

Effective Demand Side Management with Prescriptive Incentives at Union Gas

Saad Kiyani, Union Gas
Helen Platis, Union Gas

ABSTRACT

Union Gas Limited is a major Canadian natural gas utility that provides energy delivery and related services to 1.1 million residential, commercial, and industrial customers throughout Ontario. Part of Union's marketing approach is focused on Demand Side Management (DSM). Channel Sales and Marketing delivers DSM and marketing programs through Channel Partners. Channel Partners are businesses who are capable of influencing end users in their energy purchase decisions. DSM programs are delivered via the marketing team and their field representatives.

As part of supporting and promoting energy efficiency, Union has integrated its DSM and marketing plans into a strategy for promoting the safe and efficient use of natural gas. Early program results demonstrated limited success with large commercial projects. Channel partners identified concerns with the program application process including confusion with program guidelines, uncertainty in project approval, and delays in incentive payments. In response to these concerns Union Gas significantly redesigned the Commercial Channel DSM program with an eye to using prescriptive mechanisms to improve its relevance, operational efficiency, and market impact. An analysis of the program's creation and subsequent delivery demonstrates the successful integration of marketing and DSM objectives into a seamless offering that responds to customer and channel partner needs.

To accurately describe the program's creation and implementation, the authors worked with Union Gas' energy efficiency, planning, and evaluation specialists. The learning from the redesign can be characterized in four areas:

- Planning – reducing the uncertainty in budgeting for program impacts and resource requirements,
- Implementation – simplifying project approvals, increased participation from channel partners and reducing the amount of administration required from Channel Representatives,
- Tracking and Reporting – collecting and reporting program results more comprehensively and reducing turnaround time for incentive payments , and,
- Evaluation – reducing the number of custom projects thus eliminating the need for costly, intrusive, audit type evaluations.

Overall, the move to prescriptive measures in the commercial market has increased program participation by over 45% relative to the same period in 2000. The early success of this initiative has caused the marketing team to consider whether a similar redesign is relevant and applicable to the small industrial market.

Introduction

In 1996, Union Gas developed a comprehensive 5 year plan for implementing energy efficiency programs in the utility's franchise area. The intention of the programs was to focus on lost opportunities. That is, working with customers' decision makers to ensure that higher efficiency equipment was installed in new and existing facilities in residential, commercial and industrial applications. At the time Union Gas was working directly with end users to promote the safe and efficient use of natural gas.

With over 5 years of program experience, many enhancements have been made in the design, implementation, reporting and evaluation of the portfolio of programs. A comprehensive tracking process was established and a system was built to collect and report on program results. This process has been refined with the introduction of a dedicated tracking group. Programs are evaluated annually for both process and impact implications. Refinements are made to improve the effectiveness of the program and to ensure that all program results are captured.

In 1999, the focus of DSM activities shifted from the end user to the key influencers or channel partners. These are the people who design/build, install or sell natural gas equipment. Table 1 below includes a comprehensive list of the types of channel partners that participate in Union Gas programs. By working with channel partners, the utility increased the exposure of the energy efficiency message. Channel partners are provided with information in the way of point of purchase materials, training on the benefits of energy efficiency equipment and even selected incentives to promote sales. In exchange, the channel partners are required to report on their equipment sales. Reporting is done through tracking sheets that are either faxed or emailed directly to the utility.

Table 1. Types of Channel Partners Participating in Union Gas DSM Programs

Residential Markets	Commercial Markets
Heating Ventilation and Air Conditioning Contractors (HVAC) Builders Retailers	Commercial HVAC Contractors Equipment Suppliers Energy Service Companies (ESCOs) Architects and Engineering Consultants Design Build Contractors

In the commercial market Union Gas offers financial, educational and marketing support to channel partners. The program assists architects and engineering consultants and ESCOs in developing new products and service offerings and delivering value to their customers through lower operating costs and longer equipment life. Union Gas also provides financial incentives directly to channel partners to facilitate their own business development.

Educational and training opportunities include energy efficiency workshops and seminars, boiler audit seminars, marketing pamphlets and case studies promoting energy efficiency. Several design tools and catalogues on high efficient HVAC equipment have been developed including a boiler selection tool. Union Gas is always looking for ideas and suggestions on ways to improve the design and delivery of energy efficiency programs.

Types of Program Measures

Each DSM program focuses on a specific market segment. Technologies are chosen to reflect the type of equipment installed in each market. Energy savings for these technologies are identified using engineering estimates. Incentive levels are set to increase participation while ensuring the cost effectiveness from the perspective of the utility. Combined, these values are used to create the annual impacts and resource requirements for each program.

