The City of Cornwall

Cornwall's Energy Efficiency Team

Profile #102

Executive Summary

The City of Cornwall's comprehensive efficiency program is a leading model of the Ontario Ministry of Environment and Energy's Green Communities Initiative. Thanks to effective partnerships between government, citizens, utilities, and trade allies, Cornwall has tuned-up its use of energy in homes, businesses, industry, and transportation, while creating an efficiency ethic in town to include water efficiency, use of alternative transportation fuels, recycling, and composting. The program has been delivered by Cornwall's Energy Efficiency Team whose goals are to save energy and water, reduce waste, protect the environment, and stimulate the local economy.

Cornwall has had a long history with resource efficiency, providing home audits, shifting energy use "off-oil," relighting streetlights, and converting vehicles to natural gas. Because of Cornwall's interest, commitment, and experience with resource efficiency, the City has the distinction of being named "Canada's Environmentally Friendly and Energy-Efficient City." This led to the selection of Cornwall as one of three pilot communities for Ontario's Green Communities Initiative. Thanks to provincial funding plus extensive community support, the City initiated its comprehensive community-based program in 1991.

Cornwall's Energy Efficiency Team is based on a unique and effective partnership between Cornwall Electric, Centra Gas, the Chamber of Commerce, local school boards, the Kiwanis Club, and the Rotary Club. Since the inception of the program, nearly $2.14 million has been invested in Cornwall including $1.0 million in provincial funds and over $2.42 million from the community. This capital has leveraged $2.14 million annually in direct energy savings and perhaps as much as $5 million annually when the full economic impacts of the program are considered and accounted. Furthermore, the program has created an estimated 60 new jobs in town.

Home tune-ups are at the core of the residential initiatives. A total of 10,800 homes have been treated with CEET's free walk-through assessments complete with direct installation of energy and water saving measures and recommendations for becoming more energy efficient and environmentally friendly. The typical customer experiences a annual savings of about $96 in energy costs with no money down! To finance the more costly recommendations, EnviroLoans are provided by Canada Trust and Green Loans are available from TD Bank. In addition to success in the residential element, Cornwall has supported retrofits in businesses, industries, schools, and hospitals, and has contributed both funding and expertise to improving transportation sector efficiency. The entire program has been so successful that it is being expanded to an entire tri-county area surrounding Cornwall.

CORNWALL'S ENERGY EFFICIENCY TEAM

Sectors:	*Residential, Commercial, Industrial, Institutional, and Transportation*
Measures:	*Home weatherization, water heater jackets, water efficiency measures, industrial, commercial and institutional audits, car tune-ups, recycling, composting*
Mechanism:	*Participation in a provincial program funding community-based resource efficiency and environmental actions; CEET's efforts include "green" home assessments with direct installation of basic measures, educational programs, industrial audits and more*
History:	*CEET began in 1991*

1994 PROGRAM DATA

Annual energy savings:	*4,934 MWh*
Lifecycle energy savings:	*74,015 MWh*
Provincial funding:	*$212,138*

CUMULATIVE DATA

Annual energy savings:	*38,608 MWh*
Lifecycle energy savings:	*279,891 MWh*
Provincial funding:	*$1,004,233*

CONVENTIONS

For the entire 1994 profile series all dollar values have been adjusted to 1990 U.S. dollar levels unless otherwise specified. Inflation and exchange rates were derived from the U.S. Department of Labor's Consumer Price Index and the U.S. Federal Reserve's foreign exchange rates.

The Results Center uses three conventions for presenting program savings. ANNUAL SAVINGS refer to the annualized value of increments of energy and capacity installed in a given year, or what might be best described as the first full-year effect of the measures installed in a given year. CUMULATIVE SAVINGS represent the savings in a given year for all measures installed to date. LIFECYCLE SAVINGS are calculated by multiplying the annual savings by the assumed average measure lifetime. CAUTION: cumulative and lifecycle savings are theoretical values that usually represent only the technical measure lifetimes and are not adjusted for attrition unless specifically stated.

The City of Cornwall, located in southeastern Ontario, is home to 47,137 people. The City is bilingual, both English and French are spoken, and is located just over a mile from the New York State border and about 19 miles west of the Ontario-Quebec border. Situated on the St. Lawrence River, Cornwall is known as the "Friendly Seaway City." The City is serviced by the municipal utility, Cornwall Electric, and by investor-owned Centra Gas, for whom Cornwall represents one-third of its total client base.[R#2,4]

Corwall Electric (CE) was founded on April 27, 1887 by local engineer and inventor Wilbur Reuben Hitchcock and was originally called Stormont Electric Light and Power. Hitchcock, incidentally, had worked for Thomas Edison installing an incandescent lighting system in a Canadian cotton mill weave shed. In 1896 after visiting the Chicago World's Fair rail exhibit, Hitchcock expanded the utility's operations to include an electric railway, forming the subsidiary, Cornwall Electric Street Railway. Hard times fell upon the company and in 1902 SunLife Assurance Company foreclosed the utility, took it over, and renamed it the Cornwall Street Railway, Light and Power Company. The company was subdivided shortly after and the railway eventually sold off. In 1977, the City purchased the company's shares and it formally became Cornwall Electric.[R#12]

Today, the 108-year old municipal utility employs 71 people and serves 24,462 customers. The residential sector accounts for 90% of CE's customer base, with small commercial/industrial claiming 9%, and large commercial/industrial claiming less than 1%. In terms of electricity consumption, however, residential customers represent only 30% of the 807,048 MWh sold in 1993. Small and large commercial/industrial customers account for 24% and 49%, respectively.[R#2,4]

Unlike most municipal utilities in Ontario that exclusively purchase their power from the provincial utility, Ontario Hydro, Cornwall Electric shops for its power from a number of sources, trading a degree of risk and reliability for lower-cost power. So far, Cornwall's rather unique situation has resulted in favorable rates, generally 20% lower than rates in communities served by Ontario Hydro. Gross revenues from electric sales in 1993 totaled $28.4 million, up 15.7% from the previous year. The increase was directly attributed to a large industrial customer who switched electricity suppliers from Ontario Hydro to CE to take advantage of CE's lower rates. The addition of this customer caused a 4.5% increase in peak demand, rising from 153 MW to 160 MW. While gross revenues increased substantially in 1993, net income dropped sharply, the result of an average 13.75% hike in wholesale rates by Cornwall's suppliers.

