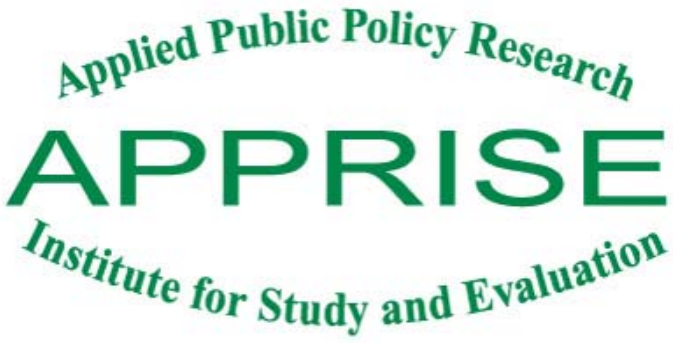

LICAP Program Evaluation

Final Report

Prepared for Niagara Mohawk

August 2004

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Executive Summary

The LICAP Program provides services to low-income Niagara Mohawk electric and natural gas customers who are payment-troubled in order to enable them to better manage their energy use, cost, and bill payment. APPRISE Incorporated was hired by Niagara Mohawk to conduct an evaluation of the LICAP program. This evaluation report provides information on the efficiency and effectiveness of program administration and implementation over the two program years covering July 2002 through June 2004.

Introduction

The objective of the LICAP program is to provide low-income payment-troubled Niagara Mohawk electric and natural gas customers with services that will enable them to better manage their energy use, cost, and bill payment. Payment-troubled customers are defined as customers who are unable to pay the full bill, or who pay the full bill at the expense of other necessities such as food, shelter, or medications. The program promotes participants' continued access to essential services and seeks to avoid disconnection of service for nonpayment. All ratepayers benefit from reduced collection costs and uncollectable expenses when participants improve their bill payment.

In accordance with the National Grid USA and Niagara Mohawk merger Joint Proposal (JP), Case 01-M-0075, the Company will provide services under the LICAP program to eligible households for the duration of the rate plan. The LICAP program is an umbrella concept, referring to many low-income customer services that are available. Under the merger agreement, the Company will conduct and submit to staff biennial evaluations of the LICAP program. This evaluation will be conducted consistent with the requirements of the Commission's July 3, 2001 Order in Case 94-E-0952 regarding the Systems Benefits Charge and will cover program operations through June 30, 2004 and be submitted by September 1, 2004.

The LICAP program was initiated as the Power Partnerships Pilot in 1990. Since that time, Niagara Mohawk has administered a comprehensive low-income program under a number of different names, including the ULIEEP Power Partnerships Program and the Niagara Mohawk LICAP Program. The LICAP program has continued to evolve under the new program agreement. A number of changes were implemented starting in January 2002 whereby LICAP has become an umbrella concept, referring to many low-income customer services that are available. These services include a five-dollar discount on the monthly electric service bill. Depending on the needs of the customer, one or more of the following services may be offered:

- Affordable Payment Plan: The affordable payment plan is targeted to payment-troubled customers who, while unable to pay their full bill, are capable of paying at

least 65 percent of their current charges. Customers who do not have arrears but who have affordability problems are offered just the energy services. Customers who cannot pay 65 percent of their current bill in accordance with the affordable payment plan are offered energy services and are referred to other assistance programs.

- Arrears Forgiveness: Customers on the affordable payment plan who make their twelve monthly payments receive a credit of fifty percent of their arrears, up to a maximum of $250.

- Energy Use Management (EUM) Education: All customers receive EUM education in the form of attendance at an energy education workshop or a video education packet. A subsample of customers receives additional in-home energy education.

- Energy Efficiency Services: Customers may receive Appliance Efficiency Program (AEP) or Weatherization services. AEP has been expanded to include electric hot water and clothes dryer fuel switching.

LICAP energy services eligibility has been expanded to include elderly HEAP payment-troubled customers and customers who are coming off public assistance direct voucher.

LICAP Energy Services Funding, Operations, and Services

The LICAP energy services are funded by the SBC. Therefore the focus of this report is on the energy services provided by the program. The LICAP Energy Services Program is complex, serving different populations with various combinations of Energy Use Management Education formats and Energy Efficiency Services.

Program Funding

Table 1 displays the program funding over the two program years, and divides the funding into administrative costs, evaluation costs, and service delivery costs. Total program funding has been about $2.2 to $2.3 million. Service delivery costs have averaged about 92 percent of program funding, and have never been below 90 percent. Administrative costs are approximately five percent of total program funding.

Table 1
Program Funding and Costs

Program Year	Total Program Funding	Administrative Costs	Evaluation Costs	Service Delivery Costs
7/01/02 - 6/30/03	$2,301,000	$115,700	$11,600	$2,173,700
7/01/03 - 6/30/04	$2,171,900	$98,100	$117,100	$1,956,700

Program Operations

Niagara Mohawk uses the On-line Low-Income Database (OLLI), a SAS-based data system especially developed to manage Weatherization and AEP services as well as associated customer data. OLLI is accessed through Niagara Mohawk's mainframe and consists of data tables and a reporting system.

OLLI contains data on program services received by each customer. The database includes information on the package of Energy Efficiency Services the customer received, i.e., Weatherization, AEP, or a combination of the two, and the total cost of the job. Additionally, as a result of recommendations in the 2002 evaluation, the database includes individual measures provided.

Program Targeting/Outreach/Intake

Under the current LICAP program, three groups of payment-troubled customers are eligible for program services:

- *Arrearage:* From the outset, the group that was targeted by the LICAP program was non public assistance, low-income payment-troubled LIHEAP-recipient customers. Additionally, these customers were required to have negative monthly cash flow, not to exceed $100. These customers continue to be the majority of those served by the LICAP program.

- *Low-income payment-troubled seniors:* This group has been targeted for LICAP services starting in the 2002 program year. Low-income senior customers who are current on their bill, but at the expense of other necessities, such as food, medicine, health care, or adequate shelter are targeted for services. These customers are served under the LICAP Senior Energy Services Program (S.E.S.P.).

- *Former public assistance direct voucher customers:* This group has been targeted for LICAP services starting in the 2002 program year. These customers, whose energy bills were formerly paid directly by the county, are those customers who have recently left public assistance and who appear to potentially need assistance with energy bills. These customers are served under the LICAP Safety Net Energy Services Program (S.N.E.P.).

All customers must be HEAP recipients. The current standard for HEAP is the greater of 60 percent of state median income or 150 percent of the Federal Poverty Level.

Prior to June 2001, almost all LICAP referrals came through the Inquiry Unit at Collection Services. These customers had arrears and had been directed to contact Collections to make payment arrangements after receiving a Final Termination Notice. Customers who called collections and had received HEAP, had a broken minimum payment agreement and, based on a current financial statement, had a monthly cash flow of less than $100, were referred by the Inquiry Unit representative to a specially trained LICAP unit for enrollment. A LICAP representative then contacted the customer to complete the enrollment process.

In an effort to streamline the administrative tasks associated with the LICAP program and to further emphasize that LICAP is the appropriate customer service for the low-income "can't pay" customer, the enrollment process became the responsibility of the representatives in the Inquiry Unit at Collections. All Inquiry representatives received training that explained the LICAP program and delineated the eligibility criteria for the program and provided streamlined enrollment protocols.

Program Energy Services

The LICAP Energy Services program offers Energy Use Management Education to all program participants. Energy Use Management Education consists of a workshop for 45 to 60 percent of participants, or an education packet with worksheets and a video tape for participants who live outside the general area where the workshops are conducted.

All program participants receive energy efficiency lighting (three CFL's and one low wattage night light). Based on an analysis of pre-program usage from the Customer Service System and individual household usage data obtained from an energy services questionnaire completed by each participant, approximately thirty to forty percent of program participants are identified as eligible for Energy Efficiency Services. The purpose of these services is to further reduce usage; make utility service more affordable; and enable participants to better manage their bill payment, reduce the arrears and retain service. Contractors who conduct inspections and audits provide additional on-site Energy Use Management Education when performing tests and installing the energy efficiency measures.

There are three types of energy services that a customer may receive:

- *Appliance Efficiency Program (AEP):* AEP customers may receive refrigerator and/or freezer replacement, waterbed mattress replacement, and electric hot water and/or clothes dryer fuel switching.

- *Weatherization Program:* Weatherization customers may receive heating system service and repairs, air sealing, duct sealing, and insulation.

- *Combination:* Combination customers receive a combination of AEP and Weatherization services.

At every audit and inspection, contractors install CFL's that the customer received at the workshop or with the video if not already installed, an average of 2-3 additional CFL's based on a lighting analysis, as well as low wattage night lights.

Customers are targeted for Energy Efficiency Services based upon information in the energy services questionnaire and the customer's usage history. Each coordinator reviews this information when determining whether the customer should be referred for AEP, Weatherization, or combination services.

If the customer is targeted for AEP services, the customer receives an on-site inspection. During the inspection, the contractor meters the customer's refrigerator and freezer, looks for waterbed and fuel switching opportunities, installs CFL's, wraps the hot water tank and/or pipes, provides a waterbed blanket if the customer is going to keep a waterbed, and provides energy education, including adjusting the hot water tank thermostat and the heating system thermostat. Following the inspection, the contractor will provide the coordinator with estimates for recommended measures and fill out forms providing the coordinator with information about the work that they did during the inspection.

