

Trials and Tribulations of Joint Electric and Gas Programs - Guidelines in Integrating Joint DSM

Robert Neumann, Navigant Consulting, Inc., Chicago, IL

ABSTRACT

Joint energy-efficiency (energy efficiency) programs¹ are typically managed through combined efforts of electric and natural gas, single-fuel utilities. Some key elements of managing joint programs include effectively managing costs, proper design (*program theory, logic*), program measurement, joint implementation protocol and assessing benefits gained by each utility.² The experience in Illinois to date has illustrated the importance of taking specific steps to manage risks and ensure joint cooperation. Evaluators and implementers correctly anticipated many core joint programs issues (e.g., which utility leads, budgets, managing expectations, overall success for each utility, and evaluating the joint and individual benefits). Illinois implementers and evaluators did not fully anticipate some of the nuances of these previous points. Key lessons learned and guidelines across other joint program states and Illinois are set forth below.

There is a growing database of joint program experiences to document and assess for those program elements that worked and those elements that did not work well. This paper will address:

- What can be learned by comparing the successes and failures across joint programs?
- What are the benefits and costs, possibly, unintended consequences produced from these joint programs?
- What does this joint program experience suggest about the best way to encourage joint program energy-efficiency design and evaluation?
- What lessons can be learned about how to move to a more cost-effective integrated DSM planning and evaluation framework?

Introduction

This paper addresses the challenges and potential benefits associated with planning, implementing and evaluating joint gas and electric DSM programs. There is a growing, nationwide movement toward integrating DSM planning and implementation activities across utilities.³ A logical place to start is integrating gas and electric energy efficiency programs and evaluations. This is a developing and important energy efficiency segment to assess in its early stages so that energy-efficiency practitioners can understand known successes and failures and apply this knowledge to their joint energy efficiency programs. To that end, this paper will provide greater understanding of key lessons learned and guidelines for joint electric and gas DSM programs (e.g., use of disparate gas vs. electric data, non-matching years, different utility measures, etc.).

As noted, a joint program is an energy efficiency program jointly managed by an electric and gas company, single fuel utilities with overlapping territories or within the same state and can be evaluated,

¹ A joint program as used in this paper is an energy efficiency program jointly managed by an electric and gas company, (*single fuel utilities*) with overlapping territories and can be evaluated, measured and verified by a single evaluator.

² Note, joint utility programs do not include similar or parallel programs implemented by larger umbrella organizations or local government entities – See additional detail in the section below on *Other States' Joint Programs*.

³ The growing movement is evidenced by the Massachusetts and New Hampshire statewide joint program, the California statewide joint program efforts and, more recently, the Illinois joint program initiatives – each of these are outlined in greater detail within this paper.

measured and verified by a single evaluator. Key elements of managing joint programs include effectively managing costs, proper design, program measurement, joint implementation protocol and assessing benefits gained by each utility. In Illinois, the joint program experience is enlightening on this topic. Evaluators and implementers anticipated core joint program issues (e.g., which utility leads, budgets, managing expectations, overall success for each utility, and evaluating the joint and individual benefits). Certain nuances were not fully anticipated. For example, which utility should lead the program is not necessarily known until the program unfolds, managing budgets is a delicate matter, and assessment of benefits can be subjective.

Costs and Benefits - *Economies of Scale*

There are a number of areas that will be discussed in this paper (e.g., Illinois’ Experience, Other States’ Experience, Joint Program Guidelines), but central to any joint utility energy efficiency program is the goal to reduce the cost of implementing the program such that comparable benefits inure to each utility. That is to say, if each utility were to implement the program on their own, the costs would be higher (*since they would be covered by one utility, not two*), while also benefiting from reduced energy demand. With a joint program, the goal is to reduce the cost, while incurring the same level of benefits. This aspect can also be defined as the *economies of scale* of implementing a joint program. Below are a number of key aspects of such joint program economies of scale:

Table 1. Joint Program Economies of Scale

Joint Program Economics	Central Points
Costs	<ul style="list-style-type: none"> • Reduce implementation and administrative costs since they are being shared • Joint programs are more complex than single-utility programs and increased complexity can lead to poor implementation and potentially lower savings goal
Benefits	<ul style="list-style-type: none"> • Each utility meets its savings goals while sharing costs of implementation • Decreasing overall cost for each utility, while attempting to reach specific savings goals • Leveraging other utilities program experience
Economies of Scale	<ul style="list-style-type: none"> • Increased program knowledge base and sharing of implementation capability • Ability to increase geographic reach, program customer base and trade ally network • Sharing administrative and implementation costs

From a program management standpoint, there are likely to be economies of scale in implementing joint programs (e.g., sharing costs). The question is to what degree and at what cost. On the evaluation side, there should be synergies since joint programs may be evaluated as a single program as opposed to multiple evaluations (one for each utility). Evaluation cost savings are relatively certain if there is a single evaluation for the joint program – note, that there may not be evaluation cost savings if the program is jointly *coordinated* (e.g., sharing of project and customer leads), but each utility is evaluated separately.⁴