1994 CORNWALL ELECTRIC STATISTICS

Number of Customers	*24,462*
Electric Sales Revenue	*$28.4 million*
Electric Sales	*807,048 MWh*
Peak Demand	*160 MW*
Average Electric Rate	*4.2 ¢/kWh*

In 1993 CE paid $23.7 million for purchased power. CE purchases its power from Cedar Rapids Transmission Company, Canadian Niagara Power, Niagara Mohawk Power Company, and Hydro Quebec. Cedar Rapids Transmission, which supplies almost 60% of Cornwall's power, raised its rates by 20% in 1993. Cornwall's subsequent customer rate hike was kept to an average of 4.5%, resulting in a revenue loss of nearly $1.9 million as CE cut its margin in an effort to remain competitive with Ontario Hydro and other Eastern Ontario utilities. Cornwall's rates remain the lowest in Ontario, as much as 21% lower than surrounding utilities at a 1993 average of 4.2¢/kWh. This is especially important in Cornwall, as well as all of Ontario, where recovery from the 1992 recession has lagged severely.[R#2]

The wholesale price of electricity from Cornwall's suppliers is strongly driven by Ontario Hydro's retail price. Ontario Hydro imposed a rate freeze for 1994 when it pledged to keep rate increases at or below the inflation rate through the year 2000. Although Cornwall does not purchase power from Hydro, the announcement was to its advantage as Cornwall's suppliers – ever mindful of their competitor's (Ontario Hydro's) prices – will fall into line, keeping rates in check to remain competitive.[R#2]

In another departure from Ontario municipal utility norms, CE has also begun to supply a portion of its own power. In January of 1995, the utility opened a 5 MW gas-fired cogeneration district heating plant which produces 5 MW of electricity and 6 MW equivalent of thermal energy for district heating. The plant is operated under CE's subsidiary, Cornwall District Heating, Ltd. (CDH). This cogeneration plant is the first of its kind in southern Canada and employs cutting-edge technolo-

gies including a reciprocating engine and fiber optic remote sensing. CDH provides heat for 11 institutional buildings along a 2.2-mile route with plans to expand their service to other facilities.[R#2,8,20]

This district heating plant is only one of the efforts on behalf of CE which has earned the community the title of "Canada's Environmentally Friendly Energy-Efficient City." Cornwall Electric is well recognized for its conservation efforts, primarily because of the hard work and accomplishments of Cornwall's Energy Efficiency Team, the subject of this Profile. Cornwall Electric has been a leading partner in the development and activities of the Team and has received recognition and inquiries from across the province and the nation. CE's efforts have earned it the Environmental Excellence Award from the Municipal Electric Utilities Association and an Award of Recognition from Ontario's Ministry of Environment and Energy.

UTILITY DSM OVERVIEW

Cornwall Electric's attention to energy efficiency was first triggered by concern that it might not be able to meet the City's growing demand during the late 1970's. Its uncertainty was echoed by Ontario Hydro and the Ontario Ministry of Energy which both began promoting energy efficiency at that time. The Ministry sponsored a series of energy clinics throughout the province to help home owners determine the source of heat loss in their houses. Cornwall was among the first cities in Ontario to participate, beginning in 1982, and maintained their participation in other energy clinics which followed.

Cornwall Electric also participated in delivering the Federal Government's Canadian Oil Substitution program for reducing its offshore oil purchases. Beginning in 1981, CE conducted home energy audits and facilitated federal "off-oil" grants for home owners to switch from oil to electric heating and properly insulate their dwellings.

In 1983, CE went before Cornwall's City Council with a proposal to upgrade all of the City's street lamps. Later that year the proposal was approved and the utility began replacing street lamps with high efficiency high pressure sodium and mercury vapor lamps.

Cornwall Electric also took measures to reduce its own energy consumption in the early eighties by converting the company's vehicles to cheaper, cleaner-burning propane gas. Conversion of the fleet was completed by 1986 and resulted in an annual estimated savings of $15,925.

Over the years, CE has developed a battery of energy services and awareness programs to help their customers become more efficient energy users. CE continues to conduct heat loss audits and walk-through assessments for Cornwall's homes and businesses. Interruptible service for water heaters, controlled by an FM radio signal, and electric furnace servicing is also available to Cornwall residents. Industrial customers are serviced with walk-through audits and a peak buy-back program for those with self generation capacity. Electrical safety and energy efficiency are the subjects of CE's public education and school programs. CE also sponsors a radio spot which is played when the temperature drops below 0° F encouraging Cornwall residents to voluntarily curb their heating demands where possible. The utility also gives free demonstrations of rechargeable electric lawnmowers.

These energy efficiency efforts were greatly augmented in 1991 when CE catalyzed its community-based energy efficiency project. Cornwall's Energy Efficiency Team was first conceived by the utility and developed in response to a provincial program which provided funding for resource efficiency programs designed and implemented by communities in Ontario. This funding, coupled with the utility's long-held attention to resource efficiency, has leveraged dramatic savings in Cornwall.

Program Design and Delivery

Cornwall's Energy Efficiency Team (CEET) executes a community-based program for energy and water efficiency and waste reduction as a means of protecting the environment and stimulating the local economy. The program's goal is "to achieve and maintain energy efficiency as it relates to all fuels, while at the same time to develop community attitudes that create more awareness of the environment that lead to conservation of natural resources such as water." The program also encourages "activities which will address environmental concerns through the reduction of waste and other pollutants." CEET began as a pilot program in October of 1991 and has since proved that community action works, paving the way for other communities to engage in similar initiatives.[R#3,6]

Cornwall's Energy Efficiency Team was born out of the provincial government's Green Industry Strategy (GIS). The purpose of GIS has been to support Ontario's recovery from the recession by promoting economic renewal, job retention, and job creation through businesses and services which benefit the environment. The strategy has been successful in making environmental protection in Ontario a $1.8 billion a year industry, employing over 30,000 people. As such, environmental protection is the third largest employer in Ontario, ahead of major established businesses such as the pulp and paper and chemical industries.[R#10]

One facet of the Green Industry Strategy is the Green Communities Initiative (GCI). GCI has been intended to foster and financially support community-based action and local leadership for encouraging energy and water efficiency and waste reduction as a means for economic development. The GCI's efforts represent, "North America's first integrated residential green assessment program," according to the Ministry of Environment and Energy's Bud Wildman. The program has been responsible for energy assessments for over a quarter of a million Ontario homes so far. The economic benefits which the province has enjoyed from these home renovations are estimated to include savings of $357 million and the creation of 10,000 person-years in new jobs. In addition, the program has generated up to $536 million in spin-off benefits related to goods and services required for these retrofits.[R#7,14]

Cornwall was one of three communities selected as a GCI pilot community. The other pilot communities were Atikokan, an isolated town of 4,000 in northwestern Ontario, and Sarnia, an industrial city with a population of 74,000 and the highest per capita energy consumption in the province. Cornwall was selected as a pilot for the GCI program as a result of its interest, commitment, and experience with resource efficiency. Cornwall Electric has had a history of working with its commercial and industrial customers to improve their energy efficiency. Seeing the Ministry's GCI program as an opportunity to expand its efforts to a community level, Cornwall Electric made the progressive step of contacting its natural gas competitor, Centra Gas, to establish a partnership in pursuing this conservation opportunity. Once CE had crafted this important alliance with Centra Gas, other community leaders were contacted by the utilities to form a team for designing and delivering a GCI program in Cornwall. When Cornwall's Energy Efficiency Team was established, Cornwall submitted its proposal for GCI participation to the Ministry of Energy. Naturally the proposal was approved and a contractual agreement between the Ministry and the City of Cornwall was signed in November of 1991. As such Cornwall became the first community to fully implement the GCI program through CEET.[R#6,14]

CEET wasted no time in raising its constituents' awareness of energy and water efficiency and recycling. Cornwall Electric provided the office space and the initial capital to get CEET up and running until the provincial grant from the GCI program was processed. Efforts for reducing waste in the community began immediately with a promotional campaign, educational efforts, and "home tune-ups", CEET's leading residential efficiency service. Improving energy efficiency in Cornwall's businesses and industry as well as its transportation system has been another area of concentration for CEET. ☞

To date, CEET has exceeded all expectations for Cornwall, providing $2.14 million in annual energy savings for Cornwall and its citizens. The program's foundation is based on partnerships between the government, the utilities, schools, industry, and the community at all levels. CEET has been funded $1.29 million by the provincial government and has received $1.3 million in support from the community during the three years the program has been implemented. Additional federal funds of approximately a quarter million for job training has also supported CEET's efforts. An impressive 7,500 volunteer hours from CEET board members and Cornwall citizens has also contributed to the program's overwhelming success. In 1994, Ron Eamer, Superintendent of Customer and Energy Services for Cornwall Electric and Chairman of CEET, accepted a Certificate of Appreciation from the Ontario Ministry of Environment and Energy, recognizing CEET's achievements in the GCI program.[R#11]

Cornwall has clearly earned its reputation as "Canada's Environmentally Friendly and Energy Efficient City." With over half the citizens having already participated in program's home energy tune-ups, CEET is expanding its service to the entire Stormont, Dundas and Glengarry (SD&G) tri-county area in 1995. (Cornwall is a city within this region.) Cornwall's businesses, industries, and institutions have also been quick to take advantage of CEET's services and to financially support the program. In fact, over 50 businesses and organizations have supported the program.