The coordinator reviews recommendations, discusses them with the contractor, and decides what work should be done based on the average per unit investment determined by the program. There is an average cost ceiling that was imposed in June 2002 to maximize the number of customers served within the existing SBC funding allocation. While coordinators are permitted to exceed the average in particular units, the cost ceiling must be maintained over all of the coordinators' jobs.

If the customer is targeted for Weatherization services, the customer receives an on-site audit. During the audit, the contractor conducts a blower door test, evaluates the existing insulation level, conducts health and safety tests, does a heating system service and minor heating system repairs, wraps the hot water tank, and provides air sealing and duct sealing work. Contractors install CFL's and provide similar on-site Energy Use Management Education as for AEP customers.

Following the audit, the contractor provides the coordinator with estimates for recommended measures and fills out several forms providing the coordinator with information about the work that they did during the inspection. The coordinator reviews these recommendations, discusses them with the contractor, and decides what work should be done based on the available budget.

Service Delivery Contractors

The energy services coordinators are responsible for managing the service delivery contractors. Many of the contractors have been working for Niagara Mohawk for many years, and coordinators stated that new contractors are carefully screened and trained to provide services. The contractors must be technically skilled, work well with the customers, and provide the coordinators with the detailed information they require in order to determine what work should be performed on the customer's home. The contractors are both small private companies and WAP agencies.

Customers Enrolled and Services Delivered

Table 2 displays the number of customers attending the workshop and receiving the video in each program year.

Table 2
Customers Receiving EUM Education

Program Year	Workshop Recipients	Video Recipients
7/01/02 - 6/30/03	1,768	1,713
7/01/03 - 6/30/04	1,720	2,163

Table 3 displays the number of customers receiving each type of energy efficiency service. Each year the majority of customers, approximately 75 percent, received AEP services.

Table 3
Customers Receiving Energy Efficiency Services
By Type

Program Year	AEP	Weatherization	Combination	Total
7/01/02 - 6/30/03	1,030	177	142	1,349
7/01/03 - 6/30/04	898	179	140	1,217

Table 4 displays the average investment by type of energy efficiency service. Average investments ranged from $911 to $997 for AEP, $1523 to $1529 for weatherization, and $1692 to $1779 for combination services.

Table 4
Average Investment
By Type of Energy Efficiency Service

Program Year	AEP	Weatherization	Combination
7/01/02 - 6/30/03	$997	$1,523	$1,779
7/01/03 - 6/30/04	$911	$1,529	$1,692

Quality Control Procedures

The coordinator in each area is responsible for managing and conducting quality control for Energy Efficiency Services. Therefore, the type of quality control varies by the coordinator, depending on his or her experiences with service delivery contractors.

The principle quality control procedures used by the coordinators include:

- For AEP, one of two methods is used:

1) All customers receive a quality control questionnaire. Response rates vary with customer demographics.

2) Twenty percent of customers receive a phone survey.

- For Weatherization, on-site inspections are conducted for about twenty percent of customers receiving services.

Usage Impacts

Due to the short timeline between the end of the program year and the report deadline, this report utilizes estimates of savings from a previous analysis to estimate savings for all participants over the two program years. Additional estimates are provided for individual retrofits that comprise the overall AEP services.

Usage Impact Methodology

As required under the Commission's order regarding the Systems Benefits Charge, this evaluation report, due to be submitted by September 1, 2004, covers program operations through June 30, 2004. Due to the short time period between the program year ending and the report deadline, this report uses modeling and engineering estimates to calculate impacts of the program, rather than actual bill analysis.

In order to estimate usage impacts from the program services delivered between July 1, 2002 and June 30, 2004, we use results from a previous study of actual customer bills conducted with a subset of these program participants. APPRISE Incorporated conducted a "cohort study" of all households enrolled in the LICAP program between October 26, 1998 and December 31, 1998. There were 704 households enrolled in the program during this time period.

kWh and Therm Impacts by Service Type

Estimates of savings for each type of service and for individual components of the AEP services are reported in this section.

The table below displays savings estimates from the analysis for the 1998 cohort for households receiving AEP or Weatherization services. AEP savings were estimated separately for households receiving the video and the workshop, and Weatherization savings were estimated jointly due to the sample size. A weighted average between the findings from the full and restricted sample is calculated.[1] A weighted average of AEP and workshop and AEP and video savings is used to estimate savings.

[1] The full sample is defined as all customers who had usage data available in the baseline and follow-up years. The restricted sample is defined as customers who had at least 6 non-estimated usage periods and at least 2 non-estimated heating periods in the baseline and follow-up years.

Weatherization customers also achieve kWh savings based on attendance at the workshop and receipt of CFL's. Total kWh savings for Weatherization customers are estimated to be 633 kWh per year.

Table 5
Estimated Annual Savings From the 1998 Cohort

	AEP and Video		AEP and Workshop		Weatherization (Workshop or Video)		
	#	kWh Savings	#	kWh Savings	#	Therm Savings	kWh Savings
Full Sample	89	1,191	40	3,162	23	203	633
Restricted Sample	14	1,355	12	1,548	9	121	
Full and Restricted Weighted Average	1,213		2,790		180		
Workshop and Video Average	2,049						

Table 6 displays estimated annual savings for AEP, Weatherization, and Combination service delivery. Savings estimates from AEP and Weatherization are increased over the program years at half the rate that program investments increased.

Table 6
Estimated Annual Savings from Energy Efficiency Services

Program Year	AEP			WX				
	#	kWh Savings		#	Therm Savings		kWh Savings	
		Per Customer	Total		Per Customer	Total	Per Customer	Total
7/01/02 - 6/30/03	1,030	2,974	3,063,001	177	244	43,159	633	112,041
7/01/03 - 6/30/04	898	2,806	2,519,468	179	244	43,756	633	113,307
TOTAL	1,928	2,895	5,582,469	356	244	86,915	633	225,348

Program Year	Combination					TOTAL Annual Savings				
	#	kWh Savings		Therm Savings			kWh Savings		Therm Savings	
		Per Customer	Total	Per Customer	Total	#	Per Customer	Total	Per Customer	Total
7/01/02 - 6/30/03	142	2,331	330,939	191	27,136	1,349	2,599	3,505,981	52	70,295
7/01/03 - 6/30/04	140	2,168	303,471	189	26,440	1,217	2,413	2,936,246	58	70,196
TOTAL	282	2,250	634,410	190	53,576	2,566	2,511	6,442,227	55	140,491

Table 7 breaks down AEP savings into savings from the workshop, refrigerators, freezers, CFL's, waterbed replacements, hot water tank fuel switches, and dryer fuel switches. The purpose of this disaggregation is to identify the sources of the AEP savings calculated in the previous section and to validate the projection methodology that was used.

The average savings per participant is calculated. Savings per participant are lower than those calculated based on the analysis of the 1998 cohort. This is due to the fact that savings from some measures are not included here, such as waterbed mattress covers, hot water tank wraps, and hot water temperature turndowns, as well as additional education provided by the contractors when they visit the home.

Table 7
Estimated Annual Savings Per Customer
By Measure

Program Year	Workshop kWh Savings	Refrigerator kWh Savings	Freezer kWh Savings	CFL kWh Savings
7/01/02 - 6/30/03	257,747	1,188,805	269,789	470,558
7/01/03 - 6/30/04	199,089	967,585	293,748	416,757
TOTAL	456,836	2,156,390	563,537	887,315

Program Year	Waterbed Mattress Replacement kWh Savings	Hot Water Tank kWh Savings	Dryer kWh Savings	Total kWh Savings	# of AEP and Combination Recipients	kWh Savings Per Participant
7/01/02 - 6/30/03	67,600	409,200	111,186	2,774,885	1,172	2,368
7/01/03 - 6/30/04	49,400	263,600	107,068	2,297,247	1,038	2,213
TOTAL	117,000	672,800	218,254	5,072,132	2,210	2,295

Total program energy savings are based upon the estimates from the 1998 cohort that were validated in the previous table. The table below displays total program savings. AEP savings are estimated to last 13.52 years, and Weatherization savings are estimated to last ten years. Additionally, CFL savings and workshop savings for those customers who received these services but who did not receive additional Energy Efficiency Services are included in the table below.

Table 8
Total Program Savings

Type	Total Annual Savings	Measure Life	Total Lifetime Savings
Weatherization therms	140,491	10	1,404,908
AEP and Weatherization kWh	6,442,227	13.52	87,095,539
Additional CFL kWh savings	632,399	5.5	3,478,195
Additional workshop kWh savings	1,053,468	5	5,267,342
Total kWh savings			95,841,075

kW Savings

Peak reduction estimation is conducted according to NYSERDA's appendix to their Final Report on the Initial Three Year SBC Program. Applying NYSERDA'S methodology, a factor of 6,556 kWh/kW is applied to the energy savings attained from refrigerator installation and a factor of 7,634 kWh/kW is applied to the energy savings attained from CFL's. The total kW saved by the program is calculated to be 614. There are peak reductions resulting from other measures provided by the program, but a methodology for determining the kW savings has not yet been determined.

