistent databases were also an issue for the PIES Program. While there were clear advantages to using a collaborative approach to leverage activities for the four utilities, it also led to some clear inconsistencies in reporting the data across and among programs. A key finding from the first year process evaluation was that the program databases were separate and not linked. There was no uniformity in the fields or information captured in each program database. For example, the Energy Efficient Rebate database was the most comprehensive and was organized by measures. However, the information was stored by Program Year, making it difficult to tabulate cumulative program savings or installation rates. In contrast, the measures installed in the low income program were tracked only in the Energy Efficient Rebate database rather than a separate database dedicated to the low income program.

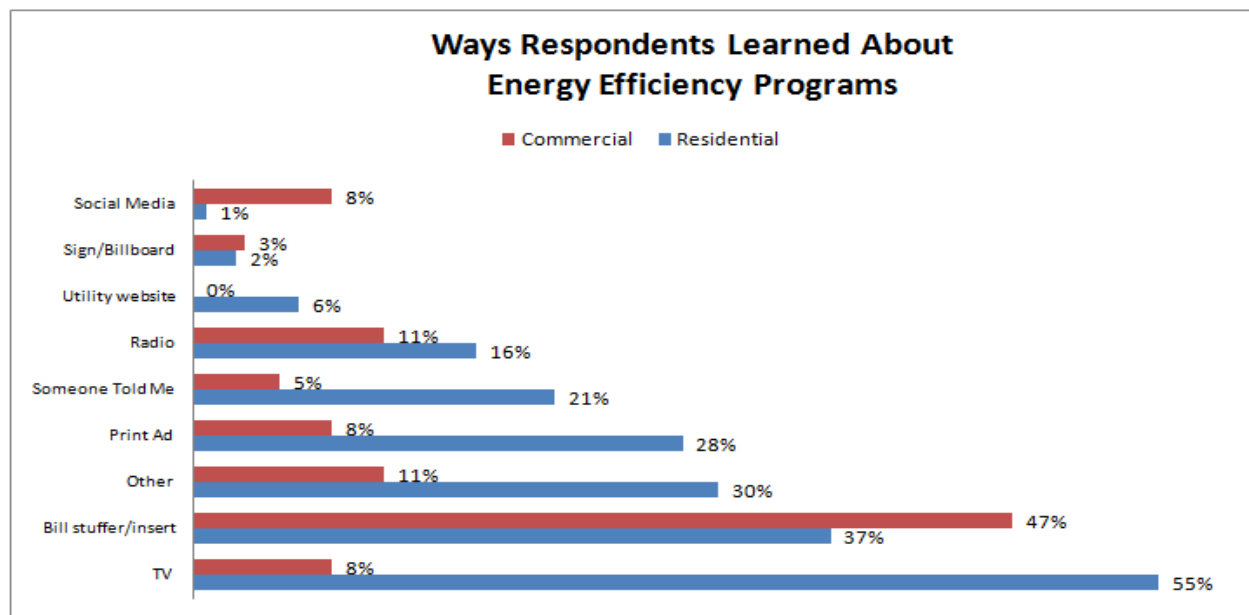
The program evaluation also led to specific recommendations to improve program operations. These recommendations included tracking information separately in two databases as a way to more accurately track program activities and installation rates. Other recommendations included suggestions to reorganize the program databases to facilitate more meaningful program tracking and analysis. The energy efficiency kits database should be linked and cross-referenced with other program activities.

### **Challenge #3: Keeping it Cost-Effective**

For these utilities, the budgets for multiple portfolio evaluations are stretched thin, so another challenge facing them was to develop cost-effective process and impact data collection protocols that would be both statistically rigorous and within budget. A key way to manage these costs was to start with existing tools and protocols and later adapt these protocols to each specific program evaluation.. Critical to implementing this strategy was to recognize that differences existed within the residential and small business market segments so a “one-size fits all” approach would simply not be effective.

In order to understand these differences, CGV Gas’ first evaluation activity was to conduct a baseline study to determine basic awareness levels among the target sectors: residential and small commercial customers. These baseline studies probed specifically on the best ways to reach out to customer groups, and then incorporated these approaches into the marketing and outreach activities (see Figure 1).

**Figure 1: Way Respondents Learned About Energy Efficiency Programs**



The baseline study revealed that the target markets differed significantly. The residential target market was more homogenous, while the small commercial market was highly fragmented and encompassed a variety of different business types. These respondents were most interested in learning more about energy efficiency activities, especially when they focus on key messages such as comfort and health and safety. Small commercial customers wanted to learn about energy efficiency actions directly from the utility, preferably in the form of a bill stuffer or other direct mail.

CGV customers also wanted to participate but they did not know what to do. Therefore, the messaging for these programs needed to clearly explain the actions to customers. The most powerful messages were those that linked energy savings with health, safety and comfort. CGV Gas' customers were also motivated primarily by ways to reduce energy bills, while the additional benefits such as health, safety, and even comfort were secondary drivers. Thus, one of the key drivers to making these decisions in both the residential and commercial markets will be emphasizing cost savings.