Cornwall's community participation has gone beyond energy and water efficiency. Over 50% of Cornwall households now compost while recycling efforts have resulted in 4,000 tons of recyclables collected by curbside recycling boxes (blue boxes) in 1994 alone. Cornwall's landfill is well below capacity as a result. Even Cornwall's leading manufacturer has taken a role in recycling efforts. Domtar Pulp and Paper Products, a major Canadian corporation, has opened a technologically revolutionary cardboard recycling center in Cornwall. This facility is the first in the world to use a new technology which produces stronger, cleaner recycled cardboard more economically.[R#8]

The CEET program has contributed not only to the community's efficiency and environmental protection, but also to its economic development. The $2.143 million of annual energy savings for the community is compounded by economic development resulting from the program for an estimated annual benefit of $4.3-5.0 million. To support local economic development, CEET uses only quality materials, favoring local suppliers for its installations and is directly responsible for developing a new market for goods and services, creating jobs, and helping local businesses cut their operating costs. The program has been responsible for the creation of 60 new jobs for a total of 500 person-years in additional jobs. CEET has also projected a favorable image for Cornwall. The Chamber of Commerce views the program as a strong promotional tool and mentions CEET in brochures on Cornwall. Its "environmentally friendly" status, coupled Ontario's lowest electric rates, makes Cornwall an attractive community for new businesses.[R#1,15]

THE TEAM

Cornwall's Energy Efficiency Team is truly a partnership that has linked the entire community together through its design and function. The Team itself meets every two weeks and consists of its Chairman, Ron Eamer from Cornwall Electric, and representatives from the Chamber of Commerce, City of Cornwall, Rotary Club, Centra Gas, SD&G Public School Board, SD&G Catholic School Board, and the Kiwanis Club. CEET's success has been dependent on working together with various sectors of the community. Partnerships with trade allies assure that efficiency goods and services are available. The school systems have teamed up with CEET to develop and deliver the education program. Local organizations such as the Rotary Club and Kiwanis contribute by conducting seminars and promotions, informing the community about opportunities to improve efficiency with CEET. Most importantly, an alliance between the utilities and the City provides the means for home tune-ups to address savings for all resources.

MARKETING AND DELIVERY

CEET delivers six separate programs addressing its different areas of concentration: the Residential program; the Small Institutional/Commercial/Industrial (ICI) program; the Large ICI program; the Transportation program; the Communication and Promotional program; and the Education program. CEET also coordinates the implementation of the Utilities Manage-

ment Program, a provincial program which provides funding for assessing and retrofitting government buildings. In 1994, CEET expanded its responsibilities by acting as a steering committee for the SD&G Green Team, a group with the goal of delivering similar services throughout the outlying area. Finally, while CEET focuses much of its attention on saving energy, it is also concerned with conserving water and has made plans for implementing a Water Conservation Strategy.[R#3,13]

RESIDENTIAL

CEET's most popular program by far is its "home tune-up," a free service which helps Cornwall's residents make their homes more resource efficient and environmentally friendly. To date, CEET has conducted tune-ups in 9,900 Cornwall residences, over half the homes in town. In 1995, the service was extended to surrounding rural communities and over 900 customers have received home tune-ups. Given the popularity of the tune-ups, their delivery backlog has been as long as six months. CEET home tune-ups are conducted by CEET crew members consisting of two home assessors whose training includes instruction from both Cornwall Electric and Centra Gas. The tune-up takes about two hours and includes a walk-through audit of the customer's home with recommendations of no-cost improvements and more significant measures for saving energy and water. Each tune-up also provides a standard collection of installations, including a water heater blanket, low-flow showerhead, and weatherstripping, as part of the free service. Assessors also spend time discussing the environmental effects of household products with customers informing them about green practices like recycling and composting. The full retail price of the home tune-up would be $179 but CEET costs run about $90. The average customer savings from a home tune-up is $96 to $107 annually.[R#1,3]

In order to meet the demand for home tune-ups more effectively, CEET formed a partnership with multi-dwelling complex owners and operators. These property managers received free training on the program's installations so that they have been able to supply the labor for their units' installations. This has resulted in quicker service for units in cooperating complexes and is another example of how teamwork has added to the success of the program.[R#4]

At the onset of the program a more comprehensive "Weatherization" package was available for Cornwall home owners. Home weatherizations included everything in the home tune-up, plus additional weatherstripping, caulking and sealing, covering most major areas of heat loss for the home. The Home Weatherization package only cost CEET $179 and generally reaped an average annually customer bill savings of $139. Because of the higher costs of these weatherizations, CEET determined that savings in a greater number of homes could be achieved more cost effectively through the home tune-ups and thus the Weatherization service was dropped in 1993.[R#1,4]

In order to assist Cornwall homeowners in completing the more costly measures recommended during home tune-ups, "EnviroLoans" are available through Canada Trust, a major Canadian bank with a branch located in Cornwall. Enviroloans are the product of a collaboration between the Ministry of Environment and Energy and Canada Trust to provide financing for all participants in the GCI program. Loans from $70 to $5,500 are available at the prime interest rate with terms of up to ten years to cover the cost of energy-saving measures. In turn, customers are able to repay their EnviroLoans from savings on their monthly utility bill. TD Bank is also supporting Ontario's GCI program and CEET's efforts with their Green Loans. Interest rates as low as the prime rate are available on loans of up to $10,714 for home efficiency improvements.

Cornwall is continuing to deliver energy and water efficiency to homes in 1995 through the Green Home Tune-up program, and is expanding its services to the neighboring counties Stormont, Dundas, and Glengarry (SD&G). CEET was awarded $193,007 in jobsOntario Capital funds for the implementation of the province's Green Home Tune-up program in the tri-county area. (jobsOntario is a provincial program which provides funding for job opportunities for the unemployed.) The program is essentially an extension of the Home Tune-up program, focusing on reduction of water, energy, and other resource waste. It has added a "greener" element by including composter demonstrations and blue boxes for recycling and increasing its focus on water and waste reduction. By conducting these green home tune-ups Cornwall is participating in GCI's "Home Green-up" program. The provincial program is a cooperative effort, relying on local donations for half

of the funds, while in return creating lots of jobs and saving community expenses like water treatment and garbage collection, and extending the life of landfills. Cornwall is the first Ontario community to deliver the province's home green-ups at a regional level.[R#10]

SMALL INDUSTRIAL/COMMERCIAL/INSTITUTIONAL

The small businesses of Cornwall have certainly been impacted by Ontario's recent recession. This is only compounded by Cornwall's close proximity to the United States, where goods and services are much cheaper. This unfortunate economic situation has made CEET's services that much more important for Cornwall's small businesses as a means of controlling their operating costs.