Table 9
Calculation of kW Savings

Measure	Total Annual kWh Savings	Total kW savings
Refrigerators and Freezers	2,719,927	415
CFL's	1,519,714	199
TOTAL	4,239,641	614

Customer Bill Savings by Service Type

Table 10 displays the savings from all Energy Efficiency Services. Savings estimates are based upon usage estimates from the 1998 cohort. Total annual savings are $955,021. Total annual savings per recipient average $372.

Table 10
Total Annual Bill Savings
All Energy Efficiency Services Recipients

	Electric Savings		Gas Savings		Total Dollar Savings	Total Number of Recipients	Total Dollar Savings Per Recipient
Program Year	kWh	Dollars	Therms	Dollars			
7/01/02 - 6/30/03	3,505,981	$441,754	70,295	$71,701	$513,455	1,349	$381
7/01/03 - 6/30/04	2,936,246	$369,967	70,196	$71,600	$441,567	1,217	$363
TOTAL	6,442,227	$811,721	140,491	$143,301	$955,021	2,566	$372

Other Program Impacts

The Energy Efficiency Services provided by the LICAP program have large impacts on reductions in energy usage and on affordability of customer bills. Additionally, the program benefits the participants by improving their health and safety. Linkage with the Affordable Payment Plan benefits the program by targeting the right customers who have incentive to participate in the program and take advantage of energy education to reduce their energy usage. The program also provides customers with greater control over their energy usage and causes changes in behavior that positively impact the participants.

Health, Safety, and Comfort Impacts

Energy services provided to program participants have many potential impacts on health and safety. Impacts include safer heating systems and hot water heaters, more comfortable homes, reduced use of space heaters and stoves for heating, refrigerators that keep food at the correct temperature, as well as many others.

Impacts from Linkage to Affordable Payment Plan

The Niagara Mohawk LICAP Energy Services program targets payment-troubled customers. Most of these customers have been enrolled in the program through the Affordable Payment Plan. These customers have experienced significant difficulty in paying their bills, and have incentive to reduce their energy usage through the energy efficiency services.

Customer Behavior Impacts

Energy Use Management Education and Energy Efficiency Services impact the way that customers use energy in their homes. Interviews with program participants found evidence that customers changed their behaviors to reduce energy use.

Other Public Benefits from the Program

The LICAP program benefits the program participants by making their energy payments more affordable. The program also benefits the ratepayers and the community in several ways. First, the program reduces customers' bills and therefore their future arrears, therefore lowering the potential burden on other ratepayers. Second, the program lowers the peak energy usage and the cost of adding capacity to the system. Third, the program transforms the market by training WAP agencies and building an infrastructure of private contractors to provide service delivery.

Reduction of Future Arrears

This report estimates that customers who receive Energy Efficiency Services may have a reduction in their annual bills of about $372. Receipt of these services can make bills more affordable for customers. As a result, the difference between the customers' energy usage and their payments should decline, and future arrearages should be lower than if these services had not been provided.

DSM Benefits

The primary purpose of the LICAP program is to make energy more affordable for low-income households. The analysis in this report showed that the program has the potential to make bills more affordable for customers. However, the program has the additional public benefit of reducing peak load. Analysis in this report showed that program services resulted in a 614 kW reduction.

Market Transformation Benefits

Niagara Mohawk contracts with thirteen WAP agencies to provide services under the AEP and Weatherization programs. They also contract with more than eight private contractors for service delivery. These contracts have transformed the market in three important ways:

- Training WAP agencies in baseload measures
- WAP Agencies developed a private division
- Building an infrastructure of private contractors

I. Introduction

The LICAP Program provides services to low-income Niagara Mohawk electric and natural gas customers who are payment-troubled in order to enable them to better manage their energy use, cost, and bill payment. APPRISE Incorporated was hired by Niagara Mohawk to conduct an evaluation of the LICAP program. This evaluation report provides information on the efficiency and effectiveness of program administration and implementation over the two program years covering July 2002 through June 2004.

A. Program Goals and Objectives

The objective of the LICAP program is to provide low-income payment-troubled Niagara Mohawk electric and natural gas customers with services that will enable them to better manage their energy use, cost, and bill payment. Payment-troubled customers are defined as customers who are unable to pay the full bill, or who pay the full bill at the expense of other necessities such as food, shelter, or medications. The program promotes participants' continued access to essential services and seeks to avoid disconnection of service for nonpayment. All ratepayers benefit from reduced collection costs and uncollectable expenses when participants improve their bill payment.

B. Program Background

The LICAP Program was first initiated as the Power Partnerships Pilot in 1990. Since that time, NMPC has administered a comprehensive low-income program under a number of different names, including the ULIEEP Power Partnerships Program and the NMPC LICAP Program.

1. Program Mandate

In accordance with the National Grid USA and Niagara Mohawk merger Joint Proposal (JP), Case 01-M-0075, the Company will provide services under the LICAP program to eligible households for the duration of the rate plan. Under the merger agreement, the Company will conduct and submit to staff biennial evaluations of the LICAP program. The evaluation will be conducted consistent with the requirements of the Commission's July 3, 2001 Order in Case 94-E-0952 regarding the Systems Benefits Charge and will cover program operations from July 1, 2002 through June 30, 2004 and be submitted by September 1, 2004.

2. Program History

a) Power Partnerships Pilot

One of the outcomes of a 1989 rate case was a commitment by the company to develop a comprehensive weatherization program for low-income, payment-troubled customers. The Power Partnerships Pilot was designed by the Alliance to Save Energy during the fall of 1989 and was implemented during 1990, 1991, and 1992.

Participants for the program were recruited from a list of LIHEAP-recipient payment-troubled customers. Random assignment was used to assign customers to one of the three treatment groups – weatherization only, weatherization plus education, and weatherization plus education and a gas usage feedback device. In addition, a part of the recruitment list was "held" to screen a control group a year later.

A full-scale evaluation of the customers served under the Power Partnerships was conducted in 1992. The evaluation concluded that:

- The gas savings for the education groups were about 25% while the savings for the weatherization only group were about 16%.

- The electric savings for the education groups were about 7% while the savings for the weatherization only group were about 4%.

- All three programs passed the cost-effectiveness tests that were applied.

The programs made large investments in the customers' homes (between $1,800 and $2,100). However, the gas savings were also very large (300 to 550 therms). The average pre-program usage for program participants was about 1900 therms.
This evaluation included a follow-up survey with program participants. The follow-up survey demonstrated statistically significant differences among the education group, the weatherization group, and the control group in terms of health, safety, and comfort.

b) Affordable Payment and Arrearage Forgiveness Pilot

At the same time that Niagara Mohawk was conducting the Power Partnerships Pilot, a second pilot was implemented. Under the Affordable Payment and Arrearage Forgiveness Pilot, a small sample of customers was offered an affordable payment (less than the full retail bill). In return for making their monthly payments, customers' arrears were forgiven over a two-year period. These customers did not receive any weatherization benefits.

The pilot program evaluation found that customers who stayed on the program increased the number of cash payments and the amount of cash payments compared to a control group. However, customers on the program received fewer public assistance benefits than the control group. Moreover, since it was difficult for the Collections Department to manage the pilot customers under their collections system, pilot customers who did not make their payments were not returned to the collections pool and made fewer payments than either successful program participants or the control group.

This pilot demonstrated that an affordable payment and arrearage forgiveness plan had potential, but that it needed further development before it could be successful with payment-troubled customers.

c) ULIEEP Power Partnership Program

The Utility Low Income Energy Efficiency Program was initiated in July 1992 in response to NYS PSC order 89-M-124. The Order required the State's regulated electric and gas utilities to invest $10 million annually in a three-year pilot program to serve low-income customers. Niagara Mohawk's budget was $2.1 million per year. The pilot ran from July 1992 through June 1995.

A report from Applied Energy Group in 1996 reports the following impacts for ULIEEP Year 2 participants:

- Electric heat participant savings of 5,114 kWh (26%)
- Gas heat participant savings of 312 kWh (7%) and 439 therms (21%)

A follow-up customer survey indicated that:

- Customers were more comfortable and believed that they were using less energy.
- A small number of customers opened up rooms that were previously kept closed during the winter, but a large number of customers lowered their thermostats.
- Among the different ULIEEP components, only the electric heat group had a cost-effectiveness test greater than 1. Most of the other groups had cost-effectiveness ratios of about 0.9.

d) LICAP Phase I

Niagara Mohawk implemented the LICAP program in 1995 in response to the Public Service Commission's conditioning its approval of a settlement agreement (Cases 92-E-0108 et al.) on the Company's providing a program for low-income

customers who can not pay their bills and therefore are vulnerable to disconnection and whose uncollected bills place burdens on other ratepayers. The program integrated the ULIEEP Power Partnerships comprehensive weatherization program with the Affordable Payment Plan. The enrollment procedures and the usage reduction services offered under LICAP were somewhat different from the ULIEEP model. The program changes included:

- Enrollment – Under LICAP, customers were first enrolled in the affordable payment plan and then began receiving usage reduction services.