Two types of measures were traditionally offered as part of the portfolio of programs – prescriptive and custom. A prescriptive measure is a technology whose impacts can be estimated for a typical installation and applied to a broad number of sites. This is usually used for technologies that do not have significant variations in usage and are not dependent on processes. For residential markets most equipment is prescriptive. In 1999 Union Gas launched the HVAC Partnership, working with heating contractors to install high efficiency furnaces and programmable thermostats in residential and small commercial. These technologies have pre-approved energy savings and a fixed incentive per unit installed. This makes implementation simpler for participating channel partners who submit tracking sheets with the number of furnaces installed and receive an incentive of \$100 per unit. No pre-approval is required. Most transactions are conducted electronically with funds transferred directly to the channel partner's bank account.

In commercial and industrial applications, the size and complexity of equipment installed meant that many applications were custom projects. That is, dependent on:

- Usage patterns in the specific application,
- A combination of a number of measures in a package or
- Varying sizes of equipment with different operating characteristics.

These custom applications required individual screening for cost effectiveness and approval. Incentives are based on energy savings and vary with each project approved. Channel partners are required to submit applications for approval prior to payment. The assumptions and calculations surrounding the energy savings for each application affected the likelihood of being approved and the amount of eligible incentive. This created uncertainty for the customers and channel partners. The process was much more complex than with prescriptive measures. With a small number of custom projects were being the turn around time varied from a few days to a few weeks. When contractors were used as the delivery channel, these delays in approval limited the effectiveness of the program implementation.

The Need for Program Redesign

As the number of participating channel partners grew, so did the number of custom applications and the delays in approval. Tight timelines did not allow for delays in pre-approval. Therefore, some projects, although installing high efficiency equipment with the help of the utility, were not being reported through our programs. Tracking of program results was an issue.

In addition to difficulties with approval and tracking, custom projects required extensive evaluation to prove natural gas savings. The evaluation techniques varied from end user metering to site visits to a comprehensive audit of all the engineering estimates used to estimate the project savings. With larger complex projects, the expense and time of an individual audit was warranted. However, a number of these custom projects were small and disrupting customers operations to verify savings caused channel partners some concern. This was especially evident in situations where the end user was not aware of any incentive that had been paid to the channel partner.

Perhaps the most compelling reason for a comprehensive program redesign was the need for a program that could be easily and accurately communicated to the market. The success of the HVAC Partnership in the residential and small commercial market demonstrated that clear guidelines and simple approvals could increase program participation through channel partners.

Monitoring & Targeting Incentive Support:	
The auditing of a commercial hot water boiler's performance (<2,500 MBtu/h, excluding atmospheric boilers)	
Implementation Incentive Support	
<ul style="list-style-type: none"> ▪ Energy recovery ventilators ▪ Heat recovery ventilators ▪ Rooftop units ▪ Power combustion boilers ▪ Condensing boilers 	<ul style="list-style-type: none"> ▪ Water heaters ▪ Infrared heaters ▪ Furnaces ▪ Thermostats ▪ Services (tank de-liming)

Figure 1. List of Prescriptive Incentives

New Program Design

Rationale behind Technologies and Methods Selected

The 2000 Commercial DSM program was overly reliant on custom applications for achieving its goals. Custom applications were designed for more complicated equipment installations, but it was soon evident that the majority of work in the market did not require custom incentives. Many of the incentives processed were simply for installations of a single technology, i.e. two boilers, or one heat recovery ventilator. Such relatively simple installations did not require custom applications. In looking at the future of the program, the reliance on custom applications was clearly inappropriate for the market and for Union Gas. An investigation of the custom projects identified that many were comparable in size and scope, therefore, they could be grouped into categories and new prescriptive measures could be created. This research was initiated in the spring of 2000 with the cooperation of the other natural gas utility operating in the region. The increased use of prescriptive (or pre-approved) incentive levels and energy savings was recognized as an appropriate solution to many of the problems facing the commercial incentive program. Figure 1 on the previous page lists the prescriptive technologies.

Program design benefits. Using more prescriptive measures would allow Union to make more effective use of its DSM budget. With custom measures the incentive paid was at times very high compared to the gas savings. Conversely, prescriptive measures actually free up budget dollars to spend on incentives because the amounts per technology or application are predetermined. There were also concerns around the accuracy of the reported savings and free riders in the more lucrative programs. As an example, some of the aforementioned simple boiler and HRV installations would likely have occurred with smaller incentives. Under prescriptive measures, technologies have specific gas savings assigned to them, eliminating the need to double check, or police, savings reported by the field and also to improve the accuracy of the DSM programs as a whole.