Large electric utilities that encompass broad geographical regions and are larger than their gas company joint program partners may experience lower economies of scale (e.g., larger territory requires more resources to deliver and manage the program). The geographical point aside, there are other benefits that may flow to larger utilities. An example of this occurred in Illinois. Commonwealth Edison Co. (“ComEd” is the electric provider with service throughout most of northern third of Illinois) may not be experiencing economies of scale in the initial years of its joint program initiative since its territory encompasses all of the territories of Nicor, Peoples Gas and North Shore Gas. All of these utilities fit within ComEd’s larger territory. But ComEd should be benefiting from broader trade ally (TA) reach since gas-focused TAs are now

⁴ Based upon interviews with evaluator staff at Navigant Consulting.

searching and discussing potential energy efficiency projects and also focusing on electric-energy efficiency opportunities.⁵ The gas companies are benefiting from capturing gas savings that ComEd witnessed in prior (non-joint) program years – gas companies are able to leverage the go-to-market program structure that ComEd designed and implemented in years prior to the first gas program year (GPY1).⁶

Illinois Joint Programs

The large investor owned utilities in Illinois that are required by state law to implement energy efficiency programs are Ameren Illinois, Commonwealth Edison Co. (ComEd), Peoples Gas Company, North Shore Gas Company (*both owned and operated by Integrys*) and Nicor Gas (*jointly referred to as “Utilities”*). Each of these companies has a requirement to implement joint utility programs through their respective Illinois Commerce Commission energy efficiency orders (“ICC” is the state’s public utility commission) (ICC Joint Program Orders). Research did not uncover any joint programs in Illinois (*or other states*) that were voluntarily established by electric or gas utilities. The ICC also ordered each utility to actively participate in the Illinois Stakeholder Advisory Group (IL SAG) on a joint basis with the electric utilities so that there are consistently applied and agreed-upon performance metrics for measuring portfolio and program performance. The main point is that the joint program activity in the state is based on a directive from the ICC. Also, the joint-program directive is assisted through the collaborative effort of a statewide electric and gas “collaborative” group, the Illinois Energy Efficiency Stakeholder Advisory Group (IL SAG). There is ongoing advisory oversight between the Utilities implementing the energy efficiency programs that create an additional opportunity for the Utilities to talk through and attempt to implement a consistent approach to key policy issues across the joint programs (e.g., net-to-gross framework, evaluation requirements, Technical Resource Manual detail and implementation etc.). Key additional detail includes:

- In Illinois, the joint programs include residential home energy savings, elementary energy education, residential prescriptive (complete system replacement), residential new construction, multifamily. C&I joint programs include retro-commissioning, new construction and small business direct install.⁷
- The IL SAG, established through separate ICC orders⁸, includes key energy efficiency stakeholders, including each of the joint utilities⁹ and has become a public forum to work through joint energy efficiency program issues, *among other energy efficiency issues* (e.g., NTG, cost-effectiveness, overview of programs and issues, successes and hurdles, etc.). The ability to have all the parties in a room discussing a core agenda has fostered a structured approach to managing energy efficiency issues.¹⁰
- The ICC is required to report to the Illinois State Legislature pursuant to Section 9-104 of the Illinois Public Utilities Act (PUA) on the fostering statewide coordination of energy efficiency programs. The ICC submitted a report on that topic for public comment on January 1, 2012. The ICC essentially recommends that the state continue to monitor joint coordination initiatives and programs and also have the IL SAG provide their continued coordination and recommendations on any changes to such joint coordination initiatives (ICC Solicitation for Comment on energy efficiency Joint Programs).

The ICC noted a number of challenges in the ICC Solicitation for Comments on Joint Programs:

⁵ Points based upon interview of George Malek, Energy Efficiency Portfolio Manager at ComEd on March 12, 2013.

⁶ Points based upon interview of Susan Nathan Vice President at Applied Energy Group, Inc., on March 22, 2014.

⁷ Based upon review of Illinois Joint Utilities programs.

⁸ See ICC language in ComEd’s Energy Efficiency ICC Order 07-0540 (p. 32 - Petition for Approval of the Energy Efficiency and Demand-Response Plan pursuant to Section 12-103(f) of the Illinois Public Utilities Act) approving ComEd’s plan.

⁹ A full list of SAG participant can be found on the SAG website, *see footnote above*.

¹⁰ Detail is based upon discussion with Annette Beitel, SAG Facilitator, on March 13, 2013.

- The most significant challenge is the difference in the age and experience of the gas utility programs compared to the electric utility programs. In addition, Section 8-103 of the Public Utility Act requires electric utilities to implement energy efficiency programs three years prior to the gas utilities (Section 8-104 of the PUA). Both sections have gradually increasing budgets for gas and electric programs to implement and procure energy efficiency.
- The result is the electric utilities have larger budgets, larger savings goals as a percentage of electric deliveries, and more experience managing programs.
- Coordinated joint programs are challenged with sharing costs and management of the program(s).