- Segmentation – Once enrolled in the payment plan, customers received the usage reduction services that were appropriate to their needs. Customers received weatherization, appliance efficiency measures, and/or energy education depending on their energy usage patterns and geographic location.

- Investment – In order to improve the cost-effectiveness of the program, the average total costs for customers who were weatherized was reduced from as much as $2,000 to less than $1,400.

During the implementation of the LICAP program, Response Analysis (now APPRISE) conducted a number of process evaluation reports that were mainly focused on the program management. In July 1997, Response Analysis prepared an evaluation report on the usage and payment impacts of the LICAP program for the customers enrolled during the first program year (July 1995 to June 1996). The usage impacts measured by the evaluation were:

- Electric heat weatherization energy savings of 4,151 kWh (18%).

- Gas heat weatherization energy savings of 892 kWh (10%) and 260 therms (15%).

- Workshop energy savings of 1193 kWh (12%) for electric non-heating customers and 450 kWh (6%) for combination gas heating customers.

The payment impacts measured by the evaluation were:

- The average bill coverage rate for participating customers increased from 74% to 80% of total bills.

- After factoring in the projected impact of the energy services, the average bill coverage rate for participating customers increased from 74% to 94% of total bills.

- A management analysis compared the cost of collections for payment-troubled customers to the cost of administering the payment plan component of the

LICAP program. It found that regular collections activities cost slightly less during the first year than enrolling the customer in the LICAP program. However, in each subsequent year that the customer stayed on the plan, LICAP costs were less than Collections costs.

The cost-benefit analysis for developing for the 1995 program year showed that the unadjusted cost-benefit ratio was greater than 1.0 for all program components except gas heat weatherization. The cost-benefit ratio for gas heat weatherization was 0.62 without any adjustments, 0.95 when the ratio was adjusted for the carrying cost of debt and avoided collection expenses, and was 1.03 when the ratio was adjusted for societal benefits.

e) LICAP Phase II

In response to the continued concern that the LICAP program did not focus enough on electric DSM goals, the program design was altered to place a greater emphasis on reductions in electric usage. In the 1998 program year, the share of resources devoted to the Appliance Efficiency Program (AEP) component was significantly increased.

In order to track the impacts of this program change, NMPC tracked a cohort of program participants enrolled in the program during October, November, and December of 1998. APPRISE conducted an evaluation of the usage and payment impacts for this cohort. The usage impact findings were:

- Workshop energy savings of 513 kWh (7%) for electric non-heating customers and combination gas heating customers.

- Gas heat weatherization energy savings of 301 therms (20%).

- AEP only savings of 2525 kWh (23%) and AEP/Workshop energy savings of 3242 kWh (33%).

The payment impacts measured by the evaluation were:

- The average bill coverage rate for participating customers increased from 77% to 85% of total bills.

- The average bill coverage rate for weatherization customers rose from 75% to 87% and the rate for AEP customers rose from 77% to 97%.

The results from the evaluation for the 1998 cohort are similar to those for the 1995 program year. The AEP energy savings are significant given the comparatively modest investment. (The average cost of AEP services was about $800 compared to about $1,500 for weatherization services.)

3. Program Evolution

The LICAP program has continued to evolve in accordance with the National Grid USA and Niagara Mohawk merger Joint Proposal. A number of changes were implemented starting in January 2002 whereby LICAP has become an umbrella concept, referring to many low-income customer services that are available. These services include a five-dollar discount on the monthly electric service bill. Depending on the needs of the customer, one or more of the following services may be offered:

- Affordable Payment Plan: The affordable payment plan is targeted to payment-troubled customers who, while unable to pay their full bill, are capable of paying at least 65 percent of their current charges. Customers who do not have arrears but who have affordability problems are offered just the energy services. Customers who cannot pay 65 percent of their current bill in accordance with the affordable payment plan are offered energy services and are referred to other assistance programs.

- Arrears Forgiveness: Customers on the affordable payment plan who make their twelve monthly payments receive a credit of fifty percent of their arrears, up to a maximum of $250.

- Energy Use Management (EUM) Education: All customers receive EUM education in the form of attendance at an energy education workshop or a video education packet. A subsample of customers receives additional in-home energy education.

- Energy Efficiency Services: Customers may receive Appliance Efficiency Program (AEP) or Weatherization services. AEP has been expanded to include electric hot water and clothes dryer fuel switching.

LICAP energy services eligibility has been expanded to include elderly HEAP payment-troubled customers and customers who are coming off public assistance direct voucher.

On July 1, 2004 the LICAP program administration was transferred to the New York State Energy Research and Development Authority (NYSERDA) as a result of a PSC order. The program is now known as EmPower New York.

C. Energy Services Program Implementation

The LICAP energy services are funded by the SBC. Therefore, the focus of this report is on the energy services provided by the program. The energy services provided by the current LICAP program target three different groups with two types of education and four types of energy services. This section provides an overview of the groups served and services provided.

1. Overview of Services

Eligibility

Under the current LICAP program, three groups are eligible for program services:

- *Arrearage:* The group that was previously targeted by the LICAP program was non public assistance, low-income payment-troubled LIHEAP-recipient customers. Additionally, these customers were required to have a negative monthly cash flow, not to exceed $100. These customers continue to be the majority of those served by the LICAP program.

- *Low-income payment-troubled seniors:* This group has been targeted for LICAP services starting in the 2002 program year. Low-income senior customers who are current on their bill, but at the expense of other necessities, such as food, medicine, health care, or adequate shelter are targeted for services. These customers are served under the LICAP Senior Energy Services Program (S.E.S.P.).

- *Former public assistance, direct voucher customers:* This group has been targeted for LICAP services starting in the 2002 program year. Direct Voucher customers are those customers who have recently left public assistance and who appear to potentially need assistance with energy bills. These customers are served under the LICAP Safety Net Energy Services Program (S.N.E.P.).

All customers must be HEAP recipients. The current standard for HEAP is the greater of 60 percent of state median income or 150 percent of the Federal Poverty Level.

Services Provided

Customers participating in the LICAP program receive a combination of Energy Use Management Education and Energy Efficiency Services.

a) Energy Use Management Education

All customers who participate in LICAP receive Energy Use Management Education. Customers who live in a workshop area are assigned to attend an energy services workshop. Customers who live outside a workshop area receive an energy use management video and an energy education packet. Between forty-five and sixty percent of the customers receive the workshop and the balance receives the video.

b) Energy Efficiency Services

All customers receive three compact fluorescent light bulbs and a low wattage night light. All customers are also requested to fill out an energy services questionnaire, either at the workshop or with the video packet. Based on the energy usage information provided in the energy services questionnaire and their

preprogram usage from the customer information system, customers are evaluated for additional Energy Efficiency Services. There are three types of energy services that a customer may receive:

- *Appliance Efficiency Program (AEP):* AEP customers may receive refrigerator and/or freezer replacement, waterbed mattress replacement, and electric hot water tank or electric clothes dryer fuel switching.

- *Weatherization Program:* Weatherization customers may receive heating system service and repairs, air sealing, duct sealing, and insulation.

- *Combination:* Combination customers receive a combination of AEP and Weatherization services.

When contractors are on site, they provide some EUM education and install CFL's.

2. Overview of Service Delivery Procedures

There are two main ways the customers are enrolled in the LICAP program. Payment-troubled customers who received HEAP, have broken a minimum payment agreement, and have negative monthly cash flow come into the program through the Collections Department. There is one LICAP representative at collections who schedules the customer for a workshop if the customer lives in an area where workshops are provided, or orders a video packet if the customer does not live in an area where workshops are provided. Senior customers are referred to the program by their local County Office for the Aging. Safety Net customers are referred by the Department of Social Services unit at Collections.

There are four energy service coordinators assigned by geographic territory. The coordinator reviews the energy questionnaires for the customers in his/her service territory, as well as the customers' usage histories, in order to determine whether they should be targeted for AEP or Weatherization services.

If the customer is targeted for AEP services, the customer will receive an on-site inspection. During the inspection, the contractor will meter the customer's refrigerator and freezer, look for waterbed and fuel switching opportunities, install CFL's, wrap the hot water tank and/or pipes, provide a waterbed blanket if the customer is going to keep the waterbed, and provide energy education.

If the customer is targeted for Weatherization services, the customer will receive an on-site audit. During the audit, the contractor will do a blower door test, evaluate the existing insulation level, conduct health and safety tests, do a heating system service and minor heating system repairs, wrap the hot water tank, provide air sealing and duct sealing work, and conduct on-site energy education.

Following the inspection or audit, the contractor will provide the coordinator with estimates for recommended measures. The coordinator will review these recommendations, discuss them with the contractor, and decide what work should be done based on the available budget. Additional services that AEP customers may receive include refrigerator and freezer replacement and fuel switches for electric dryers and hot water heaters. Additional services that Weatherization customers may receive include insulation and heating system repairs.

II. LICAP Energy Services Funding, Operations, and Services

The LICAP energy services are funded by the SBC. Therefore the focus of this report will be on the energy services provided by the program.

LICAP is a complex program, serving different populations with various combinations of payment plans, Energy Use Management Education formats, and Energy Efficiency Services. This section of the report provides data on the program funding and resource allocation, provides a detailed description of program operations, and analyzes the number of customers enrolled and the number of program services delivered by program year.

