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**Gazifère, Inc.**
**Demand Side Management**

**2003 Progress Report**
**and**
**Proposed Targets for 2004**

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# FOREWORD

In its ruling D-2002-283, the Régie stated that it felt the development phase of Gazifère's DSM programs was over, and they could thus be approved for three years. This approval did not eliminate the distributor's obligation to provide details for each program component with its rate application. If problems were to arise with respect to specific measures, the distributor would need to inform the Régie and justify any major change to the Plan.

As such, the following reporting of DSM results for 2003 is structured somewhat differently from previous years. Each program is identified in its own dedicated section and described with results to the end of June, 2003, along with Gazifère's plan to continue the program for 2004, with its respective targets.

As has been emphasized in the past, Gazifère is a relatively small utility compared with its neighbouring giants of Enbridge Gas Distribution Inc. (EGD) and Union Gas in Ontario, and Gaz Métropolitain in Québec. Despite its small size, in 1999 it decided to pursue a corporate initiative to promote energy efficiency for the benefit of its customers, and began offering a series of DSM programs in its 2001 fiscal year.

Unlike the larger utilities, however, Gazifère does not have the financial nor human resources to allow it to have a DSM department, with corresponding multiple staff to handle various aspects of energy efficiency program design, implementation, and maintenance.

In 2002, DSM results at Gazifère were not as robust compared with the previous year, due to the extended pregnancy leave of a key individual who was responsible for monitoring the work of Gazifère's external contractor. With her absence, no other staff was available to assume her responsibilities, and it impacted on the momentum and fluidity that had been achieved in 2001.

The same situation has occurred in 2003, where key individuals have been on medical leave at various times throughout the year and, as before, there simply is no department of staff upon which to draw upon to fill the gap.

Despite this, Gazifère has managed to exceed its prorated targets at the end of its fiscal third quarter for m3 and co2 savings, for its established DSM programs. Established programs are those which have been offered as ongoing programs since 2001, and have had at least some participation during these years. As at the end of June, 2003, these programs in total are operating at 83% of target.

In its DSM plan for 2003, Gazifère added four new programs in partnership with the Agence de l'efficacité énergétique (AEE). These are referred to as non-established programs, in that while work has been ongoing this year in preparation for participation, no participants have yet been recorded nor savings attached to the initiatives, due in large part to timing issues of external partners or potential participants.

In addition to these new programs, some commercial DSM programs that have been carried over from the previous year are also considered non-established programs, in that they do not yet have results, although inroads have been made this year in identifying or trying to overcome barriers to their implementation, and participation will be sought before the end of the year.

In 2004, Gazifère is not proposing to add any new programs. Instead, it will continue to direct its efforts toward bringing about the success of the 12 programs, which already comprise its DSM portfolio.

# 1.0 Overview of Established DSM Programs

## *1.1 Residential Water Heater Procurement Policy*

For its residential water heater rental customers, Gazifère purchases water heater tanks with a minimum energy efficiency of 0.65 EF (energy factor), which is three percentage points higher than the government standard stipulated in the federal Energy Efficiency Act, adopted by Québec. This translates into savings of 44 $m^3$ per water heater.

The Residential Water Heater Procurement Policy is the continuation of a program that began in Gazifère's 2001 fiscal year. For its 2003 fiscal year, the number of gas water heaters to be purchased for residential customers is targeted at 1,800 tanks.

As at the end of June 2003, the actual number of tanks purchased is 1,524, and it is estimated that this year's target of 1,800 tanks will be exceeded by year end. The Residential Water Heater Procurement Policy will be continued in 2004, with an increased participation target of 1,900 units.

## *1.2 Residential Gas and Water Savings Program*

The Residential Gas and Water Savings Program was first offered in 2001, and has been continued since then as an ongoing program. It is an energy efficiency program featuring low flow showerheads, faucet aerators, foam pipe insulation, and water heater tank temperature set back to 54°C (130°F) from 60°C (140°F).

These four measures have been offered free of charge to all existing and new residential customers, with the exception of new construction, which is to receive only the pipe insulation and tank turn down. It is assumed that all new homes already have low flow showerheads and aerators, based on the stock available in the marketplace.

The Program has delivered the measures through Gazifère's external contractor during their service calls, and via the front counter at Gazifère's offices where customers are able to pick up the measures themselves. In addition, the tank turn down measure is completed by Gazifère's own in-house technicians for new construction when they conduct final inspections.

Wherever possible, old showerheads removed from customers' homes are reclaimed and returned to Gazifère. The advantages to this are threefold: To ensure environmental contaminants are properly disposed of (old showerheads may be chrome plated); to reduce the possibility of customers "un-installing" the energy efficiency measure at a later date; and to verify that the old showerhead removed was not already a low-flow model.

In fact, in January last year, Gazifère sent more than 500 old showerheads to a local recycling company, so that the chrome would be disposed of as hazardous waste. Also, none of the old showerheads removed were a low flow model.

A detailed communication kit has been prepared for the external contractor and for front counter pick-ups, outlining installation guidelines for each of the four measures, along with the customer benefits of the Program. A bilingual card is also left with the customer, indicating what work has been performed, and under each of the four measures listed, a brief description of the benefits.

Gas savings per participant are 93m³ for low-flow showerheads, 17m³ for faucet aerators, 15m³ for the pipe insulation, and 90m³ for the water heater tank turn down measures.

The annual participation targets in the 2003 DSM Plan were set based on the results attained the previous year, reflecting an estimated 900 participants for showerheads, 1500 participants for faucet aerators, 1,600 participants for pipe insulation, and 1,440 for tank turn down. The total estimated participation rates were calculated based on a mix of targets for the external contractor, in-house technicians, front counter walk-ins, and new customers from fuel conversions and new construction.

As at the end of June 2003, total customer participation is running at roughly 92% of target for the tank turn down measure, 86% for pipe wrap, 55% for faucet aerators, and 42% for the showerheads. Overall for the Program, with all measures combined, the results to the end of June have achieved 77% of the annual m³ savings target, and it is anticipated that overall, 100% of the target will be met by year-end. Please refer to Figure 1 for a summary of the results.

**Figure 1 – Residential Gas and Water Savings Program, results to June 30, 2003**

| Measures | Target Partic. 2003 | Actual Partic. to 30/06/03 | Target $m^3$ Savings 2003 | Actual $m^3$ Savings to 30/06/03 | Target Water Savings 2003 (000) litres | Actual Water Savings to 30/06/03 (000) litres | Target $CO^2$ Savings 2003 | Actual $CO^2$ Savings to 30/06/03 | Budgeted Costs for Measures 2003 | Actual Costs for Measures to 30/06/03 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| Showerheads | 900 | 329 | 75,330 | 40,092 | 34,020 | 18,106 | 142,000 | 75,374 | $11,752 | $8,409 |
| Faucet Aerators | 1500 | 832 | 22,950 | 12,730 | 5,400 | 2,995 | 43,000 | 25,932 | 3,705 | 2,055 |
| Foam Pipe Wrap | 1600 | 1372 | 24,000 | 20,580 | N/A | N/A | 45,000 | 38,691 | 6,200 | 6,620 |
| Tank Turn Down | 1440 | 1327 | 129,600 | 119,430 | N/A | N/A | 244,000 | 224,528 | 2,100 | 2,400 |
| | | | | | | | | | | |
| **TOTAL** | | | **251,880** | **192,832** | **39,420** | **21,101** | **474,000** | **362,525** | **$23,757** | **$19,484** |
| % difference | | | | **77%** | | **54%** | | **76%** | | **82%** |

Note: appropriate free ridership rates have been applied to gas, water, and $CO^2$ savings, for both targeted and actual numbers.

Cost for measures is running slightly higher than results achieved, as the external contractor has completed more foam pipe wrap and tank turn down measures than were originally budgeted for them, and they receive a labour incentive for their work.

While the tank turn down and pipe wrap measures are expected to meet or exceed the annual participation targets for the year, it is anticipated there will be a shortfall in meeting the annual targets for the showerhead and faucet aerator measures.

This is because the first two measures are installed for both existing customers and for new construction/conversion, while the latter two are eligible only for existing and conversion customers, and are offered only during regular service calls. As it tends to be the same customers who request an annual service call, in many cases customers visited this year have already installed these measures during one of the previous two years.

There was a similar shortfall last year, and Gazifère was considering the possibility of hiring a new DSM dedicated technician to try to reach those customers who do not receive regular service calls. Gazifère did prepare a job description for the purpose of hiring, but upon further exploration, it became apparent there is currently a shortage of certified technicians within the immediate region and outlying areas. In fact, one of Gazifère's own in-house technicians is sometimes called upon to complete work in New Brunswick for an Enbridge affiliate company, due to the overall shortage of qualified technicians.