Other States' Joint Programs

The previous discussion of joint programs by single fuel utilities focuses on mutually agreed partnerships to deliver specific energy efficiency programs by independent utilities. This approach should be distinguished from states that have jointly administered energy efficiency programs through larger, statewide umbrella organizations that implement most (*if not all*) energy efficiency programs within a state (“Statewide Programs”) as opposed to jointly agreed upon and implemented individual programs between single-fuel utilities. Such Statewide Programs are discussed below and include California, Massachusetts, New Hampshire and Wisconsin.¹¹

California

California offers specific Statewide Programs for residential customers and, separately, for commercial and industrial (C&I) customers. On Sept. 18, 2008, the California Public Utilities Commission (CPUC) adopted the state’s first Long Term Energy Efficiency Strategic Plan (Strategic Plan), presenting a single roadmap to achieve maximum energy savings across all major groups and sectors in California. This Strategic Plan for 2009 to 2020 is the state’s first integrated framework of goals and strategies for saving energy, covering government, utility, and private sector actions, and holds energy efficiency to its role as the highest priority resource in meeting California’s energy needs. The Strategic Plan includes joint evaluation (EM&V) budgets and partnering with counties and governments on low income initiatives (California Statewide Programs). During 2010-2012, California Statewide Program for Residential Energy Efficiency (SPREnergy efficiency) is designed to offer and promote specific and comprehensive energy solutions within the residential market sector. The residential portfolio uses strategies to overcome market barriers and to deliver programs and services aligned to support the Strategic Plan by encouraging adoption of economically viable energy efficiency technologies, practices and services (Southern California Edison 2011 Annual Report at p. 3). For the C&I sector, the 2010-2012 Statewide Commercial Energy Efficiency Program offers strategic energy planning support, technical support (e.g., facility audits, calculation and design assistance), and financial support through rebates and incentives aimed at providing integrated energy management solutions (Southern California Edison 2011 Annual Report at p. 11).

Ohio

In Ohio, utilities engage in joint programs on a single, program-by-program basis. A good example of this approach in Ohio is through Columbia Gas of Ohio. Columbia Gas of Ohio engages in joint programs across its territory to leverage efficiencies and improve program reach. These programs are primarily voluntary, *cooperative joint programs* (as opposed to mandated by the state public utility commissions) between electric and water utilities. These programs are leveraging Weatherization Assistance Program for Low Income Customers and cooperative efforts with AEP and First Energy on various programs including

¹¹ The review of “other states” is not exhaustive, but is representative of other joint programs across the U.S.

Energy Star New Homes, Energy Audit and Rebate Programs, and Student Education. Cooperative efforts also extend to review of residential codes and commercial codes. It should be clear that none are evaluated as a single program – each utility’s program is evaluated (*as required*) separately. It was noted that even with *coordinated programs* it can be difficult to “mesh” program initiatives and market efforts.¹²

Massachusetts

Massachusetts created its joint-statewide effort and most recently published the Joint Statewide Three Year Electric and Gas Energy Efficiency Plan (“Three Year Plan” - July 2, 2012). The largest utilities in the Commonwealth are included (National Grid, NSTAR, Columbia Gas of Massachusetts, Western Massachusetts Electric, Cape Light Compact, Berkshire Gas, New England Gas Company and Unitil, Blackstone Gas Company). These utilities filed the Three Year Plan on a joint basis and it is claimed to be the most aggressive joint plan in the nation.

As stated in the joint Three Year Plan, the goal of the Plan is “[t]o achieve the GCA’s (Massachusetts’s Green Communities Act) mandate for a sustained and integrated statewide energy efficiency effort. The Program Administrators will continue to engage in the unprecedented levels of integration, coordination and cooperation that have been the hallmark of the initial three-year plan, including working together on all levels of programming, implementation, regulation and evaluation”. The Program Administrators currently work together in formal groups, in regularly scheduled and recurring meetings, and through *ad hoc* discussions. It should be noted that there is a preference for evaluations to be undertaken at a statewide level, rather than at program level, except when regional issues make sense for program level review.

New Hampshire

Similarly, New Hampshire has a joint-statewide planning, implementation and evaluation effort for electricity and natural gas programs and the utilities involved file a joint two year plan. The most recent such plan is the 2013-2014 CORE Energy Efficiency Programs (New Hampshire Two Year Plan) filed by Granite State Electric Company d/b/a Liberty Utilities, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire and Unitil Energy Systems, Inc. (referred to throughout the remainder of this document as the “NH Electric Utilities”) and EnergyNorth Natural Gas, Inc. d/b/a Liberty Utilities and Northern Utilities, Inc. (referred to as the “NH Gas Utilities”) or collectively as the “NH CORE Utilities” (New Hampshire 2013-2014 CORE energy efficiency Programs). The CORE Programs were started from the Energy Efficiency Working Group (NH PUC Docket No. DR 96-150 developed between 1998 and 1999) and approved by the NH PUC in November 2000 (final approval received in 2002). This was the first time a coordinated, joint utility effort undertaken by the electric utilities statewide. The NH Gas Utilities began offering energy efficiency programs in 1993. As noted in the NH Two Year Plan, CORE Programs “provide products and services tailored for business, residential and income-eligible customers or members...there are utility-specific programs that are typically utilized to test new technologies...”(New Hampshire 2013-2014 CORE energy efficiency Programs at pp. 1 and 2). Monitoring and evaluation efforts became the responsibility of the New Hampshire PUC in 2006 and PUC staff receives input and advice from the utilities on monitoring and evaluation efforts.¹³