CEET provides walk-through audits and feasibility studies for any small enterprise that employs under fifty people in the community, including hotels, restaurants, offices, retailers, and institutional buildings. These audits identify the opportunity for energy, water, and waste reductions and recommend energy services from local businesses. Audits at public institutions have included assistance for acquiring government funding for efficiency retrofits. A "cluster approach" was taken for shopping centers. This involves a site visit of the total facility for the benefit of all businesses in the facility.[R#3]

CEET also sponsors a number of seminars designed to create awareness and provide solutions to business owners and managers on various energy-saving measures. Topics include commercial air sealing and a builder's workshop as well as training seminars for area professionals.[R#3]

LARGE INDUSTRIAL/COMMERCIAL/INSTITUTIONAL

Ontario's slow recovery from the recession exacted a toll on Cornwall businesses in 1992 and 1993. Cost effective measures became increasingly important as a means of survival. CEET offered resource efficiency to these customers as a viable method for reducing their operating costs. The Ministry of Environment and Energy assisted by funding $31,480 for energy efficiency in the industrial sector.

CEET began its energy efficiency initiatives in the large industrial and commercial sectors with short "walk-through" audits conducted by CEET crew members at ten facilities. Their purpose was to share ideas and identify opportunities for efficiency measures which would create savings for the customers. Four of these customers were selected for a comprehensive audit and feasibility study offered by the Ministry of Environment and Energy.[R#3]

CEET provides comprehensive audits and feasibility studies for its Large ICI customers as well by contracting engineering firms to conduct the audits and establishing a Team subcommittee to review them. In order to keep the administrative and consulting costs of these audits down, the audited customers are clustered into like facilities and assigned to the same engineering firm. This way the same engineers are auditing all of the schools, for instance. Audits were conducted on thirteen customers in 1992 and an additional four in 1993 for a total cost of $115,015. (The customers represent over $7.9 million in natural gas and electricity sales annually.) The energy savings potential for these seventeen customers totaled $1,048,996, with an estimated $2,481,418 in capital investments and 34 person years of work. To date more than half of the audited companies have proceeded with recommendations.[R#3,14]

UTILITIES MANAGEMENT PROGRAM

City-owned facilities such as schools, hospitals, and government buildings are intensive energy users. Many of these institutions have expressed an interest in participating in CEET's programs and have received walk-through audits. The provincial government provides municipal and public institutions whose utility costs exceed $71,428 annually with the necessary funding for feasibility studies, installations, and project management. CEET's role in this program is to coordinate projects, including assisting an institution with submitting an application to the provincial government, making recommendations for efficiency measures, and hiring the project manager. Institutions which have participated in the Utilities Management Program include Cornwall General Hospital, St. Lawrence College, the SD&G County School Board, the SD&G Catholic

School Board, and the City of Cornwall.[R#3]

TRANSPORTATION

Nearly half of Cornwall's total energy expenditure is devoted to transportation fuel. As such, CEET has included the transportation sector in its energy efficiency mission by focusing on development of a community-based initiative to increase awareness, efficiency, and public transportation. CEET has targeted both the private automobile owner and public transportation, raising awareness of transport's disproportionate energy use, promoting alternative fuels as well as improved transportation services.

Cornwall's crown jewel in this effort is its fleet of natural gas fueled buses. In 1993, five of the City's buses were replaced with natural gas-fueled models making Cornwall the first community of its size in Ontario to operate natural gas fueled buses, something that only larger cities can generally afford. The Ontario Ministry of Transport, along with other contributing partners, Centra Gas, Natural Resources Canada, and the Ontario Ministries of Energy and Mines, invested $629,603 in the project. Furthering their innovation in this realm, Cornwall also constructed an indoor natural gas refueling station, the first of its kind in Canada. The cost of the fueling station has been offset by the savings in fuel costs.[R#1,9]

Since 1992, CEET has conducted car tune-up clinics to promote automobile maintenance so that cars operate more efficiently. Over five hundred car owners have participated in the clinics through the cooperation of 15 auto service centers. Clinics include free spark plugs and installation with the purchase of an oil, lubrication, and filter change. Additionally, CEET offers a Spring tune-up which has drawn over 200 Cornwall car owners. The Spring tune-up includes a basic maintenance check and tire rotation and is usually offered in conjunction with other promotions, such as wheel alignments, computer engine analyses, or oil changes. The car tune-up program has been heavily advertised in both the local paper and by area dealerships.[R#3,6]

Rounding out Cornwall's efforts in the transportation sector is a strong promotional and educational thrust aimed at increasing the public's awareness of transportation's role in energy consumption and pollution. CEET has sponsored many events for his purpose including "Public Transportation Days" where citizens are "invited to leave their cars at home and take the bus;" natural gas fueled bus demonstrations; and an alternative fuels vehicle exhibit which drew over 2,000 attendees. These events have helped to bring a heightened awareness of transportation's effect on the environment. As a result, the community has taken progressive steps in this area, including the opening of an ethanol fuel station in Cornwall.[R#3]

PROMOTING ENVIRONMENTAL AWARENESS

Communicating the message of energy efficiency and environmental awareness to the community is a key function of CEET's mission. Public information regarding energy efficiency and CEET's services is dispensed through pamphlets, mall displays, media coverage, trade shows, seminars, advertising, and word-of-mouth. The program's promotional efforts have achieved a 90% awareness level within Cornwall.[R#3]

Literature on CEET and energy efficiency has been indispensable for marketing the program and its mission. Ontario's Ministry of Environment and Energy has circulated over 100,000 pamphlets, newsletters, and technical bulletins relating to CEET's efforts. The local Cornwall newspaper was used to deliver a "Home Energy Savings Handbook" to over 18,000 doorsteps. Additional literature has been distributed by Natural Resources Canada and participating utilities. "Information Kits" containing materials on energy efficiency in the home were also included in all 10,800 home assessments.

Cornwall's Energy Efficiency Team has held numerous events to promote the program. CEET's first official event was the Home and Trade Show held in October of 1991. Energy efficiency was the main theme with seminars, workshops, and exhibits attracting more than 10,000 people. Participation in subsequent events such as the Spring '93 Home and Garden Show and the Fall '93 Home and Trade Show have exposed CEET to over 30,000 visitors. CEET has furthered these efforts

with weekly displays in the shopping malls throughout the summer and by having Team representatives speak to members of organizations such as the Kiwanis, Rotary, and Lions Clubs and the Homebuilders Association and Electrical League.[R#3,14]

Access to information and services for customers is also facilitated by the CEET "hotline." The hotline is an easy to remember number (933-0000) which connects customers with CEET services and information on energy efficiency and the environment. The program also addresses related tradesmen such as contractors, electricians, designers, etc., through workshops and seminars informing them about efficiency measures and technologies and about opportunities created through CEET's projects. Local businesses are also informed about government aid and incentives available for installing energy-efficient measures.

Advertising has been another successful promotional vehicle for the program. CEET works closely with the local newspaper, radio station, and television stations to keep the public informed of its activities. CEET continues to receive good coverage by the press both locally and nationally. These tactics have paid off as hotline activity and scheduled home tune-ups and services increase significantly after advertising or coverage by the paper or television.

Planning is underway to establish an Energy Efficiency Learning and Information Center which would serve as a home for CEET's Energy and Environment Resource Center. The development of this center comes through the partnership between the Chamber of Commerce, St. Lawrence Environmental Institute, and CEET.