A. Program Funding and Resource Allocation by Year

Table II-1 displays the program funding, and divides the funding into administrative costs, evaluation costs, and service delivery costs. Total program funding has been about $2.2 to $2.3 million. Service delivery costs have averaged about 92 percent of program funding, and have never been below 90 percent. Administrative costs are approximately five percent of total program funding. These costs include the program manager, steno, and part of the coordinator time.

Table II-1
Program Funding and Costs

Program Year	Total Program Funding	Administrative Costs	Evaluation Costs	Service Delivery Costs
7/01/02 - 6/30/03	$2,301,000	$115,700	$11,600	$2,173,700
7/01/03 - 6/30/04	$2,171,900	$98,100	$117,100	$1,956,700

Table II-2 displays the breakdown of the service delivery costs, by program year. These costs are broken down into enrollment, coordinator customer service, workshops, video packets, AEP and Weatherization services, outreach, and contractor training. AEP and Weatherization services make up about 70 percent of service delivery costs (including contracted services and coordinator customer service). The other major components of service delivery costs are enrollment, customer service, workshops, and outreach.

Table II-2
Service Delivery Cost Breakdown

Program Year	Enrollment	Coordinator Customer Service	Workshops	Video Packets	Contracted AEP and Weatherization Services	Outreach	Contractor Training
7/01/02 - 6/30/03	$81,100	$220,900	$177,200	$29,900	$1,549,500	$103,000	$12,100
7/01/03 - 6/30/04	$109,400	$208,500	$167,200	$28,200	$1,328,600	$101,600	$13,200

Table II-3 breaks down AEP, Weatherization, and Combination service delivery costs. This table shows that the majority of funds are spent on AEP services.

Table II-3
AEP and Weatherization Cost Breakdown

Program Year	AEP Services	Weatherization Services	Combination Services	Total
7/01/02 - 6/30/03	$1,027,300	$269,600	$252,600	$1,549,500
7/01/03 - 6/30/04	$818,400	$273,700	$236,500	$1,328,600

B. Program Operations

Niagara Mohawk uses the On-line Low-Income Database (OLLI), a SAS-based data system, to manage Weatherization and AEP services as well as associated customer data. OLLI is accessed through Niagara Mohawk's mainframe and consists of data tables and a reporting system.

When enrolling a customer in the LICAP program, the Collections Department enters Energy Use Management (EUM) assignment into OLLI for all participants. Customers are assigned to a workshop or to receive a video packet. Coordinators enter energy services related data into OLLI for all participants over time, as the customers receive program services.

If the customer is an Affordability payment plan customer, there is a direct download from the Customer Service System (CSS) into OLLI. Information that is downloaded includes customer payment, current monthly budget amount, service address, and other account information. OLLI also analyzes a year of usage data and conducts a baseload and heating season estimation. The usage data are not stored in OLLI, but the baseload and heating usage are, and these data are used for the workshop preparation.

OLLI contains data on program services received by each customer. The database includes information on the package of Energy Efficiency Services the customer received, i.e.,

Weatherization, AEP, or a combination of the two, and the total cost of the job. Additionally, as a result of recommendations in the 2002 evaluation, the database includes individual measures provided including:

- New refrigerator
- Energy usage of the old and new refrigerator
- New freezer
- Energy usage of the old and new freezer
- Two-for-one swap
- Waterbed mattress was replacement
- Waterbed mattress cover
- Hot water tank fuel switch, and type of fuel switched to
- Hot water tank wrap
- Dryer fuel switch, and type of fuel switched to
- Cost of insulation work
- Cost of air sealing work
- Cost of furnace work

Reports that are currently available through the OLLI system include:

- All customers that are currently in process of receiving energy services
- Customers receiving the EUM video packet
- Workshop schedules, assignment, preparation sheet, and attendees
- Active enrollments
- Energy services completion
- Contractor assignment
- Customer records-account number and payment address

C. Program Targeting/Outreach/Intake

Under the current LICAP program, three groups of payment-troubled customers are eligible for program services:

- *Arrearage:* The group that was previously targeted by the LICAP program consisted of customers who were non public assistance, low-income payment-troubled LIHEAP-recipients. Additionally, these customers were required to have negative monthly cash flow, not to exceed $100. These customers continue to be the majority of those served by the LICAP program.

- *Low-income payment-troubled seniors:* This group has been targeted for LICAP services starting in the 2002 program year. Low-income senior customers who are current on their bill, but at the expense of other necessities, such as food, medicine, health care, or adequate shelter are targeted for services. These customers are served under the LICAP Senior Energy Services Program (S.E.S.P.).

- *Former public assistance direct voucher customers:* This group has been targeted for LICAP services starting in the 2002 program year. Direct Voucher customers are those customers who have recently left public assistance and who appear to potentially need assistance with energy bills. These customers are served under the LICAP Safety Net Energy Services Program (S.N.E.P.).

All customers must be HEAP recipients. The current standard for HEAP is the greater of 60 percent of state median income or 150 percent of the Federal Poverty Level.

There are four main methods for recruiting customers into the LICAP program.

- Customers who are in arrears and who are directed to call the Collections Department to make a payment arrangement and who meet program eligibility criteria are referred to the program.

- Customers talk to consumer advocates and are directed to the program (not many through this source). Most of these are LICAP Senior Energy Services Program (S.E.S.P.) customers.

- The County Offices for the Aging refer senior customers who are not in arrears but who are payment-troubled.

- The Department of Social Services unit of the Collections Department refers customers who are leaving public assistance and going off a voucher payment agreement.

Prior to June 2001, almost all LICAP referrals came through the Inquiry Unit at Collection Services. These customers had arrears and had been directed to contact Collections to make payment arrangements after receiving a Final Termination Notice. Customers who called collections and had received HEAP, had a broken minimum payment agreement and, based on a current financial statement, had a monthly cash flow of less than $100, were referred by the Inquiry Unit representative to the LICAP unit for enrollment. A LICAP representative then contacted the customer to complete the enrollment process.

In an effort to streamline the administrative tasks associated with the LICAP program and to further emphasize that LICAP is the appropriate customer service for the low-income "can't pay" customer, the enrollment process became the responsibility of the representatives in the Inquiry Unit at Collections. All Inquiry representatives received training that explained the LICAP program and delineated the eligibility criteria for the program and provided streamlined enrollment protocols.

The way the LICAP enrollment procedures currently work are that when a customer calls Collections, the representative automatically checks to see if the customer has received HEAP and has had at least one broken minimum payment agreement. If, according to a current financial statement, the customer has a negative monthly cash flow, the representative offers the customer the opportunity to participate in the LICAP program.

If the customer agrees to enroll in the payment plan, the system calculates the customer's monthly payment. The affordable monthly deferrals range from ten to thirty-five percent. The formula for calculating the deferral is based on the customer's current average budget amount and the negative monthly cash flow. These formulas were determined based upon actual program data for customers who had their payments individually negotiated. The intent is to obtain the maximum partial payment affordable without individually negotiating customer payments.

The collections representative is responsible for explaining the program and the customer's responsibility in the program. The collections staff members have a script they are supposed to follow. They tell the customer his/her percent discount, that he/she has to make payments, that there are energy services available, and that the workshop is mandatory if he/she is in the geographic area where the workshop is offered. Since the cost-effective provision of Energy Efficiency Services is dependent on a number of factors, and they are not provided to all participants, information about specific services is kept vague in order to avoid inappropriate customer expectations.

While the majority of Niagara Mohawk's low-income "can't pay" customers are arrears customers with broken payment agreements who can be readily identified through Collection Services, it is also true that many low-income "can't pay" customers may not be in arrears. In most of these cases, these payment-troubled customers are current on their account at the expense of some other life necessity such as adequate nutrition or necessary medication. This is especially true of payment-troubled senior customers. The Senior Energy Services Program works in conjunction with the County Offices for the Aging.

Other payment-troubled low-income customers may be those who previously were public assistance direct voucher customers who recently have had their public assistance cases closed. While they are no longer responsible for the arrears accumulated prior to going on public assistance, they may now find themselves underemployed with inadequate resources to pay all their monthly expenses including their full monthly Niagara Mohawk bill. Even though not in arrears, these customers would still be considered "payment-troubled" and, absent the services of LICAP, may soon become arrears customers. The Safety Net Energy Services Program is targeted to customers whose public assistance cases have been recently closed. These customers are referred by the Department of Social Services unit at Collections.

D. Program Energy Services

The LICAP program offers Energy Use Management Education to all program participants. Energy Use Management Education consists of a workshop for 45 to 60 percent of participants, or an education packet with worksheets and a video tape for participants who live outside the general area where the workshops are conducted.

All program participants receive energy efficiency lighting (three CFL's and one low wattage night light). Based on an analysis of pre-program usage from the Customer Service

System and individual household usage data obtained from an energy services questionnaire completed by each participant, approximately thirty to forty percent of program participants are identified as eligible for Energy Efficiency Services. The purpose of these services is to further reduce usage; make utility service more affordable; and enable participants to better manage their bill payment, reduce the arrears and retain service. Contractors who conduct inspections and audits provide additional Energy Use Management Education when performing tests and installing the energy efficiency measures.