¹² Interview of Jack Lavery, Manager, Demand-Side Management at Columbia Gas of Ohio on March 14, 2013; Detail also based upon the following presentation: *What is the Future of energy efficiency Policy in the Midwest?*, presented by Jack Lavery at the 2013 MEEA Midwest Energy Solutions Conference, Chicago, IL, presented on January 18, 2013.

¹³ Id. at 12. See, NH PUC Order No. 24,599 (March 17, 2006).

Wisconsin

Wisconsin created Focus on Energy which is a consortium approach to delivering energy efficiency programs statewide (Wisconsin Focus On Energy). Focus on Energy is the Wisconsin utilities' statewide energy efficiency and renewable resource program that has been operating since 2001. It works with eligible Wisconsin residents and C&I customers on cost-effective energy efficiency and renewable energy projects. The joint initiative offers energy efficiency information, resources and financial incentives to assist in implementing energy-saving projects. Participating utilities include the largest utilities, municipal utilities as well as cooperatives – the list of participants is too numerous to list here and can be found at the link below¹⁴. Focus on Energy is Wisconsin utilities' statewide energy efficiency and renewable resource program funded by the state's investor-owned energy utilities, as required under Wis. Stat. § 196.374(2)(a), and participating municipal and electric cooperative utilities. It should be noted that the utilities do not manage the programs; implementation is outsourced by Focus on Energy.

Joint Program Guidelines and Recommendations

There are a number of considerations or factors that will affect the success of utilities who seek to implement and evaluate joint programs. Perspectives provided on this topic below are the result of research and interviews with various utility executives and energy efficiency professionals and are detailed below primarily according to subject matter (e.g., establishing joint programs, billings, etc.). Joint programs have nuances that must be thought through in advance – joint programs should be managed in a different manner than non-joint energy efficiency programs. The following list includes key points for any utility entering into a jointly managed program.

Table 2. Guidelines and Recommendations

Joint Program Focus	Central Points
Establishing a Joint Program	<ul style="list-style-type: none"> • Establish a master Agreement between the utilities to ensure costs, benefits, management and other expectations are clearly documented • Identify key utility contacts and establish a collaborative team • Each utility must have its own process for applications and incentives (etc.) • Tracking and reporting must be managed separately by each utility
Theory and Design	<ul style="list-style-type: none"> • A key litmus test is that each utility meets its savings goals • Joint programs are more complex than single-utility programs – do not discount the complexity of the numerous measures and parties involved • If savings targets are not being met, design and theory should be revisited
Implementation Protocol	<ul style="list-style-type: none"> • Joint utilities need to outline expectations for management and outcomes • Determine who leads each joint program in advance • Vendor performance, management approach and key performance indicators should be addressed early on
Billing, Budgets and Costs	<ul style="list-style-type: none"> • An agreement between the parties outlining cost allocation is necessary • Costs should be segregated by utility so they can be allocated properly • Allocation methods should consider overall avoided costs, not just cost to implement
EM&V	<ul style="list-style-type: none"> • Outline EM&V expectations and detail the desired results by each utility • Clear communication with the evaluator to ensure the evaluator understands the detail and has a line of communications open to obtain the appropriate data • Each utility has to work with the evaluator and provide all available joint program data so that the evaluation is based upon complete data and information

¹⁴ List of Wisconsin Focus on Energy participants: <http://www.focusonenergy.com/about/participating-utilities>

The following section outlines key lessons learned in management, implementation, and evaluation of joint programs. These points were documented from interviews with key utility and joint program personnel in Illinois, Ohio and California. The discussion focuses on establishing a joint program, program theory and design, implementation protocol, billing, budgets and costs, and evaluation measurement and verification.

Establishing Joint Energy Efficiency Programs

Certain key items are important to address and plan at the outset of a joint program. These points include the following¹⁵:

Table 3. Key Items for Establishing Energy Efficiency Programs

Key Points	Establishing Joint Programs ¹⁶
Establish A Master Agreement	<ul style="list-style-type: none"> • Establish a master agreement with scope, terms and conditions with regard to administering the joint utility program (e.g. activities, deliverables, budgets, incentive rates, eligible measures, etc.) • A funding agreement between the utilities should be written and funding should be based upon a percentage allocation from each party – this addresses the dollar contribution from each utility • Share efforts and costs with agreed upon assessments (e.g. technical audits with gas and electric impacts)
Contracting of Program Resources	<ul style="list-style-type: none"> • A utility lead should be identified as the lead for contracting of resources (e.g., consultants, education, outreach, workshops) on behalf of all the other utilities involved in the joint effort • The lead utility should be allowed to invoice other utilities for authorized incurred costs
Program Management	<ul style="list-style-type: none"> • A consultant may be needed to provide program / project management oversight to assist the utilities in managing the issues and working together • Collaborative administration of the programs via a management team with members from each utility and other external stakeholders (if there are external stakeholder "partners" involved in the program) • Establish a utility process (and tracking systems) for each respective utility (e.g., electric and gas) to process their own project applications and incentives and payments • Collaborative management and tracking of projects (via the management team) to ensure timely completion of projects and payment of incentives. • Reporting of progress, successes and tracking must be undertaken separately by each utility (e.g., energy savings, demand reduction, budget expenditure, projects status, customer accounts, etc.)