EDUCATION

With over 20,000 students attending 75 public and Catholic schools throughout SD&G, CEET views its Educational program as very important. A steering committee was established from administrators, teachers, and board members of both the public and Catholic school boards to advise CEET in the development of an educational program to include energy and environmental learning activities in the science curriculum. Students from the fifth grade on up are even conducting energy and green audits in their schools and homes as a part of the program. Student participation has resulted in home tune-up requests from students' parents.

Implementation began in 1992 with the SD&G Catholic School System. Learning Kits and Lunch Box Kits were distributed to pilot schools for exercises in classrooms and at home. The kits were successful learning tools for teaching children about energy efficiency and the environment and teachers reported that they were effectively incorporated into other subject areas such as science and reading. A similar pilot program was launched in the SD&G Public School System the following year, using Energy Education Kits and Solar Energy Kits. The school boards have now included Energy/Environmental Awareness (EE) into their curricula. The Public School Board even hosted an Energy Olympics with assistance from CEET. So far the educational program has succeeded in exposing over 3,000 students to the kits and enrolling over 3,000 in EE curricula.

In addition to these educational activities, CEET has also been involved in several other educational efforts. The Team participated in a "Reduction Festival" sponsored by the SD&G Public School Board, focusing on the reduction of energy, water, food, and paper waste. It also sponsored the participation of two local teachers in the Global Energy Education 1993 and Beyond Conference in Toronto. CEET assisted the Park and Recreation Department and Environmental Youth Corps in conducting daily summer energy and environment workshops for children in Cornwall's parks.[R#3]

WATER CONSERVATION STRATEGY

With its location on the St. Lawrence River and its water treatment plant operating at 60% capacity, there is little need in Cornwall to reduce water consumption. CEET's members, however, believe that even though there is an abundant sup-

ply of water for Cornwall, water conservation is clearly in line with its message of environmental awareness. Furthermore, CEET is fully cognizant of the important link between water use and energy. By reducing the energy requirement for transporting, heating, and treating water, water conservation is an important aspect of the overall Cornwall initiative. For these reasons, water reduction was included in the home tune-ups and audits conducted by CEET. Since the City's water system is not metered, individual average savings could not be determined.

CEET is currently working on a Water Conservation Strategy which will be strongly grounded in education. Part of the strategy is also to install end-use metering for the City's water system, a project that will cost close to $2.03 million. These initiatives have been hard to sell to the public since the water supply is secure and will meet future demand for some time. CEET members believe that a strong emphasis on the energy savings benefits of water conservation will be needed to approve the plan.[R#13]

MEASURES INSTALLED

Cornwall's strongest and most tangible success has been home tune-ups which have been delivered to over half the residences in Cornwall. The Home Tune-up program includes the installation of:

-one energy-efficient showerhead
-one water heater tank jacket
-insulation on hot water pipes above water heater
-tap aerators/flow restrictors
-toilet dams
-electrical receptacle sealing gaskets and caps for outside wall receptacles and switches
-door weatherstripping and caulking set
-furnace filter

During a home tune-up the crew also takes the time to educate the homeowner about energy conserving maintenance and usage options and generally makes recommendation for further energy savings measures.

In 1995, "green" services were added to the home tune-ups, which included composting demonstrations and blue boxes for recyclables.

The earlier, more extensive Weatherization program consisted of everything in the home tune-up package plus sealing for attic and ceiling fixtures; additional caulking and weatherstripping for two exterior doors, exterior wall baseboards, basement sill and headers; and weatherization of miscellaneous gaps and cracks.

STAFFING REQUIREMENTS

Cornwall's Energy Efficiency Team employs a full-time staff of ten consisting of a project coordinator, business administrator, and eight home assessors. This crew is supplemented by temporary employees and university interns. In addition to the paid staff which keeps CEET operating, Team board members – representatives of broad-based community organizations, institutions, and utilities – provide thousands of hours of volunteer time and in-kind contributions. Further support in man-hours and technical skills are contributed by the participating utilities, Cornwall Electric and Centra Gas, whose engineers are available for audits and consultation. Additionally, the City of Cornwall and Cornwall Electric partake in some of the administrative duties and accounting.[R#1,13]

Monitoring and Evaluation

Tracking the energy savings that have resulted from Home Tune-ups and Weatherization services has been and continues to be performed through billing analysis using a pre- and post-retrofit methodology. For these homes, energy consumption information was collected for three years: Year 1 is for the year prior to a home tune-up retrofit and represents the household's base energy consumption; Year 2 is the energy consumption for the year in which the home was retrofitted; and Year 3 is the amount of energy used for the year following the renovation. All fuel savings were converted to equivalent kWh values so that a total energy savings could be stated in terms of equivalent kWh (EkWh). All homes serviced by CEET have been included in program monitoring with the exception of those which were subject to fuel switching or which experienced a prolonged vacancy or change in occupant.[R#4]

Energy savings which resulted from CEET's visits were calculated by comparing Year 2 and 3's energy use to the base consumption of Year 1. Adjustments for temperature variances were made for each year's data based on heating degree days for that year. Energy consumption of these customers was also analyzed according to categories regarding primary heating fuel, dwelling size, dwelling type, dwelling height, age of home, number of occupants, and water heating fuel.[R#4]

Since three years of data is required for this tracking methodology, a complete set of data through Year 3 was only available for the program's first full year, 1992. Of the 2,384 homes that received a tune-up in 1992, 1,394 or 58% were used for this study conducted by CEET's technical analyst. An additional 615 homes received Weatherization services, 491 or 80% of which were used for the study. Overall energy savings for homes which received a home tune-up in 1992 averaged 7.25% for Years 2 and 3 with Weatherization producing an average savings of 8.9%.[R#4]

FINDINGS OF THE MONITORING EFFORTS

Analysis of the data collected from CEET's 1992 residential customers indicated that homes with a primary heat source of natural gas enjoyed the greatest savings from the Home Tune-ups with an average savings of 12.6% from the baseline. Households which heated with oil experienced an averaged 7.2% reduction in their energy consumption while electrically heated homes realized a 3.6% average savings. The more comprehensive Weatherization package produced a similar result with energy reductions of 11.9%, 11%, and 4% for natural gas, oil, and electrically heated residences respectively. One possible explanation for achieving the greatest saving in gas-heated homes is that generally gas-heated Cornwall homes are older than their oil and electrically heated counterparts, thereby resulting in greater efficiency opportunities and gains.[R#4]

A comparison of energy savings by dwelling size indicated that the smallest residences (500 square feet or less) experienced a substantially greater proportion of savings than any other size category for both retrofit packages. Similarly, the largest homes (over 2,000 square feet in size) realized the least savings from CEET's installations. Those categories in between ranged from 10.4% reduction to 4.2%, although not sequentially. Findings of energy savings by dwelling height was less conclusive. For customers receiving the Home Tune-Ups, savings averaged from 7.2% for one-story dwellings, to 6.6% for one and a half stories, to 8.1% for two stories, to 0.9% for three stories, and 5.2% for split levels. The Weatherization service produced average savings of 9% for one-story structures, 9.8% for one and one half, 8.7% for two stories, 7.5% for three stories, and 3.6% for split levels.[R#4]