The baseline studies demonstrated that CGV has the potential to make significant advances in energy efficiency savings in the market. CGV customers in both target markets were more receptive to positive messages regarding energy efficiency and conservation compared to other residential customer groups. Changes in customers' attitudes and awareness will be tracked throughout the three-year program evaluation and documented. The PY1 process evaluation used the same question set for sections of the residential participant and non-participant customer surveys which facilitated data tracking analysis while also reducing survey development costs. The PY1 process evaluations have revealed a significant increase in overall customer awareness of energy efficiency in general, but also revealed additional ways that CGV should refine its messages in PY2 and PY3.

The best example of a cost-effective portfolio evaluation strategy was the collaborative approach used by the PIES utilities. Given the relatively small evaluation budget for the Residential Gas Program, and the similar marketing approaches, it was most cost-effective to conduct one process evaluation that covered all four residential programs and facilitated the comparison and effectiveness of program delivery methods across utility service territories. For example, the process evaluation revealed that the

pilot program for delivering self-installed “energy efficiency kits” was an extremely effective program to reach out to older senior citizens, and a key recommendation was to expand this program offering to the other participating utilities.

## **Key Lessons Learned/Best Practices**

The key findings from these portfolio program evaluations led to several key recommendations, as described next.

- **Don’t Reinvent the Wheel**

The resurgence of interest in the development, deployment, and evaluation of DSM programs has led to a greater standardization of industry requirements. This has also led to development of accepted practices and guidelines such as the National Action Plan for Energy Efficiency Impact Evaluation Guidelines<sup>6</sup>, and the IPMVP protocols as well as *California Energy Efficiency Evaluation Protocols*<sup>7</sup> (TecMarket Works et al. 2006). All the evaluation plans developed for these three sets of program evaluations relied heavily on tailoring these protocols specifically to the needs of these smaller utilities.

- **Review, Streamline, and Integrate Data Collection and Data Tracking Systems.**

Utility data collection and data tracking systems are typically set up to meet the program administrator’s needs for internal reporting. Therefore, an essential first step in any evaluation effort is to review and make recommendations for integrating evaluation-specific data collection into the program implementation process. The importance of setting up consistent reporting databases was a critical finding in all three evaluations. However, there have been examples of utilities new to DSM being able to develop effective databases from the very beginning. For example, Missouri Gas Energy, a small gas utility in Kansas City, MO, developed a dedicated program database for its water heater program (called WHAM), which tracks all critical program benchmarks including those specifically requested by the Missouri Public Service Commission (such as, questions determined to monitor self-reported free ridership, fuel switching and home ownership). This database also generates the internal documents necessary to notify the accounting department, so that participating customers receive the proper billing credit. The process evaluation review of this database identified less than 10 errors in the application database. There were also four complaints reported in the database; three were regarding the energy factor rating, and one was a clerical processing error. All four were resolved within 24 hours. Overall, this database was well organized, and all critical benchmarks were tracked in an easy-to-understand format.

- **Being Small Doesn’t Mean You Have to Sacrifice Quality**

Small utilities with resource and staffing constraints can effectively work together to collaboratively implement evaluation, monitoring and verification (EM&V) for their energy efficiency programs. A common misconception in developing EM&V programs is that the process has to be expensive. For these smaller budgeted evaluations, many of the activities during the first year—for the

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<sup>6</sup> <http://www.epa.gov/cleanenergy/energy-programs/napee/index.html>

<sup>7</sup> <http://www.cpuc.ca.gov/PUC/energy/electric/Energy+Efficiency/EM+and+V/>



process and impact evaluations—focused on relying on secondary sources. There are many useful secondary sources that can provide insight such as the review of net-to-gross literature summarized as part of the DEER database (Fagan 2008) which supplemented and expanded the findings from the in-depth interviews and customer surveys to identify and estimate free ridership.. Another approach was to compare the current program requirements against the new ENERGY STAR® standards and qualifications. Since these standards have recently changed, this provided the evaluation team with recommended program improvements based on current market conditions. Another innovative approach was that CGV was able to leverage its one-time baseline customer survey into the first year of a multi-year tracking study without needing separate surveys or analytical activities. This approach also yielded a rich source of detailed information about attitudinal differences across CGV’s service territory, which can then be further analyzed by its advertising agency to refine its target market approaches and enhance its overall messaging to its residential customers. A similar study will be conducted as part of the PY2 operations for its small business customers.

## Conclusion

This paper documented some of the challenges and strategies that these utilities have used to both meet and overcome the obstacles often encountered during the first year of program operations. The most critical lesson learned was that being a smaller utility organization has given them the flexibility to adjust their reporting timeframes to better suit their operational needs, and has allowed them the creativity to shift, collaborate or re-order program evaluation activities to minimize costs while still meeting reporting goals and objectives.

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