There are a number of broader considerations to be considered to ensure successful implementation of joint programs.¹⁷ Typically, one of the joint utilities is usually larger, has implemented the program in the past or has a larger budget (and, for those reasons, is possibly more dominant than the other utility or utilities). In this case, the focus of the joint program should not be on the “stronger / larger” utility. This point was

¹⁵ Key points outlined by (i) Michael Lo, Manager-Institutional Energy Efficiency Partnerships at Southern California Edison in an interview on March 16, 2013. Also, the Public Utilities Commission of the State of California directive to file energy efficiency programs and budgets for 2013 and 2014 outlining SoCal Edison’s energy efficiency program plans can be found at the following link: http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/166830.PDF; and (ii) Sue Nathan, Vice President at Applied Energy Group, Inc. on March 22, 2014.

¹⁶ Based upon interviews with Sue Nathan (Applied Energy Group), Michael Lo (Southern California Edison), George Malek (ComEd), and Navigant Consulting Personnel.

¹⁷ Comments based upon discussion with Sue Nathan, Vice President at Applied Energy Group, Inc., on March 22, 2014.

confirmed by the ICC in its *Plan to Foster Energy Efficiency Programs*. (ICC Solicitation for Comment on Energy Efficiency Joint Programs). Always keep in mind that if one utility's budget or program is larger, then this may create a strain on the other utility. For example, if one utility has a need for more data, then this may create a budget issue – hence, there is a need to address such workload, data load needs, upfront in the joint program agreement. As stated above, joint costs need to be divided and decided upon prior to the start of the joint energy efficiency program (e.g., how are the joint budget dollars to be allocated, how are costs to be allocated?). The joint leads should decide these issues upfront and possibly link the cost allocation to program results (*not necessarily evaluation results*. Cost allocation could also be linked to tracking system results and customer satisfaction could also be considered).¹⁸

Program Theory and Design

Parallel to planning the detail of how to manage joint programs, it is important to set forth the program theory and design for the joint program(s).¹⁹ A central goal that each utility has to work toward and meet are the savings goals filed with the state public utility commission. Meeting these goals *is a litmus test*, if savings goals are not met, it is most likely imperative that program design and theory will have to be revisited and revised. A key point is joint programs are by their very nature more complex since the program is typically dual fuel (e.g., gas and electric). The program includes multiple measures, multiple parties, and, most likely, few of the utility participants have worked together prior to implementing the joint program. Also, program design may assume that each fuel and all measures are offered on an equal basis to prospective customers – part of the program design has to include an implicit understanding that the customers' priorities may be more focused on one fuel or measure than the other fuel (e.g., light bulbs vs. aerators) – this assumption, for example, could lead to the utility planned to have greater savings carrying more of the costs. Again, if the joint program design is not achieving lower costs and/or savings goals are not met, then a possible solution is to continue to change the program to reach the goals or redesign the program as a “collaborative” effort (e.g., single utility implementation, while sharing opportunities, etc.).

Implementation Protocol

Once program design and theory are agreed upon, implementation plans or protocols need to be developed. Protocols focus on how the utilities will work together to implement the joint program – key points include:

- The joint utilities should clearly outline their expectations for implementation management, outcomes, savings goals, regulatory requirements, etc. If this is not done before the joint program begins, the key go-to-market goals of the joint program are likely not to be met.²⁰
- Who leads? It is likely that one of the joint utilities will be leading the joint program with joint management input from the other utility. This needs to be agreed upon early so that neither party interferes with the progress of implementing the joint program. Note, one utility leading does not mean the other utility is not involved – frequent (e.g., weekly) program meetings are necessary). Each company has its own goals; therefore, expectations and needs have to be outlined early and often so that savings goals can be attained (again, a litmus test).

¹⁸ Id.

¹⁹ These points were confirmed by George Malek of ComEd, Jack Laverty of Columbia Gas, and Julianne Meurice of Navigant Consulting in separate interviews in March of 2013.

²⁰ Article by G. Malek (ComEd), *Improving Cost Effectiveness by Coordinating with Gas Utilities* (2010); Mr. Malek also discussed joint program coordination at the Illinois SAG (*Energy Efficiency SAG Report to the ICC – Feb. 23, 2010*).