The amount of savings realized relative to the age of the home for both retrofit services was generally highest in those dwellings between 20 and 100 years old for both Year 2 and 3. This stands to reason, since one-third of Cornwall's homes have little or no insulation and many of these were built prior to 1945. Supporting previous expectations of savings potentials is the fact that few of these older, less insulated homes are electrically heated. An interesting observation was that dwellings under ten years old showed strong Year 2 savings for both tune-ups and weatherization, with a repeated trend for Tune-up homes in Year 3. This indicates that perhaps some of the newest construction has skimped on efficiency measures.[R#4]

Tracking customers' savings by water heat source indicated an average savings of 14.6% for those homes which heated by oil and received a home tune-up, with natural gas and electricity averaging a savings of 12.3% and 6.2% respectively. Weatherization packages produced the strongest savings for homes which heat their water with natural gas, followed by electric and oil, with average energy reductions of 12.5%, 7.7%, and 4.3% respectively. However, if one assumes that the added insulation to the dwelling's exterior that is received in the Weatherization package has no bearing on the savings realized with reference to water heat, and therefore compiled the savings for the two different programs, then savings realized would be greatest for homes with gas water heaters at 12.5% then oil at 11.9% and finally electricity at 6.6%. However, given that only 16% of residential end use is attributed to water heating, it would not seem to be a determining factor in overall savings.[R#4]

A random survey was also conducted on homes which received tune-ups in 1993. The survey included 15 electrically heated homes, 10 natural gas heated homes, and 10 oil heated homes. Savings resulting from CEET's home tune-up for these 35 dwellings averaged 16.3%.[R#3]

An additional twenty-five homes were randomly sampled to determine the decreased flow rate of showerheads and tap aerators. The sampling indicated that residents' original showerheads had an average flow rate of 4.0 gal/min, which was replaced through the program with a showerhead with a average flow rate of 1.8 gal/min. Likewise, old faucet aerators averaged 3.8 gal/min and were replaced with new aerators averaging 1.7 gal/min.[R#3]

Customer satisfaction for the program was perceived as very high since CEET received an average of one or less than post-visit calls a month.[R#3]

Energy savings measures which were installed by private contractors based on recommendation from CEET for both Residential and Industrial/Commercial/Institutional customers were not tracked by this program.

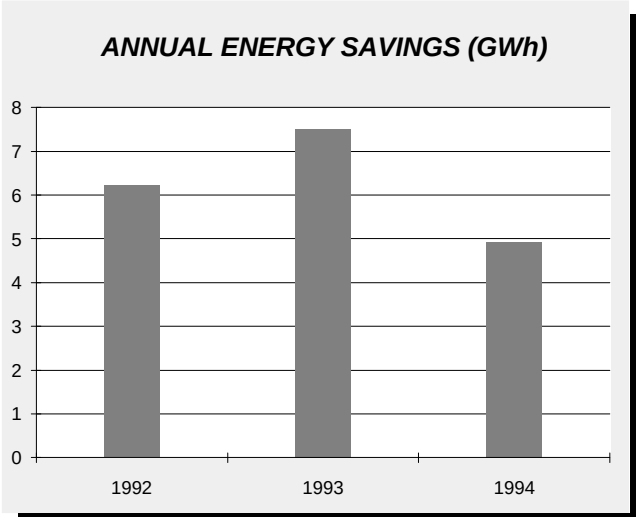
Program Savings

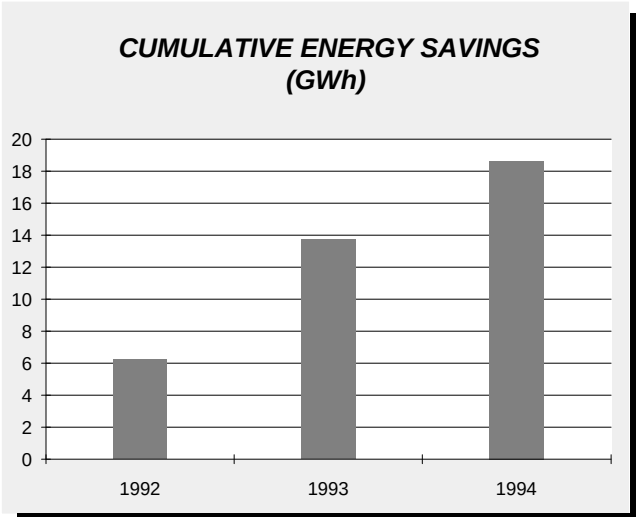
DATA ALERT: Calculations for savings are based upon two assumptions: Home tune-ups have an estimated average energy savings of 7.25% and a pre-retrofit consumption of 25,686 equivalent kWh. Weatherizations have an estimated energy savings of 8.9% and consumption of 32,598 equivalent kWh. Since CEET has concentrated on achieving fuel-neutral energy efficiency, the resultant savings for natural gas and oil have been converted to equivalent MWh per Cornwall's conventions so that the program can be evaluated based on total savings.

Total annual savings for the first three years of the Residential program's home tune-ups and weatherizations was 18,659 MWh, with a cumulative savings of 38,608 MWh, and lifecycle savings of 279,891 MWh. These figures reflect an average savings of 7.25% from the base energy consumption. (CEET staff members believe that the more current surveys of tuned-up homes which revealed an average savings of 16.3% from the base energy consumption are a truer representation of the program's total savings. Using this estimated average energy reduction, total annual savings would equal 40,522 MWh, with cumulative and lifecycle savings of 194,506 MWh and 607,827 MWh respectively.) Since savings are reported in this combined manner a capacity savings was not determinable.[R#1]

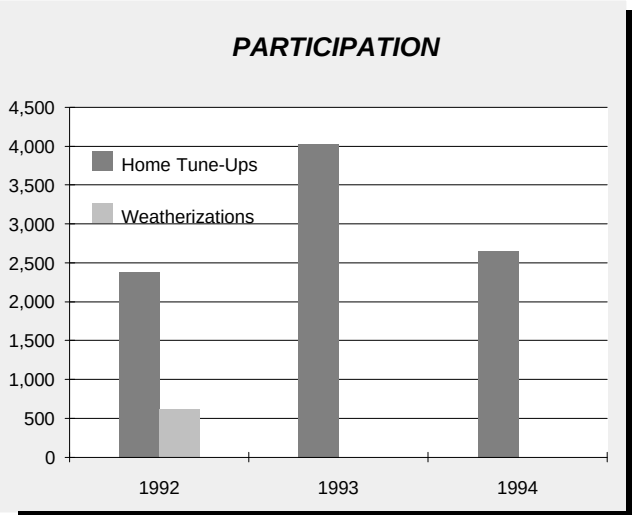
The savings figures presented above, however, represent only the tip of the iceberg of savings achieved by CEET. In addition to these reported savings are those realized by Cornwall's commercial and industrial customers. CEET was also instrumental in acquiring provincial funding for the retrofit of several government facilities. Cornwall residents have also benefited from fuel savings produced by natural gas buses and programs aimed at improving and maintaining the efficiency of cars. Conserving water has also added to the City's energy savings. To determine the potential for water savings among Cornwall residents, sample metering of water use was conducted on dwellings which have installed water saving measures through the home tune-up and/or other conservation efforts indicate an average savings of seventy gallons a day per dwelling. Extrapolated at a cost of $1.26 per 1,000 gallons of water, the annual savings potential for the community could reach $243,835 for the water only.[R#1]

SAVINGS OVERVIEW	ANNUAL ENERGY SAVINGS (MWh)	CUMULATIVE ENERGY SAVINGS (MWh)	LIFECYCLE ENERGY SAVINGS (MWh)
1992	6,223	6,223	93,347
1993	7,502	13,725	112,530
1994	4,934	18,659	74,015
Total	18,659	38,608	279,891