To overcome this situation, Gazifère is now in negotiations with its external contractor for them to dedicate one (or possibly two during peak periods) DSM technician for 2004 to proactively reach those customers who do not receive regular service calls.

In addition to working toward sorting out viable options for a dedicated technician, Gazifère has also been working on preparing a list of potential customers to be approached for the measures. Gazifère being a small gas utility, does not have a market research department, and thus all its customer profiling, billing, etc. is done by Enbridge's Head Office in Toronto. In order to extract information and to prepare a list of potential participants, Gazifère has been working over the past several months with Enbridge to compile a valid list sorted by neighbourhood, to facilitate setting appointments.

Once this list is complete, Gazifère will be in a better position to know the potential volume of work that will be required of a DSM technician, and will enter into final negotiations with its external contractor regarding the cost of services. As it stands, part of the services the external contractor is offering is the use of its administration staff to phone customers to market the Program and to set appointments.

At this stage, based on the extent of information available, the amount that was budgeted in 2003 for hiring a Gazifère in-house DSM technician will be transferred to the contractor budget for 2004. The full cost of using the contractor's administration staff and their dedicated technician will be adjusted later in the year when it becomes known.

Until the potential volume of work has been identified, and there is some frame of reference for how many customers can be serviced via the external contractor's dedicated technician, participation targets for 2004 have been set based on a historical average of **actual** installations (not targets) of measures over the last three years.

Thus for 2004, participation targets are 750 for the showerhead measure (down from 900 in 2003), 1500 for faucet aerators (same as 2003), 1800 for pipe wrap (an increase of 200 from 2003), and 1500 for tank turn down (an increase of 50 from 2003).

**Figure 2 - Residential Gas and Water Savings Program – 2004 Participants and Costs**

| | **MEASURES** | | | | |
|---|---|---|---|---|---|
| | **Low Flow Showerheads** | **Faucet Aerators** | **Foam Pipe Wrap** | **Tank Turn Down** | **Total** |
| Front Counter | 100 | 100 | 100 | 70* | |
| Contractor service calls | 650 | 1400 | 1700 | 1130 | |
| In-house Technicians | 0 | 0 | 0 | 300 | |
| **Total participants** | **750** | **1500** | **1800** | **1500** | |
| | | | | | |
| Equipment costs[1] | $3,960 | $3,705 | $1,800 | n/a | $9,465 |
| Contractor labour incentive[2] | $9,100 | n/a | $6,800 | $2,260 | $18,160 |
| Communications | | | | | $8,000 |
| | | | | | |
| **Total costs** | | | | | **$35,625** |

* Based on results from 2001, 70% of front counter participants lowered their tank temperature, thus the counter participants have been downsized by 30%.

[1] Based on participant costs of $5.28 for showerheads; $1.98 for kitchen aerator; $0.49 for bathroom aerator; and $1.00 for foam pipe wrap.

[2] Based on participant costs of $14.00 for showerheads; $4.00 for foam pipe wrap; and $2.00 for tank turn down.

### *1.3 Residential Gas Furnace Program*

The Residential Gas Furnace Program was originally designed to begin on January 1, 2001, but it wasn't until this year that it began to see some real activity. It is an energy efficiency program featuring a high efficiency condensing gas furnace rated at a minimum of 90% AFUE, and a programmable thermostat.

The purchase of high efficiency gas furnaces are promoted to all existing residential gas customers who do not already have a high efficiency furnace, and to all new customers converting from other fuels. It is assumed that new construction customers may already have a high efficiency furnace installed. In conjunction with a customer purchasing a high efficiency furnace, they receive a free programmable thermostat, with free installation.

The Program was originally designed to utilize channel marketing by delivering the measures through dealers and contractors, who would offer the measures during their regular sales and marketing efforts. The dealers and heating contractors were to receive an incentive of $100 for each high efficiency furnace sold, and a labour incentive of $30 for each programmable thermostat installed. The cost of the programmable thermostat is $44.10.

However, last year, when Gazifère investigated why there was now a second year of slow uptake for this Program, it came to light the possibility that the dealer/contractors were keeping the $100 incentive paid by Gazifère for the sale of each high efficiency furnace, without passing the incentive on to their salesmen, as some salesmen were unaware that this incentive was available.

To overcome this obstacle, Gazifère took the decision to discontinue paying the $100 incentive to the dealer/contractors, and to pay it directly to customers who purchase a high efficiency furnace, by reimbursing them $100 upon proof of purchase. In conjunction with the $100 rebate and a free programmable thermostat, Gazifère was also offering customers a financing option whereby customers could purchase a gas appliance, including a high efficiency furnace, and take 24 months to pay, interest free.

The changes made to the Program's delivery have proven to be more effective, and the 2003 annual participation target has already been surpassed as at the end of June. It is currently running at 105% of the annual target. Please refer to Figure 3.

**Figure 3 – Residential Gas Furnace Program, results to June 30, 2003**

| Measures | Target Partic. 2003 | Actual Partic. to 30/06/03 | Target $m^3$ Savings 2003 | Actual $m^3$ Savings to 30/06/03 | Target Water Savings 2003 (000) litres | Actual Water Savings to 30/06/03 (000) litres | Target $CO^2$ Savings 2003 (kg) | Actual $CO^2$ Savings to 30/06/03 (kg) | Budgeted Costs for Measures 2003 | Actual Costs for Measures to 30/06/03 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| HE Furnaces | 60 | 63 | 28,518 | 29,944 | N/A | N/A | 54,000 | 56,925 | $6,000 | $5,700 |
| Prog. Thermostats | 60 | 63 | 10,413 | 10,934 | N/A | N/A | 20,000 | 20,555 | 3,846 | 4,488 |
| | | | | | | | | | | |
| **TOTAL** | | | **38,931** | **40,878** | **N/A** | **N/A** | **74,000** | **77,480** | **$9,846** | **$10,188** |
| % difference | | | | **105%** | | | | **105%** | | **104%** |

Note: appropriate free ridership rates have been applied to gas, water, and $CO^2$ savings, for both targeted and actual numbers.

Gas savings are 679m³ for high efficiency furnaces, and 195m³ for programmable thermostats based on an average space heating load of 3086m³.

With the improved results this year, Gazifère will continue this Program for 2004. Participation targets will remain at 60 participants for each of the two measures. Please refer to Figure 4.

**Figure 4 - Residential Gas Furnace Program – 2004 Participants and Costs**

| | MEASURES | | |
|---|---|---|---|
| | **HE Furnaces** | **Prog. Thermostats** | **Total** |
| | | | |
| Dealer/Contractor participants – furnace replacements | 35 | 35 | |
| Dealer/Contractor participants – fuel conversions | 5 | 5 | |
| Participants purchasing from other | 20 | 20 | |
| | | | |
| **Total participants** | **60** | **60** | |
| Equipment costs[1] | n/a | $2,646 | $2,646 |
| Furnace rebate[2] | $6,000 | $1,200 | $7,200 |
| Communications | | | $5,000 |
| | | | |
| **Total costs** | | | **$14,846** |

[1] Based on a participant cost of $44.10 for programmable thermostats.

[2] Based on a rebate of $100 for the HE furnace incentive, and $30 for the programmable thermostat contractor labour incentive.

### *1.4 Commercial Water Heater Procurement Policy*

The Commercial Water Heater Procurement Policy has been an ongoing Program since 2001. It includes both commercial and residential sized tanks, as some of Gazifère's commercial clients use a residential tank in a commercial application, while others use the larger commercial sized tanks.

The residential tanks that are purchased are a minimum of 0.65 EF, three percentage points higher than the federal government standard, and the larger commercial tanks are ones that comply with ASHRAE 90.1B.

The number of residential tanks purchased for commercial application has a target of 15 tanks for 2003. As at the end of June, the actual number of tanks purchased is 7 tanks, and there is the possibility that the total number of tanks purchased by the end of the year will not meet the annual target. Please see Figure 5 for a summary of the results.

Falling short of the target is predominantly due to a new policy recently adopted by Gazifère for its residential water heater tanks. In the past, insufficient hot water calls or leaking tanks would be replaced by a new water heater. Gazifère now completes a diagnostic first, and then replaces the tank only if necessary.

As this is a relatively new change in policy, there has been insufficient historical data with which to set an annual target more reflective of the market requirements. The participation target for 2004 will therefore remain at 15 tanks, but will be revisited in future years to reflect an average of annual participation once it is better defined.

