

# 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 (four natural gas utilities in Colorado) each 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, will be explored more fully in this paper. Specifically, it will 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 (four natural gas utilities in Colorado) each 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.

It also summarizes and compares 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 all are new to developing and deploying Demand Side Management (DSM) programs.

This paper will provide both encouragement and guidance regarding the challenges associated with planning and implementing effective program evaluations. It will be especially helpful for staff new to the evaluation field in that it will emphasize the “best practices” used to facilitate cost-effective and meaningful process and impact evaluations.

## Summary of Utility Programs

This paper examines the difficulties of implementing and evaluating energy efficiency program portfolios during the first year of operation. It draws on the experiences from three diverse utilities which deployed similar programs targeting the residential and small commercial and industrial markets. This paper highlights the challenges that these utilities faced as well as the recommendations for program improvement based on first year evaluations. The utilities featured in this paper are Central Hudson Gas & Electric Corporation (Central Hudson), Columbia Gas of Virginia (Columbia Gas) and the Partners in Energy Savings Program, four natural gas utilities in Colorado.

### Central Hudson Gas & Electric Corporation (Central Hudson)

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.



**Your energy savings start here.**

### Columbia Gas of Virginia

Columbia Gas of Virginia (Columbia), with headquarters in Chesterfield County, is one of the nine energy distribution companies of NiSource Inc. (NYSE:NI). Serving approximately 240,000 residential, commercial and industrial customers, Columbia Gas of Virginia is the third largest natural gas utility in the state (Source: <http://www.columbiagasva.com/en/about-us.aspx>).

Columbia Gas of Virginia (Columbia) received approval from the Virginia State Corporation

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

Commission to implement a Conservation and Ratemaking Efficiency (CARE) Plan for a three-year period (2010-2012). The Columbia Gas of Virginia CARE plan will provide a portfolio of six programs with 27 conservation and energy efficiency programs for Columbia’s residential and small general services customers. These programs are open to all of Columbia’s commercial and residential customers.

**Partners in Energy Savings Program**

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 allows each 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' 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: Comparison of Utility Program Portfolios**

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

**Challenges with PY1 Evaluations**

<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)

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

## Challenge 1: How soon is too soon?

These utilities operated on different program “years” and the timing of the first evaluation was critical to identify and enhance program operations. 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. Many key recommendations made after the process evaluations were completed in late 2009 are already underway; however, this process evaluation identified ways to streamline program reporting and enhance customer and contractor interactions. The Year 1 process 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

Central Hudson Gas & Electric was having difficulty getting the program processes in place and were worried about meeting their overall goals. So 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 findings and ultimately benefited the utility and its third-party implementer.

It was clear after just a few months of program operations that its Small Commercial Program was not on track to meet its objectives. Only four customer installations had 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 have not been delivered by the contractor, due to staffing shortages. It has taken more than six months to hire the “circuit riders” needed to for contractor outreach and customer recruitment and follow-up. To date, there has been limited customer follow-up, even for those that have completed energy audits.

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

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

This process evaluation also was effective in getting everyone's attention focused on the program and the obvious challenges it was going to have to meet its savings objectives. Because the process evaluation was conducted early enough into the program cycle, important changes to the reporting database were made, as well as accelerated the development of program management tools that had been placed on the "back burner." 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 this example demonstrates, the process evaluation can be conducted at almost any time during the program cycle. While it is most effective to be done after an initial period of activity, typically a year, in some cases the process evaluation can be deployed earlier to head off problems before they become significant obstacles to program operations.

Conversely, an impact evaluation requires data. Typically these data are collected based on program participation levels. For many programs, especially new programs such as those deployed by both Central Hudson Gas & Electric and Columbia Gas of Electric, 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 even more prudent after the initial participation rates were reported.

These two residential programs were planned and launched in a compressed time frame. Overall, the program has 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 are satisfied with the overall program. In general, the contractors reported that the program rebates, combined with the tax credits, has led to increased sales of energy efficient equipment.

Columbia Gas of Virginia anticipated a more robust participation rate among its commercial customers, of more than 5,000 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" for these types of activities were delayed until mid-summer.