1. Energy Use Management Education

All LICAP customers receive Energy Use Management Education. Customers who are in a workshop area are assigned to attend an energy services workshop. Customers who live outside a workshop area receive an energy use management video and energy education packet.

Energy Services Workshop

Each month eighteen to twenty workshops are conducted throughout the Niagara Mohawk system with an average of eight to twelve customers per workshop. Workshops are conducted by the energy services coordinators and by one private contractor. Each provider has a slightly different method for providing the workshop, but the general information provided includes:

- Energy Services Questionnaire: Customers are asked to fill out an energy services questionnaire that provides information on energy use and home conditions. These forms assist the coordinators in determining what services the customer will receive.

- Affordable Payment Plan: The provider responds to any questions customers have about the payment plan.

- Space heating: Recommendations for reducing space heating usage include tightening up the home, turning down the thermostat, dressing in layers, keeping room heat sources unblocked, and applying for WAP.

- Hot water use: Recommendations for reducing hot water usage include fixing leaks, reducing the hot water temperature, taking shorter showers, using faucet aerators, and doing laundry in cold water.

- Appliances: Recommendations for reducing appliance usage include checking on appropriate temperature ranges for refrigerators, replacing waterbeds with standard mattresses, turning off appliances when not in use- in particular multiple televisions, unplugging the second refrigerator or freezer, letting dishes air dry, and using fans instead of air conditioning as much as possible.

- Lights: Recommendations for reducing light usage include replacing incandescent bulbs with CFL's, turning off lights when not in use, matching wattage to use, using task lighting, and using natural light when possible.

- Materials order form: Customers are asked to fill out a materials order form. On the form they can request up to three CFL's (15 or 20 watt) and up to three 4-watt nightlights. They can also request a copy of a video entitled "Save Energy, Save Money".

- Action plan: Customers are given an action plan listing several actions that they can take in each area to save energy. They are encouraged to check off the actions that they plan to take at home. During the workshop, each customer is expected to identify actions that will bring usage to the level at which they are currently paying or can better afford.

Energy Use Management Packets

Customers who do not live in an area where workshops are provided or who are homebound are sent an Energy Use Management (EUM) packet. The EUM packet includes an energy education video that discusses the same material treated in the workshop, the energy services questionnaire, an EUM information sheet, and 4 CFL's. Customers are asked to fill out and return the energy services questionnaire so that the coordinators can determine what Energy Efficiency Services they may be eligible for.

On-Site Contractor Energy Use Education

In addition to the education provided during the workshop or in the video packet, contractors are required to educate customers when providing on-site Energy Efficiency Services. While education is a site-by-site process, driven by the flow of the audit and the customer's willingness to be involved in the process, education guidelines have been forwarded to contractors for the education to be done in the home.

The focus of the contractor EUM education includes

- Domestic water usage and turning down the domestic hot water thermostat
- Setting back the heating thermostat
- Multiple television usage
- Discontinued usage of the second refrigerator
- Lighting analysis and installation of CFL's

The contractor will note on a form to be submitted to the coordinator several key energy use management actions the customer has agreed to take.

2. Energy Efficiency Services

There are three types of energy services that a customer may receive:

- *Appliance Efficiency Program (AEP):* AEP customers may receive refrigerator and/or freezer replacement, waterbed mattress replacement, and electric hot water and/or clothes dryer fuel switching.

- *Weatherization Program:* Weatherization customers may receive heating system service and repairs, air sealing, duct sealing, and insulation.

- *Combination:* Combination customers receive a combination of AEP and Weatherization services.

At every audit and inspection, contractors install CFL's that the customer received at the workshop or with the video if not already installed, an average of 2-3 additional CFL's based on a lighting analysis, as well as low wattage night lights.

Customers are targeted for Energy Efficiency Services based upon information in the energy services questionnaire and the customer's usage history. Each coordinator reviews this information when determining whether the customer should be referred for AEP, Weatherization, or combination services.

a) AEP services

The criterion used to target customers for AEP services varies somewhat by coordinator, but the general guidelines are described below.

- *Usage threshold:* The average annual usage threshold is generally 6,000 kWh. Coordinators may use a higher or lower threshold depending on whether the customer has big energy users in the household.

- *Age of refrigerator:* Refrigerators that are ten to twelve years or older may be considered for on-site metering to determine whether they should be replaced.

- *Second refrigerator or freezer*: A second refrigerator or freezer poses additional opportunity for energy savings because it makes possible a two for one swap, i.e., replacing two refrigerators or freezers with a larger, more efficient refrigerator.

- *Electric hot water or electric dryers:* For customers with electric hot water tanks or clothes dryers who have natural gas or propane, coordinators will consider the possibility of a fuel switch. Coordinators look for the presence of natural gas or propane.

If the customer is targeted for AEP services, the customer receives an on-site inspection. The coordinators send the contractor the customer's energy services questionnaire and monthly usage data. The energy coordinator sends the customer a letter stating that the customer will be contacted by a particular contractor to determine whether he/she may be eligible for Energy Efficiency Services.

During the inspection, the contractor meters the customer's refrigerator and freezer, looks for waterbed and fuel switching opportunities, installs CFL's, wraps the hot water tank and/or pipes, provides a waterbed blanket if the customer is going to keep the waterbed, and provides energy education, including adjusting the hot water tank thermostat and the heating system thermostat.

Following the inspection, the contractor will provide the coordinator with estimates for recommended measures and fill out forms providing the coordinator with information about the work that they did during the inspection. These forms include:

- *AEP diagnostics and cost summary sheet:* This form contains results from refrigerator and freezer monitoring, two to five customer energy actions, hot water measures, lighting installations, waterbed pads and replacement mattresses recommended, and job costs.

- *Appliance application sheet:* This form lists the recommended refrigerator and waterbed replacements, and customer authorization for the replacement.

The coordinator reviews recommendations, discusses them with the contractor, and decides what work should be done based on the average per unit investment determined by the program. There is an average cost ceiling that was imposed in June 2002 to maximize the number of customers served within the existing SBC funding allocation. While coordinators are permitted to exceed the average in particular units, the cost ceiling must be maintained over all of the coordinators' jobs.

b) Weatherization services

The criterion used to target customers for Weatherization services varies somewhat by coordinator, but the general guidelines are described below.

- *Usage threshold:* Coordinators look for annual energy usage of 1,000 therms or more. This threshold may vary depending on whether the previous winter was warmer than normal and any other characteristic unique to the particular household. Therefore, customers with 850 or 890 therms and above may have potential for energy usage reductions. The threshold for electric heat is normally 1,000 or 2,000 kWh in the heating months or approximately 12,000 kWh over the year.

- *Existing insulation levels:* Coordinators look at the customer provided information on current insulation levels in the home. However, these data may not be helpful because the customer often does not have accurate information about insulation levels.

If the customer is targeted for Weatherization services, the customer receives an on-site audit. The energy coordinators send the contractor the customer's energy services questionnaire and monthly usage data. The energy coordinators send the customer a letter stating that the customer will be contacted by a particular contractor for Energy Efficiency Services. During the audit, the contractor conducts a blower door test, evaluates the existing insulation level, conducts health and safety tests, does a heating system service and minor heating system repairs, wraps the hot water tank, and provides air sealing and duct sealing work. Contractors provide similar on-site Energy Use Management Education as for AEP customers.

Following the audit, the contractor provides the coordinator with estimates for recommended measures and fills out several forms providing the coordinator with information about the work that was done during the inspection. These forms include:

- *Work scope description:* This sheet lists the inspection costs, describes the heating system and recommended repairs, lists the insulation costs, diagnostics and air sealing costs, miscellaneous repairs, the landlord in-kind contribution, and includes a job authorization.

- *House diagnostics worksheet:* This form describes the existing R-value throughout the home, the added R-value that is recommended, and the cost for the additional insulation. The form also includes a diagram of the home and pre and post air sealing blower door readings.

- *Heating system inspection sheet:* This form lists the heating system tests that were completed and recommendations for primary heating system repairs and replacements.

- *Water heating sheet/Secondary heating inspection sheet:* This form describes checks on the water heater and space heater, and recommendations for water heater and secondary heating system repairs or replacement.

The coordinator reviews these recommendations, discusses them with the contractor, and decides what work should be done based on the available budget. Weatherization customers may receive any or all of the following:

- *Heating system:* The contractors first examine the heating system to determine if there are any health and safety issues. Contractors may also do minor repairs,

balance the system, put in cold air returns, or make other modifications to get the heating system to work better. They evaluate the necessity for any further modification to improve the efficiency of the system.

- *Insulation:* Both the attic insulation and the sidewall insulation may be installed, although at times one or the other will be done, depending on the situation and cost projections.

- *WAP referral:* Niagara Mohawk can sometimes do some of the work and then make a referral to the WAP program for the balance of the Weatherization work.

3. Service Delivery Contractors

The energy coordinators are responsible for hiring and managing the service delivery contractors. Many of the contractors have been working for Niagara Mohawk for many years, and coordinators stated that new contractors are carefully screened and trained to provide services. The contractors must be technically skilled, work well with the customers, and provide the coordinators with the detailed information they require in order to determine what work should be performed on the customer's home.