- The Illinois experience reveals that to avoid implementation struggles and bumps in the road, there needs to be a high level of tolerance with working with other utility managers whose goals do not necessarily synch completely with the other company's goals.
- As for expectations, vendor performance, management approach, parallel key performance indicators have to be addressed and assessed throughout implementation for the program to be successful.

Billing, Budgets and Costs

As noted, billing, budgets, and costs are central to making sure the joint utilities are comfortable with their portion of the costs of the program. Costs are also central to the cost/benefit analysis which may be a key determinant in evaluating program success. Some lessons learned include:

- The agreement between the parties should outline how costs are going to be allocated. Typically, percentage cost expectations can be outlined based upon expected savings (e.g., 45% electric and 55% gas) in the master agreement. As a program is implemented, actual benefits and costs can be assessed and the expected savings percentage allocations are adjusted to reflect the actual savings and costs.
- During program implementation, costs should be segregated by utility such that those costs that can be segregated or allocated to a specific utility are segregated and charged to that utility (e.g., segregate specific utility benefits, dedicated implementation costs, etc.), while truly joint costs (e.g., back-office costs, marketing, implementer fees, etc.) are split according to the percentage allocations. This process would be documented in the joint utility program agreement.
- Cost allocation methodologies should consider the benefits to each utility, not just the cost to implement the program. An overall goal may be avoiding the costs to deliver the electric or gas service as well as reaching energy savings goals. Based upon a goal of avoided costs, a desirable approach is to use the avoided costs and employ a sharing of the costs between the utilities. Savings can be calculated at the program level and, then, the avoided costs can be used to determine the percentage of avoided cost by utility.²¹
- Assessing benefits is a key area to consider since joint programs typically have to meet specific goals – as noted, a central goal for any program is to reduce costs/therm and costs/kWh. From this perspective, one approach is to assess what a program would cost without the joint utility partner – each utility should conduct an independent assessment of sole operating costs to assess an overall cost/benefit analysis. Some programs would not be able to continue effectively from a cost effectiveness stand point without the joint utility partner – for example, programs may have existed prior to creating the joint program and, previously, could not pass a cost/benefit test, but do pass with a joint partner (Illinois Solicitation for Comment on Illinois energy efficiency Joint Programs). Costs were reduced and savings may increase based upon increased reach and exposure through a broader trade ally network and additional marketing by the other utility.

Evaluation, Measurement and Verification

Joint programs are also evaluated many times by a single program evaluator based upon established evaluation, measurement and verification (EM&V) measurements. Since a joint program is evaluated based upon the same or similar savings parameters as a single utility evaluated program, each utility needs to make sure their individual interests are outlined and protected at the outset of the program to foster a positive outcome. The following are key points to consider for any jointly evaluated program:

²¹ Id.

- Outline expectations on EM&V analyses early on, discuss the desired EM&V outcomes from the joint program with the evaluator at the beginning (and maintain communication with the evaluator throughout the program year), while also ensuring evaluator independence;
- The need for transparency is critical to evaluator independence, but ongoing communication is important to be able to adjust joint program demands through the program year;
- An integrated, multiple utility evaluation for a single program is not historically the approach to evaluating programs; therefore, each utility should work with the evaluator, provide all available relevant tracking system information and other relevant data to ensure the evaluator has the detail needed to complete a proper evaluation of the program; and
- Since program evaluation is conducted after-the-fact (typically, evaluation reports are completed after a given program year ends), starting the program year with a discussion of key evaluation metrics, and talking through needed data and metrics from an evaluation standpoint, will help the evaluators complete a proper evaluation of the joint program.

These are points to consider for joint programs in Illinois and across the U.S. Keep in mind that as joint programs mature each utility's energy efficiency goals (e.g., corporate or regulatory goals) may diverge and joint EM&V may not be completely in synch. For example, one utility may desire a detailed impact and process EM&V analysis, while the other joint utility may not need or desire a similarly detailed analysis. This leads to potential issues in evaluation analysis, management, cost allocation and end of year joint reporting.

An Example: Illinois Joint Program – *Retro-Commissioning*

Illinois had eight joint programs during the past program year (PY) - the 2011-12 (Electric Program Year 4/Gas Program Year 1 *a/k/a EPY4 and GPY1*)²². The joint programs were implemented through the combined efforts of ComEd Smart Ideas for your Business[®] in program partnership with Nicor Gas Energy Efficiency Program and Peoples Gas and North Shore Gas.²³ The northern Illinois utilities joint Retro-Commissioning Program (Retro-Commissioning Program or Program) is a good example of a joint electric and gas program since it is a broad-based, commercial and industrial energy efficiency program and can provide a number of “lessons learned”. The program helps commercial and industrial customers improve the performance and reduce energy consumption through the systematic evaluation of existing building systems. Low- and no-cost measures are targeted and implemented to improve system operation, reduce energy use and demand, and, in many cases, improve occupant comfort. The joint program effort was an attempt to scale the Program for each utility by leveraging each utility's marketing and implementation capabilities.