The number of commercial sized tanks is estimated to be 35 tanks for the year. The actual number of commercial water heaters purchased is 38 tanks as at the end of June. This is the second year in a row that commercial tanks have exceeded the annual target, and thus the participation target for 2004 has been raised to 40 tanks.

The total $m^3$ savings for the Commercial Water Heater Procurement Policy will exceed the target for the year, as seen in Figure 5. Although the residential sized tanks will fall short of their target, the saving associated with this tank is 49 $m^3$ compared with a saving of 700 $m^3$ for the commercial sized tanks, which have already surpassed their annual participation target. Thus, overall for the Program, it has achieved 107% of target as at the end of June, 2003.

**Figure 5 – Commercial Water Heater Procurement Policy, results to June 30, 2003**

| Measures | Target Partic. 2003 | Actual Partic. to 30/06/03 | Target $m^3$ Savings 2003 | Actual $m^3$ Savings to 30/06/03 | Target Water Savings 2003 (000) litres | Actual Water Savings to 30/06/03 (000) litres | Target $CO^2$ Savings 2003 (kg) | Actual $CO^2$ Savings to 30/06/03 (kg) | Budgeted Costs for Measures 2003 | Actual Costs for Measures to 30/06/03 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| Residential Tanks | 15 | 7 | 735 | 343 | N/A | N/A | 1,382 | 645 | - | - |
| Commercial Tanks | 35 | 38 | 24,500 | 26,600 | N/A | N/A | 46,000 | 50,008 | - | - |
| | | | | | | | | | | |
| **TOTAL** | | | **25,235** | **26,943** | **N/A** | **N/A** | **47,382** | **50,653** | **-** | **-** |
| % difference | | | | **107%** | | | | **107%** | **-** | **-** |

Note: appropriate free ridership rates have been applied to gas, water, and $CO^2$ savings, for both targeted and actual numbers.

### *1.5 AEE-ACEF Low Income Housing Program*

The "Agence de l'efficacité énergétique" (AEE) of the Québec government, in collaboration with the "Association coopérative d'économie familiale – Outaouais" (ACEF-Outaouais) launched a community-based energy efficiency program for low-income families in the Outaouais region on October 16, 2000.

The Program consists of visiting low-income families in the region. During these visits, a team of two persons (one advisor and one installer) provides advice, installs several measures and performs some work aimed at increasing the energy efficiency of the dwelling. The number of families to be visited in Year One of the Program was 350. During Year Two and Year Three, 300 visits were targeted to be conducted each year.

For the first two years of the Program, Gazifère contributed to the community-based initiative by providing free of charge, low flow showerheads, faucet aerators, and foam pipe wrap to any Gazifère water heating customer visited by ACEF. Gazifère also agreed to inform its customers, who may have difficulty paying their bill, that they may contact the ACEF to take advantage of the Program. Gazifère provided the ACEF with 50 kits of the gas and water saving measures for each of the years 2001 and 2002.

In 2003, Gazifère again offered to contribute 50 kits, and while ACEF phoned Gazifère at the beginning of the year expressing interest in their continued participation, ACEF never came to pick up the kits nor did they return subsequent phone calls. If ACEF contacts Gazifère for the year 2004, Gazifère will be happy to participate with them.

## 2.0 Overview of Non-Established DSM Programs

### *2.1 Federal Energy Star Program*

Natural Resources Canada's (NRCan) Office of Energy Efficiency (OEE) launched a new energy efficiency program in Gazifère's fiscal 2002, called Energy Star, modeled after the Energy Star energy efficiency product endorsement and labeling program in the United States.

The OEE identified 25 initial products that would comprise Energy Star in Canada, including residential gas furnaces, boilers, and programmable thermostats. Gazifère's Residential Gas Furnace Program specifies furnaces and programmable thermostats that would meet the Canadian Energy Star criteria, and thus Gazifère was to explore the potential to maximize its Program marketing to piggyback on any marketing/promotional efforts of the OEE, and vice versa.

NRCan was late in signing its agreement with the Americans to adopt Energy Star, and thus no marketing or promotional activities took place last year. Since then, NRCan has entered into an agreement with BC Gas, to match BC Gas' HE furnace incentive to its customers, if the furnace meets Energy Star requirements.

By the end of August, 2003 (to account for NRCan vacation schedules), Gazifère will meet again with NRCan to re-evaluate the opportunity to partner with the OEE regarding the promotion of the Residential Gas Furnace Program in cooperation with Energy Star, and to request NRCan offer Gazifère customers the same incentive it offers BC Gas.

### *2.2 AEE Novoclimat*

AEE's Novoclimat is a residential new construction program based on the 1997 *Model National Energy Code for Houses* (MNECH). It allows homebuyers to purchase a more comfortable house with improved indoor air quality and energy efficiency.

The AEE estimates that a Novoclimat house consumes approximately 25% less energy than a house built to Law #9, the current regulation, for an incremental construction cost for gas-heated homes in the Outaouais region of about 2.7%.

The program is based on :

- training and accreditation of home builders ;
- an inspection performed by an independent specialist ; and
- a certification of the energy performance and the compliance to the technical requirements.

An additional advantage to homeowners is that the *"Caisse Populaire Desjardins"* provides a preferred mortgage rate for buyers of Novoclimat houses.

Since 1990, Gazifère has dominated the residential construction market in the Outaouais region, making Gazifère a potentially influential partner in increasing the energy efficiency of this sector.

In June last year, Gazifère met with senior staff from the AEE to form a partnership for the promotion of AEE's programs in the Outaouais region, Novoclimat being one of the programs. The AEE advised Gazifère that all the major builders within the region are accredited to build Novoclimat houses, yet the uptake has been non-existent. There has only been one demonstration house built a few years ago.

In 2003, Gazifère was to explore the potential to work with one new home builder on a pilot project basis, to partially offset the incremental construction cost paid by the homeowner, if the builder agreed to offer Novoclimat as one of the options from the builder's pick list of available upgrades. The builder was also required to display promotional material prepared by Gazifère, in the model homes.

Gazifère was planning to offer homebuyers an incentive of $1,500 via the builder, to help lower the incremental construction cost for a gas heated Novoclimat house. The target participation for

2003 was estimated to be 5 houses and the energy savings per house was estimated at 972m³ (based on an average base load of 3,886m³ and a 25% reduction in energy use).

Gazifère surveyed the marketplace within its service territory, and determined that although 14 builders are accredited Novoclimat builders, only one builder was active in promoting Novoclimat, namely Judand ltée in the Pontiac region. Since the Pontiac region does not have a high annual volume of new construction, it did not seem to be feasible to conduct a pilot project there.

In view of the Régie's directive in its D-2002-283 ruling that it would like to ensure that the $1,500 contribution actually serves to reduce the purchase price to the consumer, in place of a pilot project, Gazifère decided to widely market the Novoclimat program directly to homebuyers. Gazifère placed advertising in newspapers and bill inserts informing the public of the benefits of a Novoclimat house, and that if they purchase a Novoclimat house, Gazifère would reimburse them $1,500 to offset a potentially higher capital cost (upon receipt of a copy of the Novoclimat certification).

Gazifère has received numerous telephone calls from interested potential homebuyers, but has not yet paid out any incentives, as it has not yet received any certifications. Gazifère will continue to promote the Program in 2004, and will "wait and see" whether any of the public who have phoned will follow through with requesting a Novoclimat house from their builder. As there has been no uptake yet, the target number of participants for 2004 will be lowered from 5 homes to 3 homes.

### *2.3 AEE Service d'inspection énergétique résidentielle (EnerGuide for Houses)*

The *Service d'inspection énergétique résidentielle* of the AEE is a residential home energy audit program based on Natural Resources Canada's (NRCan) *EnerGuide for Houses* program. It offers a whole house audit, including a blower door test, to single family dwellings, and provides a computer simulation of the home's energy performance using HOT 2000 software developed by NRCan. A complete report detailing recommended energy upgrade measures and equivalent energy savings is provided to the homeowner.

If the homeowner implements at least one of the recommended measures, a second audit is conducted to validate the energy savings. The cost of the Program per house is about $300, of which the AEE pays half, as the homeowner is required to pay $149.95.

Since Energuide's inception in Québec a few years ago, by 2002, the AEE had completed 3,800 house audits, 60 of which had been done in the Outaouais region which included electric, gas, and oil heated homes. Last year alone, a total of 880 audits were conducted in total in Québec.

However, for 2003, NRCan has set a dramatically increased target on behalf of the AEE, to conduct 3,000 home audits in Québec in the one year. Historically, considering the ratio of audits completed in the Outaouais versus all of Québec due to natural market forces, that would mean

that about 45 homes (electric, gas, and oil combined) would be targeted by the AEE for an audit in the Outaouais in 2003.