The contractors are both small private companies and WAP agencies. The contractors do not compete for work based on price, as Niagara Mohawk has established a fixed set of prices for services that all of the contractors receive.

Contractors are assigned jobs based on the areas where they provide services, and their particular strengths. They are also assigned jobs in a way to even out the workflow among contractors. Some of the contractors provide their own insulation work, and some of the contractors use insulation subcontractors.

E. Customers Enrolled and Services Delivered by Type by Year

Table II-4 displays the number of customers attending the workshop and receiving the video in each program year.

Table II-4
Customers Receiving EUM Education

Program Year	Workshop Recipients	Video Recipients
7/01/02 - 6/30/03	1,768	1,713
7/01/03 - 6/30/04	1,720	2,163

Table II-5 displays the number of customers receiving Energy Efficiency Services each program year. Affordability payment plan customers are the majority of customers who receive Energy Efficiency Services.

Table II-5
Customers Receiving Energy Efficiency Services
By Category

Program Year	Affordability Payment Plan	Seniors	Safety Net	Total
7/01/02 - 6/30/03	1,122	136	90	1,348
7/01/03 - 6/30/04	827	373	18	1,218

Table II-6 displays the number of customers receiving Energy Efficiency Services by region. The shares between the regions are fairly consistent over time. Most of the customers receiving services in the Western region receive AEP or modified services because Niagara Mohawk provides only electric service in this territory. In the other five regions, customers receive AEP, Weatherization, or combination services.

Table II-6
Customers Receiving Energy Efficiency Services
By Region

Program Year	Capital	Central	Mohawk	Northeast	Northern	Western	Total
7/01/02 - 6/30/03	155	248	122	138	206	479	1,348
7/01/03 - 6/30/04	100	206	143	128	242	399	1,218

Table II-7 displays the number of customers receiving each type of energy efficiency service. Each year the majority of customers, about 75 percent, received AEP services. About half of the remaining customers each received weatherization and combination services.

Table II-7
Customers Receiving Energy Efficiency Services
By Type

Program Year	AEP	Weatherization	Combination	Total
7/01/02 - 6/30/03	1030	177	142	1,349
7/01/03 - 6/30/04	898	179	140	1,217

Table II-8 displays the average investment by type of energy efficiency service. AEP investments ranged from $911 to $997, weatherization investments ranged from $1523 to $1529, and combination investments ranged from $1692 to $1779.

Table II-8
Average Investment
By Type of Energy Efficiency Service

Program Year	AEP	Weatherization	Combination
7/01/02 - 6/30/03	$997	$1,523	$1,779
7/01/03 - 6/30/04	$911	$1,529	$1,692

Table II-9 displays the number of refrigerators, freezers, and waterbed mattress replacements distributed in each program year.

Table II-9
Refrigerators, Freezers, and Waterbed Mattress Replacements Distributed

Program Year	Refrigerators	Freezers	Waterbed Mattress Replacements
7/01/02 - 6/30/03	899	197	52
7/01/03 - 6/30/04	734	214	38

Table II-10 displays the number of CFL's and nightlights distributed in each program year. Customers who attended the workshop received an average of 4 CFL's, customers who received the video received 3 CFL's, and customers who received Energy Efficiency Services received an additional 2 CFL's. On average, customers received about 4 CFL's in each program year. Customers received an average of one nightlight in each year of the program.

Table II-10
CFL's and Nightlights Distributed

Program Year	CFL's	Nightlights
7/01/02 - 6/30/03	9,360	3,301
7/01/03 - 6/30/04	11,458	3,210

Table II-11 displays the number of hot water heater fuel switches. One hundred and eight hot water heaters were replaced in the first program year and 80 were replaced in the second program year.

Electric hot water tanks were replaced with new electric hot water tanks where they were found to have leaks that resulted in high usage and a fuel switch was not possible.

Table II-11
Electric Hot Water Tank Fuel Switches

Program Year	To Natural Gas	To Propane	To Electric	Total
7/01/02 - 6/30/03	32	37	39	108
7/01/03 - 6/30/04	24	13	43	80

Table II-12 displays the number of electric dryer fuel switches provided in each program year. There were 54 in the first program year and 52 in the second program year.

Table II-12
Electric Dryer Fuel Switches

Program Year	To Natural Gas	To Propane	Total
7/01/02 - 6/30/03	39	15	54
7/01/03 - 6/30/04	43	9	52

F. Quality Control Procedures

The coordinator in each area is responsible for managing and conducting quality control for Energy Efficiency Services. Therefore, the type of quality control varies by the coordinator, depending on his or her experiences with service delivery contractors.

The principle quality control procedures used by the coordinators include:

- For AEP, one of two methods is used:

  1) All customers receive a quality control questionnaire. Response rates vary with customer demographics.

  2) Twenty percent of customers receive a phone survey.

- For Weatherization, on-site inspections are conducted for about twenty percent of customers receiving services.

Whenever quality control identifies a problem with the services provided, the coordinator arranges to have the problem corrected, and normally follows up with an on-site visit to verify that the problem has been corrected. Weatherization jobs are failed for insulation that leaks through the floor or through the walls or for inadequate insulation. There are very few problems and callbacks with the Weatherization and AEP programs.

In addition to the quality control that is conducted by Niagara Mohawk, some of the small contractors who subcontract their insulation work return to the home and conduct a blower door test. These smaller contractors take responsibility for the work done by the subcontractors. If they are not satisfied, they send their subcontractors back to the home.

III. LICAP Process Evaluation

The LICAP Process Evaluation examined all aspects of the program. Interviews were conducted with key program staff and managers, interviews were conducted with program participants, contractors were surveyed, and program data were analyzed. Findings relate to recruitment and intake, program management, and service delivery.

A. Program Performance Compared to Objectives

Table III-1 indicates the time period, respective cumulative goals and performance for the two-year time period addressed in this report. This table shows that performance exceeded goals in both program years.

Table III-1
Customers Receiving LICAP Services
Compared to Goals

Program Year	Workshops		Energy Efficiency Services	
	Goal	Actual	Goal	Actual
7/01/02 - 6/30/03	210	221	1,130	1,348
7/01/03 - 6/30/04	210	215	1,130	1,217

B. Recruitment/Intake

Strategies used for program recruitment and intake are important for the success of the program because they determine whether the desired customers will be targeted by the program and form the customer's original expectations for program benefits and requirements. Most of the recruitment and enrollment for the LICAP program is done through the Collections Department, when customers in arrears call for a payment arrangement. However, during the period of analysis, customers were also referred to the Collections Department by Niagara Mohawk's consumer advocates, by the County Offices for the Aging, and by other community agencies. The two more recent groups of targeted customers, potential Senior Energy Services Program and Safety Net Energy Services Program participants, are directed to mail in applications that are sent to them by consumer advocates, the County Offices for the Aging, or the program based on referral lists submitted by the Department of Social Services unit of Collections. This section of the report discusses the evaluation research, findings, and recommendations relating to these methods of recruitment and intake.

1. Evaluation Activities

Five different evaluation activities provided information on recruitment and enrollment.

- *Interviews with coordinators:* Interviews with Niagara Mohawk's coordinators provided information on the methods of recruitment that are used, and customer knowledge of the program through the enrollment process.

- *Interviews with Collections staff:* Interviews with Niagara Mohawk's Collections staff provided information on how customers are targeted for the program, the procedures used for enrolling customers in the program, information provided to customers at the time of enrollment, and barriers to enrolling customers in the program.

- *Interviews with Niagara Mohawk consumer advocates:* Interviews with Niagara Mohawk's consumer advocates provided information on the role that consumer advocates played in program recruitment, alternative methods for customers to be referred to the program, and barriers to enrolling customers in the program.

- *Survey of service delivery contractors:* A mail survey of service delivery contractors provided information on the contractors' ability to serve referred clients.

2. Findings

Findings in this section relate to Niagara Mohawk's unique approach to targeting customers for the LICAP program. Both income and expenses are examined for customers targeted for the payment plan. Both energy usage and appliance and housing stock are analyzed for customers targeted for Energy Efficiency Services.

a) The LICAP Program efficiently and effectively targets payment-troubled high use customers

The LICAP program managers have devised effective procedures for targeting customers for the program. Niagara Mohawk screens customers for a payment-troubled status by looking at their income and expenses, as well as a failure to meet previous payment agreements. The program then uses the information from the energy services questionnaire, previously distributed to participants, to target high use customers with other characteristics that make them good candidates for energy use reductions.

b) Potential barriers to program participation

The Collections Department has the responsibility for determining customer eligibility for the LICAP program and enrolling eligible customers in the program. One potential barrier to participation in the program is if Collections representatives do not identify eligible customers and refer these customers to the

LICAP program. The recruitment and enrollment process was not observed as part of the current evaluation.

C. Program Management

In addition to the department manager, there are five program staff responsible for the day to day management of the LICAP energy services. Each program coordinator is assigned to a particular geographic territory, and is responsible for all aspects of energy services delivery. The responsibilities include providing EUM workshops, reviewing energy services questionnaires and customer usage histories to determine which customers should receive AEP inspections or Weatherization audits, reviewing contractor recommendations and estimates for service delivery and determining what work should be done on the home, recruiting and training contractors, and conducting quality control on completed work. This section of the report discusses the evaluation research, findings, and recommendations relating to program management.