PARTICIPATION TABLE	NUMBER OF HOME TUNE-UPS	NUMBER OF WEATHERIZATION
1992	2,384	615
1993	4,029	0
1994	2,650	0
Total	9,053	615



PARTICIPATION RATES

Participation in CEET's largest program, the Home Tune-up, has been very impressive, achieving over 50% penetration in three years. In 1992, 2,999 dwellings were treated through the program including 615 which received the more complete Weatherization package. In 1993, the program greatly exceeded its 2,500 home target by servicing 4,029 homes. Participation in 1994 was 2,650 for a total of 9,668 residences which have been visited by CEET. Participation thus far for 1995 has brought the total up to 9,900 Cornwall homes and 10,800 for the whole SD&G tri-county area.[R#1,3]

Other programs offered by CEET have received strong participation as well. Seventeen of the area's large commercial and industrial customers have received feasibility studies, with an additional ten receiving walk-through audits. Of Cornwall's small commercial and industrial customers, approximately thirty have taken advantage of CEET's audits and services. Participation in the Car Tune-up program, however, was met with a degree of hesitation. Many would-be participants were apparently concerned that vehicular violations would be identified and reported by the government-funded program.

FREE RIDERSHIP

Although it is expected that some free ridership did occur on both the residential and the ICI levels, it has not been calculated by CEET. Since the program is community-based and not subject to regulatory requirements, free ridership is not an issue.

MEASURE LIFETIME

CEET assumes a measure lifetime of 15-20 years for both the home tune-ups and weatherizations. The Results Center has used an average measure life of 15 years to calculate lifecycle savings.

PROJECTED SAVINGS

For 1995, CEET has the goals of conducting an additional 2,650 home green-ups and continuing to influence the ICI sectors to reap the savings potentials already identified. Industrial energy audits, for example, have identified a potential savings of 34%. Current electricity, gas, and water savings opportunities identified for the audited customers total a savings of $907,647 with a capital investment of $2,742,206 and an average payback period of three years. CEET expects that approximately half of the customers will proceed with some of the recommendations made by these audits.[R#21]

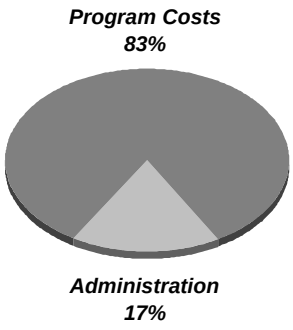
Cost of the Program

COSTS OVERVIEW	ADMIN.	PROGRAM COSTS	TOTAL EXPENDITURE
1992	$46,629	$457,040	$503,669
1993	$58,583	$229,843	$288,426
1994	$65,103	$147,035	$212,138
Total	$170,315	$833,918	$1,004,233

MINISTRY FUNDS OVERVIEW	ESTIMATED BUDGET	ALLOCATED BUDGET	NET EXPENDITURE
1992	$538,153	$503,669	$500,157
1993	$307,362	$288,426	$287,640
1994	$347,043	$212,160	$209,956
Total	$1,192,558	$1,004,255	$997,753

DATA ALERT: The figures in the Costs Overview Table reflect expenditure of the Ministry of Environment and Energy's funding of the program only. Local and federal contributions were not tracked in this manner. The Ministry's funds account for approximately half of the total resources for CEET's programs.

Cornwall's Energy Efficiency Team received a total budget of $1,192,558 of provincial funding from the Ministry of Environment and Energy for 1992 through 1994. Actual expenditures of Ministry funds were under budget for each of the first three years of the program, totaling $1,004,255. Interest earned on non-expended portions of the funds was paid back to the Ministry, reducing its net costs to $997,753. The Ministry contributed $500,157 in the program's initial year, followed by $287,640 in 1993, and $209,956 in 1994. The program has a $227,352 budget from the Ministry for 1995.



In addition, CEET has received support from over 48 local businesses, organizations, and government agencies. Federal agencies, such as the Environmental Youths Corp, Human Resources Development Canada, and Natural Resources Canada have contributed to CEET's efforts as well. This resulted in over $1.3 million in cash and in-kind contributions as of 1993 and is projected to be well above the $1.5 million mark at this time.[R#21]

COST EFFECTIVENESS

In the program's first year, overall expenditures including local and federal contributions totaled $857,139, producing an annual savings for all of Cornwall equaling $714,280. To date, CEET's expenditures have totalled $2.14 million and the program's estimated savings total $2.14 million annually in energy and water costs. CEET projects that the program's total economic benefit for the community in terms of savings and economic development through job creation, increased business and invested capital reaches $4.3-5.0 million annually.

The cost of saved energy for the home tune-ups, based an average estimated equivalent savings of 1,862 kWh per home, and a program cost of $90 per tune-up, ranged from 3.70¢/kWh to 5.19¢/kWh at a 5% real discount between 1992 and 1994. The Results Center has calculated this based upon discount rates ranging from 3-9% for a measure life of 15 years.

COST PER PARTICIPANT

The full retail value of home tune-ups provided by CEET is $179 but the program cost for CEET, which exercised bulk purchasing opportunities, is $90 per home. By comparison, the most successful energy-efficient programs in Ontario have produced a savings on the order of 15-20% at an average cost of $1,143 per household.[R#3]

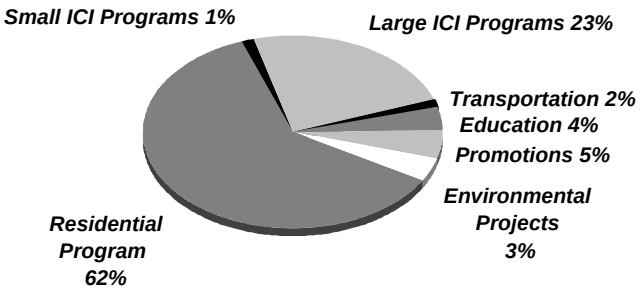
COST COMPONENTS

Based on allocation of funds provided by the Ministry of Environment and Energy, administration accounted for an average

PROGRAM COSTS OVERVIEW	RESIDENTIAL PROGRAM	SMALL ICI PROGRAM	LARGE ICI PROGRAM	TRANSPORT-ATION	EDUCATION	PROMOTIONS	ENVIRONMENTAL PROJECTS
1992	$256,464	$3,265	$155,213	$6,373	$10,164	$25,562	NA
1993	$176,779	$6,403	$15,842	$4,849	$16,521	$9,449	NA
1994	$82,501	$1,729	$27,081	$1,533	$5,447	$6,318	$30,645
Total	$515,744	$11,397	$198,135	$12,755	$32,133	$41,328	$30,645

of 17.5% of total expenditures by CEET. This figure rose from 9.3% in 1992 to 30.1% in 1994 when CEET took on the coordinating duties of the Ministry's Utilities Management Program (UMP). While the actual program costs for UMP are not the responsibility of CEET, their role in the provincial program did contribute to 1994's administrative costs.

The Residential program accounted for the bulk of the program expenditures for the first three years, accounting for an average of 62% of total program costs. Large ICI was the next largest area of expenditure at 23%, with Promotions and Communication at 5%, Education at 4%, Environmental Projects (costs relating to the SD&G Green Team) at 3%, Transportation and Small ICI taking the remaining 3%.