Gazifère offered to help subsidize the customer's cost for the audit, but the AEE declined, explaining that once they pull out of market, they wish the Program to self-sustain itself. In its place, Gazifère then offered to help raise the profile of this Program by actively promoting it to its clientele via bill inserts, its quarterly *Infogaz* newsletter, Gazifère's web site, and articles and advertisements in newspapers.

Gaz Métropolitain Inc. (GMI) has also been promoting the AEE's program within their service territory, and in their 2002-2003 rate case, calculated average energy savings per house to be 11.3% based on an average residential load of 3764m³.

Gazifère's average base load of 3886m³ compares favourably with GMI's average load. Applying an 11.3% energy saving to Gazifère's average load would equal 439m³ saved per home.

For 2003, Gazifère set an ambitious target of 30 participants with gas heated homes. The target was established a bit in the dark, as the AEE does not set annual targets based on fuel source, and thus there was no historical data upon which to reference a reflective number of gas participants. Knowing only that the AEE's total target for all fuel sources would be roughly 45 homes in 2003, Gazifère hoped to boost that number by influencing an increased participation from gas customers in response to Gazifère's advertising.

The Régie subsequently ruled that Gazifère could therefore only take credit for Energuides completed for gas heated homes only after the total target of 45 homes had been met (of which some gas heated homes would already comprise the 45). In addition, the Régie directed Gazifère to submit a detailed account of the number of inspections carried out by the AEE and, if possible, of the action taken by customers and the associated savings.

In an effort to obtain a more detailed account of Energuide audits completed in the Outaouais by fuel source, Finet Saksniit contacted the AEE who was able to go through its records and provide a breakdown by fuel source, for the last two years, although they still do not set targets by fuel source.

From October 1, 2001 to September 30, 2002 which reflects Gazifère's 2002 fiscal year, the number of Energuides completed were 15 for electrically heated homes, 11 for gas heated homes, and 5 for oil heated homes, totaling 31 homes in all.

From October 1, 2002 to June 30, 2003 (Gazifère's 2003 fiscal year to-date), the number of Energuides completed have been 16 for electrically heated homes, 15 for gas heated homes, and 6 for oil heated homes, totaling 37 homes. None of the homes for either year have requested a second or follow-up audit, so it is not known what actions were taken by customers, nor their associated savings.

While it appears the AEE will meet its target of 45 homes for the year, a greater proportion can be attributed to an increase in gas heated participants. Electrically and oil heated homes are

showing an increase of only one house each compared to the previous year, while gas heated homes show an increase of four homes.

It can be argued that the greater increase in gas heated Energuide audits are not necessarily due to natural market trends, since these types of audits are typically conducted for older homes, and Gazifère did not begin dominating the housing market until the start of the 1990's, meaning that a large portion of the older housing stock is heated with a fuel other than gas. The greater increase in the number of Energuide audits for gas heated homes could be related to the advertising conducted by Gazifère.

Since the Régie ruled that no credit could be taken by Gazifère for the Energuide program in 2003 until the annual total target of 45 homes had been surpassed, there are no $m^3$ savings currently recorded for the Program. Gazifère will check with the auditor at year-end, and will adjust its savings accordingly if applicable.

For 2004, Gazifère will continue to promote Energuide to its clientele, and has set a target participation of 12 homes. It is not known at this time what the AEE's target for Energuides in the Outaouais will be for 2004. Gazifère is also requesting that for next year, the Régie allow Gazifère to claim its $m^3$ savings as those homes that exceed the proportionate amount of increase in participation, compared with the trends shown by other fuels.

As an example, using this year's increased participation, electricity and oil heated homes have increased by one participant each, compared with four for gas heated homes. If the rationale for claiming savings were to be applied to this year's results, then Gazifère would claim savings for the 3 additional homes over and above the gains shown by the other fuels.

### *2.4 Multi-Residential Gas and Water Savings Program*

Based on the success of the Residential Gas and Water Savings Program in 2001, Gazifère planned to expand the Program in 2002 to encompass the commercial multi-residential market as defined by the building code. The multi-residential Program was to be made available to all existing multi-residential customers. It was assumed that any new multi-residential construction would already have low flow showerheads and faucet aerators installed, based on the available supply of product within the marketplace.

The concept for multi-residential differs somewhat from the residential Program, in that only low flow showerheads, and kitchen and bathroom aerators were to be offered free of charge for every unit in a building that utilizes gas water heating (foam pipe wrap and tank turn down were not considered appropriate measures for multi-residential units as water heating is often centralized).

To address the Régie's request the year before that customers contribute to DSM program costs where possible, Gazifère had planned to negotiate with building owners that they absorb the cost of installing the measures while Gazifère would provide the equipment free of charge. Low flow showerheads and faucet aerators could be systematically installed by the property managers on

site or building maintenance staff, or possibly during regular maintenance of their buildings' units.

There was a drawback to estimating the participation and savings impacts for this Program in 2002, due to lack of demand side market information. To-date, Gazifère has never kept track of how many apartment buildings there are, nor how many units each apartment building has, nor what types of equipment they have. To try to determine participation, thousands of commercial customers' accounts were manually reviewed to attempt to isolate the number of multi-residential clients.

A further hindrance to estimating participation was that no classification existed to indicate which of the potential multi-residential buildings provide gas water heating to its tenants. All assigned classifications are worded as "with or without" water heating, so it was unclear how many of the potential buildings could qualify for showerheads and aerators.

Based on a manual review of data, it was estimated there are 88 multi-residential buildings "with or without" water heating, in Gazifère's service territory. However, no information existed to indicate how many units those 88 buildings represent. A reverse telephone directory was used, in which a building address may be looked up which in turn lists the telephone numbers that correspond with an apartment unit number at that address.

From the results of the reverse directory, it was estimated the 88 buildings represented approximately 5,000 units. This did not take into consideration those tenants who may have unlisted telephone numbers, nor what vacancy rate may exist for any one building (a vacant apartment has no telephone number).

Despite the ambiguity of the market information, Gazifère was targeting 1,000 units of the potential 5,000 as the number of participants for 2003. It was estimated that the 1,000 units may represent approximately 15 buildings.

The Multi-residential Gas and Water Savings Program estimated gas savings of 58 $m^3$ per participant for each low flow showerhead, and 17 $m^3$ for faucet aerators, one for the kitchen and one for the bathroom. A free ridership of 10% was applied to the participation rates, which is the percentage used by EGD for their multi-residential customer initiatives. Cost of the equipment was to be $3.30 per showerhead, $1.98 per kitchen faucet aerator, and $0.49 per bathroom faucet aerator

The Program was intended to be target marketed directly to the 88 building owners via an introductory letter, followed up by a telephone call and/or on-site visit to those owners expressing interest in the Program. The purpose of target marketing was twofold—to solicit personal buy-in to the Program, but to also begin gathering demand side market information.

Building owners or property managers were to be asked to provide information about their building; for example, what type of equipment they use for space heating, water heating, the age of equipment, how many pieces of equipment, whether the building supplies mechanical ventilation or relies on operable windows, etc.

Gazifère was also going to attempt to determine whether units are individually metered. This would have an impact on who benefits from the Program savings, and may affect how the Program would be marketed in future. It was the perception of Gazifère's technicians that a number of buildings may have individual unit water heating, which may or may not be individually metered, with space heating supplied by a central boiler or by electric baseboards.

Earlier this year, Gazifère conducted a quick telephone survey of its five largest multi-residential building owners, who informed Gazifère they had already retrofitted units with low flow showerheads and faucet aerators in recent years to lower their energy costs. Despite this, there may still be many of the smaller buildings, which may wish to take advantage of this Program.

As at the end of June 2003, this Program has not yet been widely advertised, nor target marketed. One building owner representing 27 units has agreed to participate, as he became aware of the Program during other business with Gazifère.

At the end of August, early September, Gazifère is planning a direct mail campaign to the 88 buildings that were previously identified, along with sector specific advertising. As no feedback is currently yet available, Gazifère is budgeting the continuation of the Multi-residential Gas and Water Savings program for 2004 with a lower participation target of 360 units to adjust for the larger high-rise buildings which have already installed these measures.

### *2.5 Commercial HE Boiler Program*

The Commercial High Efficiency Boiler Program is an energy efficiency program targeting boilers that produce heated water for space heating through combustion, which have an input less than 300,000 Btu/h (88kW), and which are shipped complete with burner, mechanical draft equipment, automatic controls, and accessories.

Using atmospheric boilers as the base case, which operate at less than 84% combustion efficiency, the Program promotes high efficiency condensing boilers with combustion efficiency levels equal to or greater than 90%.