Of course, this delay also meant that the data initially planned for savings estimates were not sufficient enough to perform any impact evaluation activity other than a review of engineering calculations. Rather, the timing for the impact evaluation and subsequent budget, was shifted to focus on the second and third year of program operations. However, like Central Hudson Gas & Electric, 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 going to focus more directly on marketing and outreach activities to key trade allies as a way to boost participation rates moving forward.

## **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, however. Columbia Gas of Virginia did bring in the program evaluator into the design phase, and by using this approach it did lead to a standardized reporting approach across the utility programs. However, there were some oversights in collecting critical fields, which were discovered during the first year process evaluation, and that led to some delays in fielding customer surveys and conducting site visits. So even though the utility tried to follow best practices, even those best intentions need to be followed up with spot checks throughout the first year to ensure the critical

data are being collected throughout the program year.

As indicated previously, Central Hudson Central Hudson's third party implementer developed as the database of record to support energy efficiency programs for their customers called BBCS (Backbone Client Service). However, the process evaluation found that while this is a powerful system for managing applications and rebate information, at the time of this process evaluation, it was still being configured.

Another issue that affects reporting requirements is that BBCS tracks data by application and has difficulty reporting by measure. While this does not prevent the system from generating required reports, it does 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 was relying on using a standard "out-of-the-box" reports. However, that capability was not yet in place during the first year and hampered effective program tracking.

The challenges of consistent databases were also an issue for the Partners in Energy Savings Program (PIES) in Colorado. While the collaborative approach of leveraging the activities of four different utility programs, it also led to some inconsistency in program reporting and tracking. The process evaluation of its first year of operations revealed the following key findings:

- The program databases are separate and not linked. There is no uniformity in the fields or information captured in each program database.
- The Energy Efficient Rebate database is the most comprehensive. It is organized by measures. However, the information is stored by Program Year, making it difficult to tabulate cumulative program savings or installation rates. Its current structure is also not organized in a fashion to facilitate comparisons across program year, or to identify multiple participants. Another finding was that the measures installed in the low income program were tracked only in the Efficient Appliance Rebate database rather than a separate database dedicated to the low income program. These activities should be tracked separately.
- The program database for the Home Energy Evaluation (Audit Program) was inconsistent, and disorganized. It is set up to be more of a journal documenting customer contacts rather than a formal way to measure and track audits and installations of energy efficiency measures. This database is the most in need of reorganization.
- The database was organized by mailing and zip code. There are separate databases for each utility. The energy efficiency kits database should be linked and cross-referenced with other program activities
- The program databases need to be reorganized to facilitate more meaningful program tracking and analysis. The energy efficiency kits database should be linked and cross-referenced with other program activities. The utilities need to develop a more systematic way to follow up to verify customer installations.

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

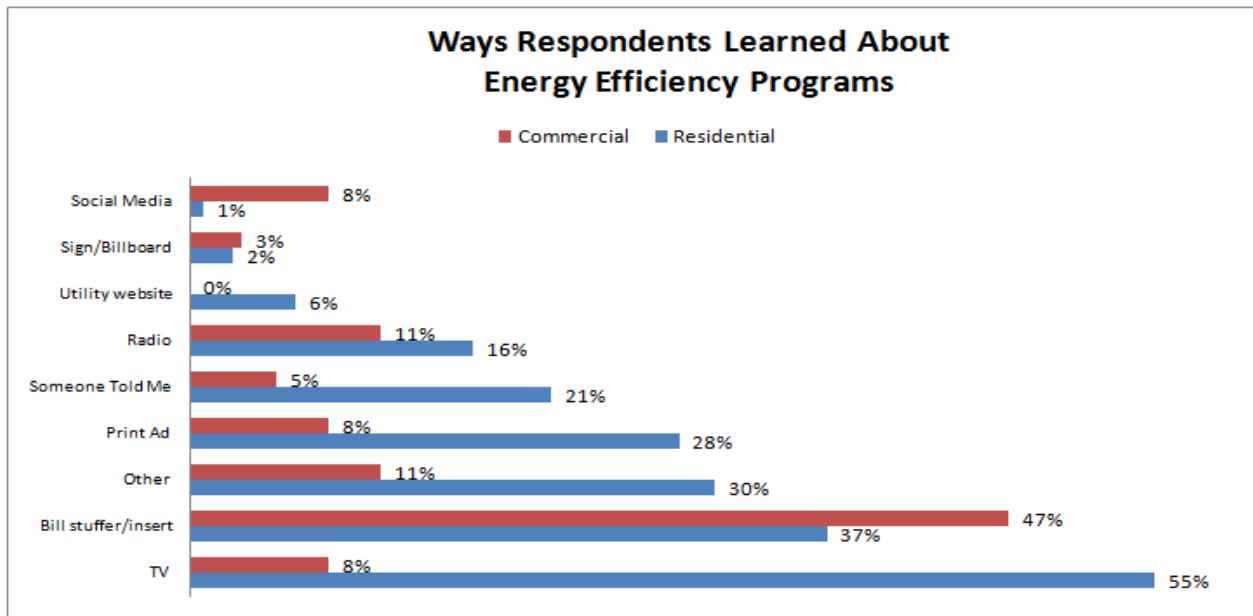
For these smaller utilities, the budgets for these multiple portfolio evaluations are stretched thin, so another challenge facing all three utilities was to develop cost-effective process and impact data collection