This was originally a pilot for ComEd in its first program year (June 1, 2008 to May 31, 2009 – EPY1). As noted by the Navigant evaluator, there was potentially spillover gas savings occurring as a result of an electricity program and the joint program set out to capture those savings. By EPY4 (June 1, 2011 to May 31, 2012), gas companies began their first program year (GPY1) and it was agreed gas companies would be included in the program. Gas companies were picking-up the gas savings that existed before GPY1, but were not pursued by ComEd since ComEd was only interested in the electric savings. This resulted in little additional savings for ComEd in the first joint year - the gas companies found savings, but fell short of their program savings goals. High-level joint lessons learned include:

²² The 2011-12 program year began June 1, 2011 and ended May 31, 2012.

²³ Residential Joint Programs: Home Energy Savings (ComEd and Nicor); Elementary Energy Education (ComEd and Nicor); Residential Prescriptive (ComEd, Nicor and Integrys); New Construction (ComEd and Nicor); Multifamily (ComEd, Nicor and Integrys) – C&I Joint Programs: Retro-Commissioning (ComEd, Nicor and Integrys); New Construction (ComEd and Nicor) and Small Business (ComEd, Nicor and Integrys).

- Pursuing a joint program approach allowed for gas savings to be quantified and evaluated where they were not previously;
- The number of eligible commercial building Retro-commissioning Service Providers (RSPs) expanded from eight to 23 commercial building RSPs compared to the electric-only year (EPY3).
- Trade allies noted that their business increased, but it was not a doubling of business based upon the increased participation;
- Customer participation increased – participating buildings increased from 34 to 50 buildings and sites along with 4 times the number of service providers; and
- A trade-off between capturing electric and gas savings may have been uncovered (e.g., increasing gas measures, may decrease net electric savings) – however, this was not fully verified.

Since 2011-2012 was the first program year for gas utilities in Illinois, Retro-Commissioning was implemented with changes to ComEd’s previous program efforts. The program changes were significant in that the scope and market for services was increased; other changes facilitated trade ally participation and the ability of participants to complete improvements prior to the end of the program year. A central point that made this program easier to manage on a joint basis was the use of a single program administrator and implementer. Coordinated tasks are outlined in the program activities chart below:

Table 4. Business Retro-Commissioning Program Guidelines Across the Utilities

Conduct training sessions for Service Providers
<ul style="list-style-type: none"> • Implementer recruits retro-commissioning service providers (RSPs) with expertise in commercial building electric and gas systems • Implementer conducts training sessions for RSPs on behalf of joint utilities
Coordination Among the Utilities
<ul style="list-style-type: none"> • Gas and electric utilities coordinate to deliver a joint program that serves customers with a streamlined participation process • A single Implementation Contractor runs the program for the gas and electric utilities • One utility chosen, ComEd, provided oversight to guide the process (<i>since this was the fourth PY for ComEd</i>)
Promote retro-commissioning through publications and presentations at conferences
<ul style="list-style-type: none"> • Implementer and the utilities make presentations at key conferences and other events to promote the joint program • Implementer publishes marketing materials with utility co-branding
Provide financial incentives to customer/participants
<ul style="list-style-type: none"> • Joint Program pays for the retro-commissioning study - if the participant/owner commits to funding implementation of measures with an aggregate simple payback of less than 1.5 years,
Participant training sessions
<ul style="list-style-type: none"> • At least one representative from customer participant must complete Building Operator Certification Level 1 training in the calendar year that the project is completed

Sources: Program operations manual and Final Evaluation Report.

The overall findings were reasonable given this was the first year of a joint effort. For GPY1 and EPY4, the program achieved its goals for electric energy savings (26,880 MWh), but did not reach the expected participation (63 buildings) and demand savings goals (3.8 MW). The evaluation estimate for the electric NTG ratio was 1.038 and the gas NTG ratio estimate was 1.015. It should be noted that participation did increase for ComEd between EPY3 and EPY4. Gas savings goals were met for Peoples Gas (528,800 therms); however, North Shore Gas (145,600 therms) and Nicor Gas (267,700 therms) goals were not met. Finally, the electric energy realization rate was 91.3% and gas savings realization rates were 106.4%, 119.6% and 82.0%, for Peoples Gas, North Shore Gas and Nicor Gas, respectively. It appears both utilities considered this joint program a success since they were able to achieve additional savings, while reducing costs.

Conclusions

Joint programs are relatively new in the energy efficiency field. A common structural theme across states with joint programs is that they are fostered in some fashion by the state public utility commission. To date, there have been no joint program failures; however, there were many common learning points across joint program experiences available. Key joint program learning points include establishing:

- A detailed joint utility agreement on how the program will be managed;
- Joint evaluation plans and implementation protocols; and
- Maintaining a strong focus on reducing costs, improving realization rates, savings and other relevant measurements.

Also, comparing joint program structure and successes can provide insight for utilities going forward. One way to do this is to compare results of similar programs across states (*or other joint programs within a state*) and determine what successful elements led to better results and apply those elements to the local joint program. Some of the benefits from reviewing joint programs include:

- Improving economies of scale and reducing costs; and
- Improving program deployment across a market through parallel implementation of electric and gas programs.