Commercial, multi-residential, and industrial buildings are eligible to participate, with the energy upgrade decision made at the time of equipment replacement (existing market), or initial installation (new customer market).

The Program restricts participation to smaller boiler sizes for two key reasons. Gazifère's in-house technicians indicated they had seen a trend over recent years toward the installation of several smaller boilers in place of one large boiler of the equivalent total capacity.

Also, research commissioned by Union Gas and EGD in 2000 identified that paybacks for boilers with inputs greater than 300,000 Btu/hr, when comparing atmospheric with condensing boilers, ranged from 9 to 16 years. It was not considered cost effective for Gazifère to buy down these payback periods, or to offset their associated incremental costs (e.g. for boilers greater than 2 MM btu/hr, incremental cost for high efficiency averaged $38,000).

Condensing boilers with inputs less than 300,000 Btu/hr were found to have a simple payback of 5 years. This was based on an incremental cost of $1,300 for the condensing boiler over the cost of an atmospheric boiler of the same size. Gas consumption for an atmospheric boiler in this size range was around 5,600 $m^3$ annually, compared to 4,500 $m^3$ annually for a condensing boiler, thus providing annual gas savings of 1,100 $m^3$. Based on a gas price of $0.22/$m^3$, annual dollar savings were calculated to be $242—hence the 5 year payback. Estimated equipment life was 25 years.

These costs and savings were calculated for EGD and Union Gas based on extensive research. Typically in the commercial and industrial markets, energy savings are determined on a custom basis, in that an audit is conducted of the building envelope and systems, and a list of energy saving measures are recommended specific only to that building. This can be quite costly in terms of the audit, and administratively for the utility.

EGD and Union Gas jointly identified 13 technologies used in the ICI sector, for the purpose of trying to establish prescriptive benchmarks and savings, much like how the residential sector uses prescriptive savings based on average or typical use.

A consortium of three companies was hired—Agviro Inc., Engineering Interface Ltd., and the Astro Group—whose mandate was to come up with prescriptive savings for the 13 technologies, of which boilers was one technology. Agviro is a company in Guelph, Ontario which, years ago, developed a boiler modeling software called the “Boiler Tool Box”. It is used extensively in the marketplace by engineers to model boiler use.

Typical boiler installations were described by type of building, building use, and varying boiler sizes, and were modeled for their energy use. The results from the modeling were validated by comparing actual custom project applications from EGD and Union that had been submitted over the past 12 – 24 months.

Along with that, every major boiler manufacturer and distributor in Ontario was surveyed to determine the price of equipment, the current market saturation, non-financial barriers to implementation, awareness of key stakeholders, the availability of equipment and expertise, and engineering bias. Over 25 companies were surveyed, including Airco, PVI, Raypac, Teledyne Lars, Viesmann, Hydro-Therm, and others.

Based on the results of this research, incremental cost, cubic metre savings, annual dollar savings, and simple payback in years was identified for 5 different boiler sizes ranging from 300,000 Btu/hr up to 2,500,000 Btu/hr. The paybacks were calculated based on upgrading from a standard atmospheric boiler up to an energy efficient condensing boiler.

The costs and savings calculated for EGD used the mid-points of the ranges for comparative purposes. This approach was intended to simplify a potential boiler program’s application (much like how average energy consumption is used to determine the amount of a residential DSM program incentive or cost), recognizing that for boiler sizes close to the threshold, any incentive that may be given, may slightly over or under compensate the savings.

For its Commercial HE Boiler program, Gazifère is offering an incentive of $500 per boiler to customers who install a high efficiency condensing boiler in place of an **atmospheric** boiler (not to replace a mid-efficiency power combustion boiler) to bring the payback period to 3 years.

Free ridership is 0% for this Program, based on market information provided from boiler manufacturers to EGD and Union Gas, indicating that atmospheric boilers currently comprise approximately 60% of the market based on sales, compared to less than 5% for high efficiency condensing boilers.

The Program is designed to utilize channel marketing by providing dealers and contractors with information packages to inform them and their customers that the incentive exists to allow an energy efficient boiler option to be considered at the time of purchase.

To apply for the incentive, the dealer or contractor is required to fill out a form (to be provided by Gazifère), indicating the customer's name, address, business market segment, type of boiler purchased and for what application, boiler manufacturer, boiler efficiency, installation date of the HE boiler, and the type and age of boiler being replaced. Gazifère will reimburse the incentive amount to the customer, once it has been verified that the boiler purchased complies with the Program criteria.

The dealers and contractors are not to receive a direct incentive themselves for promoting the Program. It is assumed that Gazifère's incentive to customers would increase the sale of HE condensing boilers, and that the natural profit margins built into the incremental cost would be enough to offset the minimal paperwork required.

In its ruling for 2002 DSM programs, the Régie directed Gazifère to reduce the target of 100 boilers down to 50 boilers. This has been done, but regardless of the target, there are no participants yet for this Program.

Gazifère will begin to proactively promote this Program in August and September, placing advertising in Connexion Affaires and Outaouais Affaires newspapers, to coincide with customer preparations for the start of the heating season.

There is an additional possibility that in connection with the DSM program for municipal and institutional buildings, some buildings may qualify for the boiler incentive as well, if they decide to replace existing boilers with high efficiency ones that meet the criteria of this Program. Please refer to sections 2.7 and 2.8.

### *2.6 Commercial Design Assistance Program*

Gazifère is offering its clients a Commercial Design Assistance Program similar to the ones offered by EGD and Union Gas in Ontario, in tandem with NRCan's Commercial Building Incentive Program (CBIP). The Program promotes energy efficiency at the design stage of new commercial buildings. In May 2003, Gazifère and NRCan signed a legal agreement to jointly promote CBIP within the Outaouais to Gazifère's client.

Building design decisions are typically made at the project outset, and can have a significant impact on the building's energy needs for heating, cooling, ventilation, and lighting. In order to determine which energy efficient options may be applicable to any one building, computer modeling that simulates energy use needs to be conducted.

Modeling is done by an engineering firm, and usually takes about 3-4 weeks, at a cost of $4,000 to $7,000 depending on the complexity of the building design. Gazifère is offering an incentive of $3,500 as a contribution toward the cost of the modeling. NRCan has additional incentives to promote the energy efficient design of new commercial buildings via their CBIP program, that are also available to Gazifère's clients.

NRCan's technology division, CANMET, also provides free design advice to the engineering firms or the client, to suggest design features and equipment that would make a more energy efficient building while still meeting the desired cost/benefit ratio.

If the building is designed to be at least 25% more energy efficient than the requirements of the 1997 Model National Energy Code for Buildings, NRCan will provide an incentive of up to $60,000 based on the estimated energy use of the building. The CBIP incentive was originally up to $80,000, but was downsized last year to $60k.

The customer must file an Expression of Interest with NRCan to apply for CBIP. The building's computer simulation must be provided to NRCan, and CANMET verifies that the application is valid and the design meets the CBIP criteria, in order for an incentive to be paid.

For the purpose of Gazifère's Program, the customer is to provide a commitment that they have applied for CBIP. The building does not necessarily have to qualify to meet CBIP levels, but an indication that the building has applied for CBIP means that computer modeling has been done and that energy efficiency has been considered. The engineering firm or the client is required to send a copy of the modeling and building results to Gazifère before the incentive of $3,500 for the simulation is paid.

Since 1998, new commercial customers in Gazifère's service territory who could have conceivably participated in CBIP has ranged between 5 to 7 customers per year. For 2003, Gazifère had set a target of 2 customers for the Commercial Design Assistance Program.

In 2003, the new Nephrology Centre of the CHVO Hospital has been working with NRCan and Gazifère, and has applied for CBIP. As at the end of June, the hospital has not yet submitted its paperwork to Gazifère, so no incentive has been paid nor have the final $m^3$ savings been identified. Once the paperwork is caught up, the savings and corresponding incentive pay out will be reflected in Gazifère's DSM budget for 2003.

This Program will be continued in 2004, and Gazifère is already working with one potential building, a new municipal garage that is to be built in Buckingham. With one possible building already in the works, Gazifère is anticipating meeting its target of two participants in 2004. Appropriate $m^3$ savings will be factored into the DSM results once they are known.

### *2.7 AEE Programme d'intervention en efficacité énergétique – Volet bâtiments municipaux*

The *Programme d'intervention en efficacité énergétique – Volet bâtiments municipaux* of the AEE aims at reducing energy consumption in municipal buildings and facilities. All facilities are eligible with the exception of arenas, swimming pools, ice rinks, external lighting systems, and street lighting. As of 2003, pumping stations and water filtration plants will be added to the list of eligible facilities.