COST OF SAVED ENERGY AT VARIOUS DISCOUNT RATES (¢/kWh)	3%	4%	5%	6%	7%	8%	9%
1992	3.22	3.46	3.70	3.96	4.22	4.49	4.77
1993	3.60	3.87	4.14	4.43	4.72	5.02	5.33
1994	4.51	4.84	5.19	5.54	5.91	6.29	6.68

LESSONS LEARNED

Community-based programs do work! Cornwall's resource efficiency program began as a pilot for the province's Green Community Initiatives and its success has sparked GCI programs in several other Ontario communities. "We've proven that a community-based project with a lot of partners DOES work," exclaims CEET Chairman Ron Eamer. Based on the success in Cornwall and other test community programs, the Ministry of Environment and Energy's GCI program has been expanded to over twenty-five communities in the province. Together over the first three years of the GCI program, green communities have visited nearly 25,000 homes. While Cornwall is recognized as the leader of Ontario's green communities, the success of the overall GCI program substantiates its assertion that addressing the situation at the local level empowers the community to design solutions which meet their specific needs and use local resources, creating self-sustaining results. Key to this has been local involvement. The program participation of recognizable community leaders and familiar organizations have prompted the trust and enthusiasm of the community's members.

Partnerships are what makes the program work: "The basis of success is partnerships. We make new partnerships every day," explains Eamer. Cornwall's Team is an embodiment of this partnership with members from Cornwall Electric, Centra Gas, Cornwall Chamber of Commerce, SD&G Catholic and Public School Boards, and Rotary and Kiwanis clubs. Funding for the program has come from both the provincial government and numerous local businesses and organizations. Canada Trust has also become a partner in CEET's efforts through their offering of EnviroLoans. Federal agencies, such as Natural Resources Canada and Human Resources Development Canada have also contributed to the program's efforts.

Clearly, the most striking of these partnerships exists between Cornwall Electric and Centra Gas, two competitors. This collaboration was formed at the conception of CEET and is the foundation for delivering complete home assessments. Their alliance in CEET's efforts was expressed at CEET's opening Home and Trade Show in October of 1991 when the two utilities shared a booth.

Overhead for the program has been minimized by local support through "in kind" contributions: Many of the basic operating costs for CEET have been met by participating CEET team members and local businesses. For example, Cornwall Electric has provided the office space for CEET while the City has assumed the program's major accounting duties. Vehicles were either contributed by the utilities or local contractors. One example Eamer sites is a CEET service truck donated by a local contractor. Much of the $1.5 million in local support was given in these sort of contributions, enabling the program to survive financially.

Energy efficiency has leveraged impressive economic multipliers and other spiral effects in Cornwall: The benefits of energy efficiency as a strong economic multiplier within the community is well recognized. It is estimated that the $2.14 million dollars saved by CEET's programs have been translated into $4.3-5.0 million dollars to Cornwall when the ensuing economic benefits are considered. Cutting utility costs has helped area businesses be more competitive. Contractors and other area tradesmen have benefited greatly from CEET's work and recommended efficiency measures. Home tune-ups, car tune-ups, and ICI audits have meant more business for tradesmen and retailers. Energy efficiency has also put a few extra dollars in the pockets of Cornwall's homeowners, enabling purchases elsewhere in town that would not have otherwise been possible.

Success of the program can be attributed to CEET's "hands on" approach: Gerry McKenna, Manager of Environmental Services for the City of Cornwall and the City's representative on CEET, noted that their action-oriented approach to energy efficiency was essential in realizing savings. By being more than just an "information warehouse," and by actively entering people's homes and changing their showerheads and weatherstripping their doors and the like, CEET is implementing basic savings measures itself and as such assuring savings. CEET wasted no time in getting on the streets and "tuning-up" Cornwall's homes. This provided CEET with immediate proof of its actions, in turn creating strong word-of-mouth marketing.[R#13]

Getting support for the water conservation strategy in Cornwall was a significant challenge for the CEET: Given Cornwall's location on the St. Lawrence Seaway and the fact that its water treatment plant is operating at only 60% of its capacity, CEET had a hard time convincing anyone of the importance of water efficiency. Currently, Cornwall's water system is not metered. Installation of a metering system would require an investment of over $2 million. However, by emphasizing the savings realized in transporting and treating the water (analyzing the program's "upstream" and "downstream" consequences), plus the energy associated with water heating, water conservation plans are moving forward.[R#13]

TRANSFERABILITY

Cornwall's community-based approach to energy efficiency and environmental awareness is a highly transferrable model which can and does work well for many other communities across Canada and North America. Ron Eamer, the program's instigator, believes that developing a successful community-based program is not "rocket science" calling for new ideas, but just a matter of modifying what's been done before to meet the community's needs by pooling resources to address a common agenda. He considers it part of the responsibility of the Cornwall program to share information with other communities and as such, spends a substantial amount of time traveling throughout North America giving advice to towns and cities that are interested in starting their own programs. His efforts have created a coast-to-coast awareness of Cornwall's achievements. During the development of this Profile alone, CEET was visited by representatives from New Brunswick, Quebec, Alberta, and New York. These delegations visited Ron Eamer and other Team members to learn about designing and implementing programs for their own jurisdictions.

Would this sort of community-based effort work well for larger cities? Eamer believes that it can. In fact, he suggests that breaking into localized neighborhood efforts may be key to even stronger partnerships and an avenue for even lower program costs. An example of this neighborhood approach is seen in Toronto, whose eastern region is addressed by the non-profit Urban Environment Center. This urban region has recently become one of the province's GCI communities, providing the program with access to government funding.

In February of 1995, the Ministry of Environment and Energy also added Ottawa to its roster of Green Communities. The Ottawa/Carleton region with a population of over 750,000 is the largest area to participate in this program to date. Ottawa's Envirosense program has blanketed the entire region with mass marketing but is focusing primarily on the local level, working within the region's communities. Cheryn Gervais, Marketing Manager of Envirosense, stated that servicing a region this large can be done on a community-by-community approach and has taken lessons from programs conducted in Ontario's smaller GCIs. However, there are some new challenges with serving a larger region. For example, covering such a large geographic area poses transportation problems when it comes to providing home assessments. When it comes to servicing customers in outlying communities as far as 125 miles away, customers are told they must wait until four or more appointments have been requested to enable a visit. Envirosense works this to their advantage by suggesting to the customer to have their neighbors schedule home assessments as well, an effective means of marketing in more rural communities.

The fact that there are so many community-based energy-efficiency programs throughout the world is proof that a local approach to improving efficiency is a successful formula. The Results Center has studied the efforts of many communities in North America and Europe and reported on their strategies for success. For a discussion on community-based programs, please see The Results Center Special Report, "Community-Based Energy Efficiency Programs" or any of the following Profiles featuring other successful programs: Osage (Iowa) Municipal Utility, Comprehensive DSM Program (Profile #5); Hood River Conservation Project (Profile #12); Ontario Hydro, Espanola Power Savings Project (Profile #16); Midwest Resources, Rock Valley Energy Efficiency Research Project (Profile #43); Pacific Gas & Electric, Model Energy Communities Program (Profile #81); Alberta Power, Jasper Energy Efficiency Project (Profile #107); and The City of Ashland, Comprehensive Conservation Program (Profile #115). These programs represent a wealth of objectives, collaborations, financing mechanisms, and implementation strategies and practices that together with the Cornwall, Ontario experience provide a solid foundation for other communities considering this form of local solution through a "grass roots" approach.

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