Program implementation benefits. No matter how well researched, designed, or planned a program is, its success is dependent on the program being clearly communicated to the people charged with delivering and it and to its end users. Miscommunication of Union's 2000 DSM program measures, to both internal and external parties, was a significant problem.

A key factor that contributed to this problem was the large amount of internal reorganization Union Gas was undertaking at the time. Many strategies, departments, roles, and responsibilities were significantly altered or realigned in 1999. With the many changes, the people administering the DSM program were not the same people who had designed it. Also, many of the people administering and delivering the program were new to the group, or even to the industry. Their understanding of the program was limited, which greatly complicated the communication of the program to the field.

In the end, the rapid and far reaching change meant that the marketing materials which outlined the program were not clear as to the measures involved, or as to the details of the programs. In some cases they were even contradictory. The overall result was an inconsistent program that, at times, actually hurt relationships with end users instead of building ties.

A further reason for the move to prescriptive was the administrative burden. Creating, processing, and tracking a separate file just for each custom application used up too many organizational resources for the benefit it yielded. On average, 30 minutes were necessary to take a file from start to finish. This was multiplied by the almost 300 applications received, and the workload was also spread across two departments, one in Toronto and one in Chatham. Again, with preset savings levels for technologies, the administration and evaluation of these programs is much easier. Administration work is now limited to one department for many measures and the work has been simplified to the point of being data entry. Co-op students can do the work, which gives them good experience in the administration of the programs, and simultaneously frees up organizational resources.

Program tracking benefits. Prescriptive measures require no wait for notice of approval. Custom applications were often delayed if the administrators were out of the office, busy with other tasks, or simply had too many applications to process at any given time. The backlog could result in weeks of applications being held for processing, and

field representatives spent a good deal of time updating their accounts on application status. These conditions were obviously not acceptable to the market and did nothing to enhance public/customer relations.

Program evaluation benefits. Evaluation reports were also time consuming and costly for custom measures. Prescriptive measures are far simpler to evaluate (and defend), as there is little ambiguity in them. Each custom application needed to be classified into a certain activity category (i.e. New Build, Building Retrofit, Building Equipment Replacement) to fit with the DSM plan. Applications could easily be misclassified, and that presented problems when the program was evaluated at the end of the year. Misclassification might result in one activity category under or over performing, resulting in the appearance that budgeted plan activities/results were not being met. Prescriptive measures are clear as to their classification and avoid the problems that can plague custom applications.

In the end, the reasons for reducing the number of custom applications was clear to all and the task of implementing the program became the focus of Channel Marketing. Implementing the program, especially communicating it effectively to channel partners, was the real test of the new measures and the validity of the belief that the shift away from custom measures was necessary.

New Program Implementation

Beyond designing a good program, the challenge for 2001 is to deliver and implement it effectively. Using a true marketing approach to deliver the program is the overall goal. The first part of this was creating an accurate summary of the program. In the past, the program was presented in a series of high quality glossy sheets that were designed to stand independent of one another. Unfortunately, they did not form an easily organized package, were verbose because of their standalone design, were often repetitive, and occasionally contradicted each other. Finally, they were expensive to reprint when editing was required. For 2001 the decision was made to use a simple four-page summary printed on letterhead paper. This concise, easily updated, and affordable version is a much better tool for communicating the program.

An ongoing part of the program launch will be the creation of a full set of marketing materials that further promote the program initiatives. Posters, brochures, and computer presentations will form the sets. These materials will enhance the image and presence of Union Gas' energy efficiency programs. They can be used at trade shows, given out to end users, and used in presentations by Union representatives. Another element of these marketing materials will be electronic tools such as the Boiler Selection Tool. These bring added value to the channel partners by giving them the tools to enhance their service offering. A total marketing approach also emphasizes energy efficiency as a corporate value and not as a government mandated initiative. It also enhances Union's image while doing a better job of promoting energy efficiency in a professional manner. A well-presented set of materials increases the end user's satisfaction by making their overall experience with energy efficiency more positive.

Incentive application forms were also redesigned. The prescriptive incentive forms worked well, but adding the new pre-approved technologies significantly changed

the appearance. Figure 2 shows the new form. The custom forms required some changes to improve their clarity and functionality as a reporting and tracking tool. A line item was added for sales approval, which puts accountability into the field for submitting accurate and effective applications. With accountability on the representatives, less time is spent on examining and processing inappropriate applications, improving turnaround time for all. It also makes use of the representatives' experience and knowledge.