The program offers financial assistance for walk-through audits and feasibility studies which are considered to be a prerequisite to implementation of recommended energy saving measures. Phase 1 of the Program is a characterization study, where all municipal building stock is inventoried. The AEE has hired students to inventory buildings in any/every municipality in Québec that wishes to participate in the Program. The AEE pays all costs associated with establishing the inventory.

In Phase 2, the municipality commits to conducting feasibility studies for energy savings in at least 25% of all buildings that were inventoried. The AEE assists the municipality to prioritize buildings in order of potential, by analyzing the inventoried results and helping them complete the feasibility studies, and further provides technical and financial support. The AEE pays 75% of the cost of the first feasibility study up to a maximum of $15,000, and for the next study, the AEE pays 50% of the cost. For each subsequent study after that, the AEE may decide to contribute less or nothing at all.

Based on the results of the feasibility studies, municipalities are required to engage in the process of implementing every recommended energy saving measure with a payback of between 1-5 years. All measures with a payback of less than 1 year are required to be implemented immediately. In the case where a municipality does not implement the measures, they must repay the AEE for the financial contribution they received.

If a municipality has already had feasibility studies conducted for their own purposes, the municipality is eligible to instead receive the AEE's contribution of $15,000 to be applied toward the cost of implementing measures. However, the studies must conform to AEE standards, must be less than 3 years old, and must not have been previously subsidized by the AEE.

Based on the results from feasibility studies conducted for all of Québec combined, the AEE considers that on average, buildings reduce their energy use by approximately 10%. However, the AEE considers the 10% to be conservative, since the buildings have not been audited after the measures have been implemented.

Within Gazifère's service territory, the recent amalgamation of cities in the Outaouais region has created one new city of Gatineau. Gazifère contacted officials at the new City, who initially indicated at the start of the year they would be willing to commit to participating in the AEE's program.

Furthermore, the city of Gatineau believed that approximately 80% of the building stock had already been audited and inventoried. The 20% remaining to be inventoried was due to some previous autonomous cities in which auditing was not done. Based on the availability of students, the AEE indicated it would not be able to inventory the remaining 20% until sometime during the fall of 2002, which would have corresponded with the start of Gazifère's 2003 fiscal year.

In addition to working closely with the representatives of the city of Gatineau and the AEE, Gazifère was offering to contribute 5¢/m³ saved toward the cost of implementing the recommended measures shown to have a payback of between 2 to 5 years, up to a maximum total Program contribution of $50,000.

Measures with a payback of less than 2 years were considered by Gazifère to be cost effective in that the energy savings pay for themselves in a short period of time, and it is the measures with longer paybacks that are more costly to implement.

When this Program was designed, the city of Gatineau believed its annual gas consumption was in the neighborhood of 25,000,000m³ annually, due to the amalgamation of several cities into one. It was on this information that Gazifère set a target of 1,000,000m³ saved, or 4% of total consumption.

During the year, it became apparent that the city of Gatineau did not know its total consumption for all municipal buildings combined, and asked Gazifère to provide it with a listing of all its municipal accounts, with annual consumption for each address. Gazifère also does not track this market information in-house, as all servicing for this type of information has to come from head office in Toronto which maintains Gazifère's billing records.

Gazifère requested this listing at a cost to Gazifère of $5,967. What came to light as a result of the market research, was that the city of Gatineau's total consumption was only 6,000,000m³ annually, and that 2,400,000m³ of that was attributed to its water treatment plant, which was to only became eligible under the AEE program sometime in 2003.

In addition, around January of this year, the city of Gatineau informed Gazifère that it would not participate in the AEE's program after all, since the city's financial auditors had now determined that the city was operating at a $16 million deficit, and could not afford to undertake any capital costs at this time, regardless of their payback.

Before the end of its fiscal year, Gazifère will endeavor to meet again with city officials to review any possible potential for utilizing energy efficiency to reduce the city's operating budget deficit, and at what potential cost. They will also try to establish whether opportunity may exist for implementing energy efficiency measures at the city of Gatineau's water treatment plant, as its annual consumption comprises 40% of total consumption.

If the city of Gatineau agrees to participate in the AEE's program for 2004, Gazifère will restructure its incentive offering to match that which is offered by Gaz Métro for their same initiative, to 25¢/m³ saved, up to a maximum of $25,000, which will be eligible for any measures undertaken with a payback greater than one year. In addition, if any of the municipal buildings

decide to install high efficiency boilers that meet the criteria of the Commercial HE Boiler program, they will also be eligible to receive that incentive as well.

The AEE has asked Gazifère to provide a contribution to the AEE to help offset AEE's cost of running its Program. As such, Gazifère will provide the AEE with a contribution of $5,000 in 2004, if the city of Gatineau participates.

### *2.8 AEE Programme d'interventions dans le secteur institutionnel*

The *"Programme d'interventions dans le secteur institutionnel"* of the AEE aims at reducing energy consumption in buildings and facilities of the health and education sectors. It is very similar to the program for Municipal buildings outlined in Section 2.7 above, in that it also offers financial assistance for walk-through audits and feasibility studies which are considered to be a prerequisite to implementing recommended energy saving measures.

Where this Program differs from the one for Municipal buildings is that the AEE pays for 50% of the audit/study regardless of its cost. On average, the cost of audits/studies for this sector range between $5k to $10k. Also, where it differs is that the school or health care facility is not required to implement any of the recommended measures, nor is it required to reimburse the AEE's contribution if no measures are implemented. However, Program evaluation by the AEE shows that approximately 75% of the participants do go on to implement at least one of the measures recommended.

Primary and Secondary schools have been more active than other eligible facilities in participating in this Program, and on average, schools have realized energy savings of about 10%. For those hospitals and other health institutions that have participated, they have realized energy savings of around 14%. Again, the AEE considers these to be conservative, as no follow-up audits are conducted once the measures are implemented.

Gazifère worked with the AEE earlier this year to identify facilities which had already participated in the AEE program by having completed feasibility studies, but had not yet implemented any or only some of the recommended measures. The "Commission scolaire des draveurs" was one school board, which had completed feasibility studies, and was prepared to commit to undertaking recommended measures.

The school board formed a working committee, of which Gazifère was a member, to put out a tender to firms, which may be interested in bidding on the work. Based on the working committee's recommendation, a contract was issued by the Board on July 7$^{th}$ this year. Between July and November 2003, the firm selected will undertake a detailed analysis and do a more complete screening for potential savings, for each of the Board's schools.

Although Gazifère had set a target of 3 participants for 2003, no participants will actually be realized until next fiscal year, based on the timeline established by the school board. Also, it may not be feasible to complete energy upgrades for more than 2 schools in one fiscal year if they require envelope renovations, as they can only effectively be done during the summer. Therefore

for 2004, the target number of participants is 2 schools, and energy savings claimed by Gazifère will be recorded as the actual savings appropriate for each building.

In keeping with the incentive offered for municipal buildings, and with what is being offered by Gaz Métro for its institutional buildings, Gazifère will offer an incentive of 25¢/$m^3$ saved up to a maximum of $25,000 per participant. In addition, if any of the schools decide to install high efficiency boilers that meet the criteria of the Commercial HE Boiler program, they will also be eligible to receive that incentive as well.

### *2.9 Commercial Market Research*

As was outlined in Gazifère's 2003 DSM Plan, almost no demand side market information currently exists for Gazifère's clients. No systematic information is available to indicate how many buildings comprise various market segments, nor is there information on building occupancy, the types of technologies being used, the age of the building and its equipment, etc.

Prior to Gazifère launching its corporate DSM initiative, all client information was based on supply side requirements. For example, when a new building would be coming on line as a new gas customer, a sales agent for Gazifère would visit the site and determine the amount of gas supply required based on the building size.

While some consideration may have been given to the building function as the agent was on site (e.g. a hotel) if it was considered to have an impact on the amount of estimated gas supply, little information has been permanently recorded to provide market research or historical data.

To some degree, while Gazifère's clients have been classified in broad revenue classes indicating consumption of a certain amount of gas so they can be assigned an appropriate rate category, it has been considered irrelevant as to the market segment the client represents (e.g. office buildings, restaurants, etc.) and a large number of clients have merely been coded as "commercial" or "industrial".

In instances where a client may have been recorded as an apartment building, for example, no information exists as to whether the building may be a high rise or a low rise, nor how many units the building represents. Depending on the size of building, the construction styles may be significantly different, such as poured concrete for a high rise, versus frame or residential style construction for a multi unit walk-up.

There has also been no information systematically gathered regarding what technology is being used to supply heating, cooling, or hot water—for example, whether rooftop units, or boilers and what types of boilers or how many, what types of furnaces, what efficiencies of equipment, the age of equipment, etc.