protocols that would be both statistically rigorous and within budget. A key way to manage these costs was to rely on existing tools and protocols and adapt these protocols to these program evaluations.

Critical to implementing this strategy was to recognize that there were differences among and between programs rather than trying to use the same approach across all programs Columbia Gas. In fact, the first evaluation activity the utility completed 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 differ significantly. The residential target market is much more homogenous while the small commercial market is highly fragmented and encompasses 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 want to learn about energy efficiency actions directly from the utility, preferably in the form of a bill stuffer or other direct mail.

Another key finding was that the Columbia Gas customers want to participate but they do not know what to do. Therefore the messaging for these programs needs to clearly explain the actions to customers. The most powerful messages will be those that link energy savings with health, safety and comfort. Columbia Gas' customers are motivated primarily by ways to reduce energy bills, while the additional benefits such as health, safety, and even comfort are secondary drivers. 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 Columbia Gas has the potential to make significant advances in energy efficiency savings in the market. Columbia Gas customers in both target markets are more receptive to positive messages regarding energy efficiency and conservation compared to other residential customer groups. Moreover, changes in customers' attitudes and awareness will be tracked throughout the three-year program evaluation and documented.

Perhaps the best example of this strategy has been 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 these programs and facilitated the comparison and effectiveness of program delivery methods across utility service territories. For example, this 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 has been to expand this program offering to the other participating utilities.

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

The key findings from these portfolio program evaluations have led to the following recommendations.

- **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 Guidelines) and the IMPVP E,M&V protocols as well as *California Energy Efficiency Evaluation Protocols*<sup>4</sup> (TecMarket Works et al 2006). The evaluation team consulted and incorporated these guidelines in developing both the process and impact evaluation plans for the including the recently developed National Action for Energy Efficiency Impact Evaluation Guidelines<sup>5</sup>. 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 program administrator 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,<sup>6</sup> 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 is well organized and all critical benchmarks are tracked in an easy-to-understand format.

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<sup>4</sup> <http://www.cpuc.ca.gov/PUC/energy/electric/Energy+Efficiency/EM+and+V/>

<sup>5</sup> <http://www.epa.gov/cleanenergy/energy-programs/napee/index.html>

<sup>6</sup> Free ridership is defined as determining the number of customers who would have purchased qualifying equipment in the absence of the program. The free ridership findings from this program evaluation are discussed in Chapters 2, 3, and 5.



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

Small utilities with resource and staffing constraints can effectively work together to collaboratively implement E, M&V for their energy efficiency programs. A common misconception in developing E,M&V programs is that the process has to be expensive. For these smaller budgeted evaluations, many of the activities during the first year—for both the process and impact evaluations focused on relying on secondary sources to supplement the staff interviews and document reviews as a way to identify and estimate free ridership levels.

Another approach was to compare the current program requirements against the new ENERGY STAR<sup>®</sup> 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 Columbia Gas 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 activities.

## **Conclusion**

This paper documented some of the challenges and strategies these utilities have used to both meet and overcome the obstacles often encountered during the first year of program operations. The most critical take away is 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 combine program evaluation activities to minimize costs while still meeting reporting goals and objectives.

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