In the end, the complete and coherent set of marketing materials works to enhance the entire effort of marketing energy efficiency. Program administrators have their burden lightened and can concentrate on creating new marketing initiatives. Representatives in the field can spend more time building relationships and marketing efficiency and not so much on administering the programs. Finally the end users see benefits in streamlined program approvals.

Benefits of the Program Modifications

The use of prescriptive measures in these new applications has been in the field for only a few months. Formal evaluation of the changes will take place later this year. However there has been informal feedback from both channel sales representatives who promote the program and the channel partners who use it. Both have seen immediate benefit from the program modifications.

Program planning benefits. Prescriptive measures allow both energy savings (in cubic metres of natural gas) and incentive dollars to be fixed in advance each year during the business planning process. Thus, the program manager can more accurately predict the savings that can be attained with the budget allocated to the program. It will also help to identify when the pipeline of projects is full and a decision is required – i.e. stop offering the program or increase the budget.

Program implementation benefits. Eliminating the need for individual approvals has reduced the uncertainty and delay in project approvals. Channel partners know what measures are prescriptive and can be sure of the incentive they will receive for installing them. This allows them to build this into the cost of their quote.

Much of the representatives' time had been spent in explaining the tracking and reporting requirements to their accounts or following up to see why a project they had worked on was not being tracked. This meant time taken away from the delivery of the program elements and an increase in administrative responsibility. By reducing the number of custom projects, they spend more of their time adding value by helping their accounts to grow their business rather than burdening them with Union Gas reporting procedures. This redesign has shown how the utility responds to the market's needs.

Program tracking benefits. Program tracking has been simplified through the use of more prescriptive measures. Tracking sheets are now submitted, entered into the tracking system, and cheques are issued within a matter of days. Results are reported in real time. Thus a program manager can get an accurate account of progress against targets. Measure impacts are set in advance and there is no variability in program impacts throughout the year. The move to more prescriptive measures has resulted in an increase in the number of projects submitted through the program. Comparing early results from 2001 to the same period last year, there has been an increase of 45% in the number of measures reported.

Program evaluation benefits. Program evaluation has also been simplified by avoiding the need for costly and time-consuming audits of these smaller or simpler projects. The findings are reported, and the balance of program evaluation activity is focused on process rather than impact analysis. A clear paper trail exists for all program activity outlining what was installed, who installed it and the address of the installation. During program evaluation a random sample of projects is selected and end users are contacted through telephone surveys to verify the equipment installation and usage. This ensures that an audit is conducted to verify the number of program participants, which is the only value that changes from the planning assumptions to actual program results.

Implications for the Future

Early indications suggest that the increased use of prescriptive measures has been a valuable improvement to the program portfolio. Starting with the simplest technologies, i.e., boilers and infrared, has allowed Union Gas to ease into the process. Further research will be conducted to determine if there are other measures that can be made prescriptive. One of the challenges identified during this first phase was the problem of estimating savings to allow for the use of prescriptive measures in process-based applications in industrial markets. Further analysis of existing industrial projects will be undertaken to identify whether there are any standard prescriptive measures that can be applied to this market. Similarities between commercial and small industrial projects suggest that some overlap is possible. Union Gas will explore offering these same prescriptive measures to small industrial customers.

Future program evaluations will focus on determining whether all of the existing categories are required, or whether the number and type of prescriptive measure can be further simplified. Unlike residential where there is only one profile for a high efficiency furnace in an existing home, there will always remain the need to offer multiple sizes and types of measures to accommodate the different applications in the commercial market. However, if through program experience it becomes clear that selected sizes are not installed more than periodically, they will be dropped in order to further simplify the menu of program offerings. The size of incentive payments will also be investigated to determine whether they are sufficient to promote energy efficiency activity but not so large that they erode the benefit of offering the program from the utility's perspective.

The ultimate impact of moving to more prescriptive measures is that Union Gas channel representatives are spending more time building relationships and focusing on promoting energy efficiency. Channel partners now see Union Gas as an ally to help

them grow and develop their business. This is a value added service offered to our customers and channel partners. It is lifting the administrative burden that hindered participation in our portfolio of program offerings in the past.

References

- Cowan, John, 1999. *Custom Savings Verification Plan and Monitoring Guidelines*. Toronto, Canada.
- Singleton, Mike et al. 2000. Jaques Whitford Research. *Prescriptive Incentives for Select Natural Gas Technologies*. Toronto, Canada
- Union Gas, 2000. *Channel Sales and Marketing 2000/2001 Business Plan*. Toronto, Canada.
- Union Gas. 1998. *1999-2004 DSM Plan*. Toronto, Canada.
- Union Gas. 2000. *1999 DSM Evaluation Report*. Toronto, Canada