The lack of available market research has posed a significant barrier to designing DSM programs. Particularly in commercial applications, where energy efficiency is predominantly achieved by replacing a conventional technology with a more innovative one, not knowing what

technologies are currently being used by Gazifère's customers inhibits the design of programs promoting energy efficient technologies suitable for its clients' applications. Nor is it clear how **many** customers may be eligible for a particular program in order to set participation rates with a corresponding DSM budget.

What little information is available has been provided on an ad hoc basis, based on the perception of Gazifère's service technicians if they have had the occasion to visit a client. However, few of Gazifère's commercial clients are serviced by Gazifère's own technicians, as almost all of the clients' equipment is self-owned and therefore privately maintained.

To compound the lack of systematic gathering of market research and historical data, some of Gazifère's commercial customers, approximately 100 clients, are billed and tracked manually and are separate from the main computerized customer system which is housed at the head office in Toronto.

As this lack of information posed serious difficulty in designing DSM programs, Gazifère iterated it would need to begin collecting such data by customer, to be able to conduct ongoing DSM program design for future years.

This work was to include procedures to gather building characteristics and occupancies wherever possible by salesmen and installers. The data that was to be collected was intended to build a market information system, which would in turn provide better insight for future DSM planning, and would eliminate the need for costly special requests to head office for them to extract customer information from their centralized system.

However, this activity has been impeded by the fact that little participation has yet been realized for Gazifère's commercial DSM programs, and much of the information was intended to be gathered from participating customers via questionnaires/surveys as a condition of their participation.

This activity will continue to be budgeted for 2004, in anticipation of the start of participation by commercial customers in Gazifère's DSM initiatives. If, by the second quarter next year, there is not enough of a natural increase in participation, Gazifère will begin to conduct bulk mailings of surveys and questionnaires to all customers, to better determine their needs and interest in energy efficiency.

## 3.0 Evaluation of 2003 DSM Program Impacts

A summary of Gazifère's DSM program impacts is shown in Figure 6. It provides an overview of total participation, savings, and costs up to the end of June, 2003. Results are divided between established DSM programs, and non-established DSM programs.

Keeping in mind that there is still the final quarter of the year to go, program savings should be running at about 75%. However, total $m^3$ and $CO^2$ saved by established DSM programs was

ahead of target for this time period at 83%, while water savings were below target at 54%, which accounts for fewer low-flow showerheads installed than anticipated.

Correspondingly, Gazifère's budget expenditures were running at 88% of target, slightly higher than the percentage for results achieved, as Gazifère's contractor completed more of the measures than had been budgeted for them (relative to measures installed by Gazifère's in-house technicians or front counter participants), and they receive a labour incentive for their work.

Non-established programs are those for which $m^3$ savings cannot yet be recorded, although preparatory work has occurred during the year, and some budget was spent in the Municipal Buildings program for gas consumption information from EGD.

In terms of fixed costs (e.g. salaries, web site update, computer programming, etc.) that were identified in the 2003 DSM Plan, no summary of actual dollars spent versus budget has yet been completed, but it is anticipated the total fixed costs will be underspent for the year.

**Figure 6 – Gazifère DSM Program Savings, results to June 30, 2003**

| Measures | Target Partic. 2003 | Actual Partic. to 30/06/03 | Target $m^3$ Savings 2003 | Actual $m^3$ Savings to 30/06/03 | Target Water Savings 2003 (000) litres | Actual Water Savings to 30/06/03 (000) litres | Target $CO^2$ Savings 2003 (tonnes) | Actual $CO^2$ Savings to 30/06/03 (tonnes) | Budgeted Costs for Measures 2003 | Actual Costs for Measures to 30/06/03 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Established Programs:** | | | | | | | | | | |
| Res WH Procurement | 1800 | 1524 | 79,200 | 67,057 | - | - | 149,000 | 126,066 | - | - |
| Res Gas & Wtr Savings: | | | | | | | | | | |
| Showerheads | 900 | 379 | 75,330 | 40,092 | 34,020 | 18,106 | 142,000 | 75,374 | $11,752 | $8,409 |
| Faucet Aerators | 1500 | 832 | 22,950 | 12,730 | 5,400 | 2,995 | 43,000 | 23,932 | 3,705 | 2,055 |
| Pipe Wrap | 1600 | 1372 | 24,000 | 20,580 | - | - | 45,000 | 38,691 | 6,200 | 6,620 |
| Tank Turn Down | 1440 | 1327 | 129,600 | 119,430 | - | - | 244,000 | 224,528 | 2,100 | 2,400 |
| Res. Gas Furnace Pgm: | | | | | | | | | | |
| HE Furnaces | 60 | 63 | 28,518 | 29,944 | - | - | 54,000 | 56,295 | 6,000 | 5,700 |
| Prog. Thermostats | 60 | 63 | 10,413 | 10,934 | - | - | 20,000 | 20,555 | 3,846 | 4,488 |
| Comm WH Procurement | | | | | | | | | | |
| Residential Tanks | 15 | 7 | 735 | 343 | - | - | 1,382 | 645 | - | - |
| Commercial Tanks | 35 | 38 | 24,500 | 26,600 | - | - | 46,000 | 50,008 | - | - |
| **TOTAL** | | | **395,246** | **327,709** | **39,420** | **21,101** | **744,382** | **616,094** | **$33,603** | **$29,672** |
| **% difference** | | | | **83%** | | **54%** | | **83%** | | **88%** |
| **Non-established Prgms**: | | | | | | | | | | |
| Multi-res Gas & Water Savings Program | | | | | | | | | | |
| Showerheads | 1000 | 0 | 52,200 | 0 | 23,625 | 0 | 98,000 | 0 | $3,300 | 0 |
| Faucet Aerators | 1000 | 0 | 15,300 | 0 | 3,600 | 0 | 29,000 | 0 | 2,470 | 0 |
| Comm HE Boiler Pgm | 50 | 0 | 55,000 | 0 | - | 0 | 103,000 | 0 | 25,000 | 0 |
| Comm Design Assist Pgm | 2 | 0 | n/a | 0 | - | 0 | n/a | 0 | 7,000 | 0 |
| EE Municipal Bldgs | 1 | 0 | 1,000,000 | 0 | - | 0 | 1,880,000 | 0 | 55,000 | $5,967 |
| EE Institutional Bldgs | 3 | 0 | 600,000 | 0 | - | 0 | 1,128,000 | 0 | 30,000 | 0 |
| Novoclimat | 5 | 0 | 4,860 | 0 | - | 0 | 9,000 | 0 | 7,500 | 0 |
| Energuide for Houses | 30 | 0 | 13,170 | 0 | - | 0 | 25,000 | 0 | 0 | 0 |
| **TOTAL** | | | **1,740,530** | **0** | **27,225** | **0** | **3,272,000** | **0** | **$130,270** | **$5,967** |
| **%** difference | | | | 0% | | 0% | | 0% | | 5% |

Note: appropriate free ridership rates have been applied to gas, water, and $CO^2$ savings, for both targeted and actual numbers.

# 4.0 Ancillary Support for DSM Programs

## *4.1 Web Site*

Gazifère maintains a web site, providing information on Gazifère's DSM programs and customer benefits associated with each. As an additional customer service measure, Gazifère's web site provides links to the web sites of NRCan and the AEE, to direct customers to additional information on energy efficiency, and energy efficiency programs (some with incentives) for which they may be eligible.

This was undertaken in response to the Régie's directive that Gazifère should provide customers with information on energy efficiency and other stakeholder programs from which customers could benefit.

To draw customers to its web site, Gazifère included in its DSM program advertising for 2003, the opportunity for customers to win a free gas barbecue, if they could find "Roger" on its web site. "Roger" was always located somewhere within Gazifère's DSM program information.

In 2003, Gazifère also updated its web site to include information on the new DSM programs that had been added.

## *4.2 Human Resources*

In 2001, Gazifère hired a DSM administrative staff person to facilitate DSM program elements such as inputting data to the monthly tracking reports and identifying any inconsistencies, ensuring equipment is ordered and distributed as needed to installers, maintaining adequate levels of stock, processing invoices, etc.

With the addition of more programs in 2002 and 2003, it was determined that additional staff resources would be required. Gazifère explored the feasibility of hiring a technician dedicated only to DSM installations, for any/or all of the programs.

When it became apparent there is a shortage of qualified technicians available within its service territory, Gazifère began negotiating the option of its contractor dedicating one (or two at peak times) technicians to Gazifère for DSM work, along with the option of using the contractor's administration staff to set appointments and handle customer volume.