There are also unintended consequences from joint program implementation largely due to the market dynamics of each utility. All utilities are likely to see some benefits from increased market reach and broader trade ally or participant networks. However, this does not ensure economies of scale will result in improved savings or improved EM&V results. Recall, a key litmus test is whether *each utility* reaches their savings goal in a given program year. Generally, there is cost savings for each utility since a program's administrative and implementation costs are typically shared based upon an agreed to cost sharing methodology. Administrative costs can include utility-program lead expenses, while implementation costs include implementer fees, go-to-market expenses, costs of implementing new systems, etc.

The best way to encourage joint program energy-efficiency implementation, design and evaluation is to focus on the endgame. That is focusing on ensuring high probability of meeting each utility's savings goals. Design the program so that overall costs are low and each utility benefits from the joint program (e.g., the lead utility should not be the only utility experiencing strong results) – this means ongoing, close management of the program and strong, joint coordination. A number of basic points need to be front-and-center to move toward cost-effective integrated DSM planning and evaluation. Economies of scale can be reached by implementing a master agreement, appointing a utility to lead the joint program, ensuring costs are managed properly and divided equitably, and making sure all utilities are involved in regular meetings to

discuss goals and program performance. Also, clear communication with the evaluator is needed to ensure all data is provided to the evaluator during the EM&V process so that the final joint evaluation reflects the outcome of the joint program.

Acknowledgements

The following people were generous with their time and knowledge while drafting this paper – they are:

- Annette Beitel – Lead Facilitator, Illinois Stakeholder Advisory Group
- David Brightwell – Economist, Illinois Commerce Commission
- Roger Hill – Managing Consultant, Navigant Consulting
- Jack Lavery – Manager, Demand Side Management, Columbia Gas of Ohio
- Michael Lo, Manager-Institutional Energy Efficiency Partnerships, Southern California Edison
- George Malek – Energy Efficiency Portfolio Manager, Commonwealth Edison Company
- Julianne Meurice – Associate Director, Navigant Consulting
- Patrick Michalkiewicz – Manager, Energy Efficiency, North Shore Gas and Peoples Gas
- Sue Nathan – Vice President, Applied Energy Group, Inc.

References

(California Statewide Programs) The 2010-2012 *California Statewide Program for Residential Energy Efficiency* (SPReenergy efficiency) and the 2010-2012 *Statewide Commercial Energy Efficiency Program* - See http://www.cpuc.ca.gov/NR/ronlyres/259A1673-53AB-451C-906E-CAA4A9A8B047/0/energy_efficiency8Commercial1110.pdf

(ICC Joint Program Orders) Ameren Illinois ICC Order 10-0568, ComEd ICC Order 10-0570, North Shore Gas Company and Peoples Light and Gas and Coke Company ICC Order 10-0564, and Nicor ICC Order 10-0562. It should be noted, Ameren Illinois is an integrated electric and natural gas utility and delivers dual-fuel energy efficiency programs; however, these dual-fuel programs are not considered joint-utility programs for purposes of this paper.

(ICC Solicitation for Comment on energy efficiency Joint Programs) *Solicitation for Public Comment on Plan to Foster Coordination of Energy Efficiency Programs Pursuant to Section 8-104(k) of the Public Utilities Act (PUA)* (“Plan to Foster energy efficiency”), public document released for comment by the ICC (published: January 1, 2012).

(Illinois Retro-Commissioning Plan Report PY4) Energy Efficiency/Demand Response Plan: Plan Year 4 (6/1/2011-5/31/12 – Northern Illinois Joint Utility Retro-Commissioning Program Final Report, January 14, 2013.

(IL SAG) Illinois *Stakeholders Advisory Group* (www.ilsag.org) – also referenced as “SAG”

(Massachusetts Green Community Act) *Massachusetts Green Community Act* (An Act Relative to Green Communities) can be reviewed at Massachusetts Acts of 2008, chapter 169, section 11; The Three Year Plan quote is at page 17 and can be found at <http://www.ma-eeac.org/docs/7.3.12/Gas%20and%20Electric%20PAs%20July%20202%20Plan%207-2-12.pdf>.

(New Hampshire 2013-2014 CORE energy efficiency Programs) *New Hampshire 2013-2014 CORE Energy Efficiency Programs* joint filing can be found at <http://www.puc.nh.gov/Regulatory/Docketbk/2012/12-262/INITIAL%20FILING%20-%20PETITION/12-262%202012-09-17%202013-2014%20NH%20CORE%20ELECTRIC%20AND%20GAS%20ENERGY%20EFFICIENCY%20PROGRAMS.PDF>

(Southern California Edison 2011 Annual Report) *Southern California Edison Company's (U 338-E) 2011 Annual Report for 2010 Energy Efficiency Programs* - filed with the CPUC on May 2, 2011, page 3.

(Wisconsin Focus on Energy) Full description of *Wisconsin's Focus on Energy* Joint Programs can be found at <http://www.focusonenergy.com>