Gazifère is still in the midst of negotiating the terms and costs involved. Until this has been completed, in the interim, the budgeted amount for hiring a new in-house technician will be reverted to the contractor.

## 5.0 Summary of 2004 DSM Programs Estimated Impact & Budget

Gazifère is a small gas utility compared with EGD or Gaz Métropolitain, and is much more limited in the total amount of DSM budget that can be set aside to promote energy efficiency. Gazifère's total annual DSM budget can be the equivalent of just one EGD program offering.

Along with being a small utility, as iterated in the Foreword section of this report, Gazifère does not have the human resources nor the financial means to establish a DSM department dedicated to designing, implementing, and maintaining energy efficiency programs. Nor does it have a market research department, nor a computer programming department.

In its place, Gazifère has relied on external agencies to help run its DSM initiative, whether it be paying for experts to testify at hearings (as no in-house expertise exists), telemarketing firms, consulting firms, computer programmers, communication agencies, etc.

In its ruling D-2002-283, the Régie stated that given it is no longer asking Gazifère to actively develop new programs, it expects a reduction in costs with respect to consulting requirements. Balancing this directive with the extremely limited human resources available in-house, considerable effort has been made to reduce the 2004 DSM budget for fixed costs from last year's level.

Fixed cost items, excluding salaries for two in-house staff (a DSM administration clerk and a technician), totaled $140,000 last year. For 2004, this has been reduced by 36% down to $89,000. Two of the fixed cost items, program audits and load impacts, were eliminated altogether.

Program audits have been conducted in the past two years, and the procedures for the established programs are running relatively smoothly. For non-established programs, the focus for 2004 will be to gather participation, so program audits for these may not be required until the following year.

A review of load impacts was also conducted in each of the past two years, and the issues revolving around establishing appropriate $m^3$ credits were resolved last year. If new issues are raised next year or in subsequent years, there may be monies spent against this item again. In addition, funds for 4 other fixed cost items were reduced, namely market impacts, future DSM program planning, broadscale communications, and overheads.

In terms of program operating costs, Gazifère's 2004 DSM initiative has continued the programs launched last year, with the adjustment of some participation rates. Total annual gas savings are estimated at 764,475 $m^3$, at a cost of $201,760 or $0.26 per $m^3$ saved.

Other utilities such as EGD and Union Gas do not factor fixed costs into their reported cost of offering DSM, but rather, consider fixed costs the cost of doing business. However, since Gazifère's total budget is relatively small compared with EGD's and Union's, it has included fixed costs in its calculation for the past two years. For 2004, if fixed costs are also factored into the evaluation, then total annual gas savings are estimated to be 764,475$m^3$ at a cost of $394,960 or $0.52 per $m^3$ saved.

## Figure 7 – Summary of Proposed 2004 DSM Programs Estimated Impact & Budget

| Measures | # of Partic. | Free Rider | Saving /Partic. ($m^3$) | Total Annual Gas Savings ($m^3$) | Total Annual $CO_2$ Savings (tonnes) | Total Annual Water Savings (000 L) | Equip Life (Yrs) | Total Cost All Partic. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| **Res Gas &Wtr Savings Pgm** | | | | | | | | |
| Low-flow Showerheads | 750 | 10% | 93 | 62,775 | 118 | 28,350 | 08 | $13,060 |
| Faucet Aerators | 1500 | 10% | 17 | 22,950 | 43 | 5,400 | 08 | 3,705 |
| Pipe Wrap | 1800 | 0% | 15 | 27,000 | 51 | - | 20 | 8,600 |
| Tank Turn Down | 1500 | 0% | 90 | 135,000 | 254 | - | 08 | 2,260 |
| Pgm Communications | | | | | | | | 8,000 |
| Sub-total | | | | **247,725** | **466** | **33,750** | | **$35,625** |
| | | | | | | | | |
| **Res Water Htr Procurement** | 1900 | 0% | 44 | **83,600** | **157** | - | | n/a |
| | | | | | | | | |
| **Residential Gas Furnace Pgm** | | | | | | | | |
| High Efficiency Furnaces | 60 | 30% | 679 | 28,518 | 54 | - | 20 | $6,000 |
| Programmable Thermostats | 60 | 11% | 195 | 10,413 | 20 | - | 20 | 3,846 |
| Pgm Communications | | | | | | | | 5,000 |
| Sub-total | | | | **38,931** | **74** | - | | **$14,846** |
| | | | | | | | | |
| **Novoclimat** | 3 | 0% | 972 | 2,916 | 5 | - | | $4,500 |
| Pgm Communications | | | | | | | | $2,000 |
| Sub-total | | | | **2,916** | **5** | - | | **$6,500** |
| | | | | | | | | |
| **EnerGuide for Houses** | 12 | 0% | 439 | 5,268 | 25 | - | | $0 |
| Pgm. Communications | | | | | | | | $8,000 |
| Sub-total | | | | **5,268** | **25** | - | | **$8,000** |
| | | | | | | | | |
| **Comm Wtr Htr Procurement** | | | | | | | | |
| Residential Tanks | 15 | 0% | 49 | 735 | 1 | - | 08 | n/a |
| Commercial Tanks | 40 | 0% | 700 | 28,000 | 53 | - | 12 | n/a |
| Sub-total | | | | **28,735** | **54** | - | | n/a |
| | | | | | | | | |
| **Multi-Res Gas & Water Savings Pgm** | | | | | | | | |
| Low-flow Showerheads | 360 | 10% | 58 | 18,792 | 35 | 8,505 | 08 | $1,900 |
| Faucet Aerators | 360 | 10% | 17 | 5,508 | 10 | 1,296 | 08 | 889 |
| Pgm Communications | | | | | | | | 2,000 |
| Sub-total | | | | **24,300** | **45** | **9,801** | | **$4,789** |
| | | | | | | | | |
| **Comm/Ind HE Boiler Pgm** | 30 | 0% | 1,100 | 33,000 | 62 | - | 20 | $15,000 |
| Pgm Communications | | | | | | | | 5,000 |
| Sub-total | | | 1,100 | **33,000** | **62** | **-** | | **$20,000** |
| | | | | | | | | |
| **Comm Design Assistance Pgm** | 2 | 10% | n/a | n/a | n/a | - | - | $7,000 |
| Pgm Communications | | | | | | | | 3,000 |
| Sub-total | | | | | | | | **$10,000** |
| | | | | | | | | |

| Measures | # of Partic. | Free Rider | Saving /Partic. ($m^3$) | Total Annual Gas Savings ($m^3$) | Total Annual $CO_2$ Savings (tonnes) | Total Annual Water Savings (000 L) | Equip Life (Yrs) | Total Cost All Partic. |
|---|---|---|---|---|---|---|---|---|
| **EE Municipal Buildings** | 1* | 0% | 100,000 | 100,000 | 188 | n/a | n/a | $25,000 |
| Contribution to AEE | | | | | | | | $5,000 |
| Sub-total | | | | | | | | **$30,000** |
| | | | | | | | | |
| **EE Institutional** | 2 | 0% | 100,000 | 200,000 | 376 | n/a | n/a | $50,000 |
| Pgm. Communications | | | | | | | | $2,000 |
| Sub-total | | | | | | | | **$52,000** |
| | | | | | | | | |
| **Comm Market Research** | | | | | | | | **$20,000** |
| | | | | | | | | |
| **Total program costs - All Measuress** | | | | **764,475** | **1,437** | **43,551** | | **$201,760** |
| | | | | | | | | |
| **Fixed Costs:** | | | | | | | | |
| Program Audits | | | | | | | | 0 |
| Market Impacts | | | | | | | | $10,000 |
| Load Impacts | | | | | | | | 0 |
| Broadscale Communications | | | | | | | | $10,000 |
| Web-site Update | | | | | | | | $4,000 |
| Computer Programming | | | | | | | | $10,000 |
| DSM Program Implementation | | | | | | | | $25,000 |
| Contingency | | | | | | | | $10,000 |
| Overheads | | | | | | | | $10,000 |
| Future DSM Pgm Planning | | | | | | | | $10,000 |
| **Total Fixed Costs** | | | | | | | | **$89,000** |
| | | | | | | | | |
| **Salaries:** | | | | | | | | |
| DSM Admin. Staff – FTE | | | | | | | | $44,200 |
| Add'nl DSM Staff – contractor | | | | | | | | $60,000 |
| **Total Salaries** | | | | | | | | **$104,200** |
| | | | | | | | | |
| **GRAND TOTAL** | | | | **764,475** | **1,437** | **43,551** | | **$394,960** |

*The one participant is considered to be the new City of Gatineau, representing all its municipal buildings combined.