1. Evaluation Activities

Four different evaluation activities provided information on program management.

- *Interviews with the program manager:* Interviews with the program manager provided information on the program management structure, responsibilities of the coordinators, and challenges in managing the complex LICAP program.

- *Interviews with program staff:* Interviews with the staff provided information on their areas of responsibility for the program, their approach to all of their responsibilities, and challenges in providing program services.

- *Survey of service delivery contractors:* A mail survey of service delivery contractors provided information on how the coordinators manage and direct their work.

- *Review of program data*: Review of program data provided information on the units completed in the different regions of Niagara Mohawk's territory, costs of those units, and the types of jobs done.

2. Findings

Niagara Mohawk has experienced program managers and staff that efficiently and effectively run the program. They continue to streamline procedures to increase efficiency. Finding service delivery contractors can be challenging, given the high skill requirements and the competing demands for their services. Niagara Mohawk has continually updated and improved their program, and has updated program documentation to reflect these changes. Program databases have been updated to provide information needed for comprehensive evaluation of services.

a) Experienced staff

The Niagara Mohawk LICAP program is fortunate to have a group of highly experienced, knowledgeable, and qualified coordinators to manage the program. Each has been working as a coordinator for at least ten years and has developed expertise in serving low-income households and managing the delivery of energy services. Contractors and consumer advocates have commented on their knowledge and expertise. Customers are very enthusiastic about the workshops they provide.

b) Different methods used by staff

The Niagara Mohawk program manager and coordinators meet regularly to discuss service delivery issues and procedures. However, perhaps due to the high level of experience that coordinators have in managing the LICAP program, the staff have some varying methods for managing the program and some may place different emphasis on criteria for determining energy services delivery. Some of the differences between the coordinators are appropriate, due to differences in the populations and housing stock in the various regions, and some is due to differences in contractor styles and skills. The extent to which the differences result in different program outcomes is unclear.

c) Energy services questionnaire

Every participant receives an energy services questionnaire through the mail or when attending the workshop. Program staff report that approximately seventy-five percent of mailed questionnaires are completed and returned. The energy services questionnaire is an efficient means to target customers with energy savings potential for Energy Efficiency Services. This questionnaire provides valuable information about the customer's energy usage, appliance stock, and housing stock to target customers who will most benefit from Energy Efficiency Services.

d) Program paperwork

Coordinators have noted that there is a tremendous amount of paperwork associated with the delivery of the program's energy services. They continue to look for ways to streamline procedures and make program management more efficient.

e) Lack of contractors

One of the major challenges in providing program services that was noted by the coordinators was the difficulty in finding new contractors to serve the required number of customers. WAP agencies are sometimes qualified and interested in providing services under the LICAP program, but they are often overwhelmed with their WAP work and other priorities. Some private contractors have focused on Niagara Mohawk's work, but others are drawn towards more lucrative private sector work. NYSERDA's large volume of work is another source of competition for the contractors.

f) New procedures manual

The previous evaluation noted that a detailed program procedures manual had not been developed for the program. Since that time, a new manual has been developed. This manual includes:

- An overview of LICAP
- A workshop outline and related correspondence
- In-Home EUM education procedures and forms
- Energy services questionnaire and related correspondence
- AEP forms, correspondence, and field manual
- Weatherization forms, correspondence, and field manual

This is a well-organized and complete manual that effectively documents the LICAP program and all of its elements.

g) Program database

OLLI contains detailed data on program services received by each customer. The database includes information on the package of Energy Efficiency Services the customer received, i.e., Weatherization, AEP, or a combination of the two, and the total cost of the job. Additionally, as a result of recommendations in the 2002 evaluation, the database includes individual measures provided including:

- New refrigerator
- Energy usage of the old and new refrigerator
- New freezer
- Energy usage of the old and new freezer
- Two-for-one swap
- Waterbed mattress replacement
- Waterbed mattress cover
- Hot water tank fuel switch, and type of fuel switched to
- Hot water tank wrap
- Dryer fuel switch, and type of fuel switched to
- Cost of insulation work
- Cost of air sealing work
- Cost of furnace work

D. Contractor Survey

Service delivery is furnished by over twenty service delivery contractors. These contractors provide AEP and Weatherization services. Additional contractors are used for refrigerator delivery and are sometimes subcontracted for insulation or other types of work.

APPRISE, with input from Niagara Mohawk's LICAP staff, designed a contractor survey instrument. The survey was designed to be completed independently by the contractors, or via telephone with an APPRISE staff member. The survey was conducted in July 2003 and twenty contractors provided responses. This section summarizes findings from the contractor survey.

- *Contractor type and experience:* Of the twenty providers who completed surveys, 11 providers are community action agencies, and 9 are private contractors. Most contractors have 10 or more years of experience and are accustomed to providing LICAP as a sizeable percentage of their business.

- *Contractor services:* Between August 2002 and July 2003, contractors served 227 homes with weatherization services, 919 homes with AEP services, and 146 homes with combined weatherization and AEP services. In areas where Niagara Mohawk supplies both gas and electric to customers, private contractors provide services to far more homes than community action agencies did.

- *Ability to serve referred clients:* Contractors, on average, were able to serve 90 percent of referred customers. The greatest barrier to providing services was an inability to contact the clients.

- *Helpfulness of program procedures:* Most contractors rated forms and procedures for the program as very helpful or helpful.

- *Number of days to complete work*: The average number of days to complete audits or inspections was 81 days for weatherization jobs, 25 days for AEP jobs, and 44 days for combination jobs. The average number of days contractors reported to complete service delivery was 30 days for weatherization services, 21 days for AEP fuel switches, and 33 days for combination services.

- *Impact of the workshop and video on customer knowledge:* Contractors responded that the workshop was more useful than the video in helping the client understand the program and ways to reduce energy use and costs.

- *Ability of the contractors to expand*: Most contractors said that, if given the opportunity, they could expand the number of clients served. About half said they could expand their service delivery territory. In areas where Niagara Mohawk supplies both gas and electric to customers, private contractors reported being able to expand services to 1275 additional homes. In comparison, community action agencies reported being able to expand services to only 98 additional homes.

- *Satisfaction with reimbursement rates*: Most contractors were satisfied with reimbursement rates. Some dissatisfaction was expressed related to air sealing rates, insulation rates, and mileage reimbursement.

- *General comments*: Many contractors expressed pride and strong recognition of the value in serving low-income customers. Several contractors directly stated their desire to continue working with the program as a contractor. Some contractors noted that the Niagara Mohawk LICAP program was particularly valuable because of the customer education offered through the workshops.

E. Customer Survey

In August 2003, APPRISE conducted telephone surveys with 592 program participants who were received LICAP services between July 2002 and February 2003. The LICAP client survey was designed to measure the following:

- Household demographics
- Client understanding of LICAP
- Financial obligations of clients
- Impact of LICAP on energy bills
- Impact of LICAP on the clients' lives
- Client satisfaction with LICAP
- Impact of energy education on energy use behavior
- Other impacts of LICAP
- Effectiveness of LICAP measures

The findings from the survey are summarized below.

- *Survey Respondents Profile*
  Twenty-two percent of households reported that they have one or more household members over the age of 60. Forty-three percent of LICAP households reported at least one disabled household member. Sixty-four percent reported one or more household members under the age of 18.

  Thirty four percent of LICAP customers earn less than $10,000 annually, and another 34 percent earn between $10,000 and $20,000 annually. Forty-seven percent received wages or self-employment income, 44 percent said they received non-cash benefits such as food stamps or subsidized housing, 34 percent said they receive public assistance, and 20 percent received retirement income. In addition, 58 percent reported that they currently receive benefits from HEAP.

- *Understanding the Program*
  Eighty-eight percent of respondents reported that they had a good understanding of LICAP. When asked about their responsibility in the program, about half of the clients said it was to make on time monthly payments and the same percentage reported that it was to reduce energy usage. Thirty-five percent of Elderly and Safety Net clients reported that they did not understand their responsibility, compared to less than 3 percent for the rest of the sample.

Forty-four percent of clients reported that Niagara Mohawk's responsibility was to reduce energy bills or make energy bills more affordable, and 21 percent reported that Niagara Mohawk's responsibility is to reduce energy use. Eighteen percent of respondents reported that they did not know what Niagara Mohawk's responsibility was.

Customers were asked to report the most important benefit of the Program. Thirty-eight percent said the most important benefit was lower energy bills and 23 percent said it was energy education.

- *Financial Obligations*
  The evidence is overwhelming that LICAP was successful in helping clients better meet their financial needs. Seventy-two percent of clients said that paying their monthly energy bill was very difficult before receiving Program services, and only 12 percent reported the same difficulty after receiving services. LICAP clients reported that they have to forego or delay spending on necessities and other bills less often since receiving Program services. For example, 73 percent of respondents reported that they have to forego or delay spending money on food before receiving Program services, and 31 percent reported this as a problem since receiving services.

- *Program Impact*
  Based on client responses, LICAP was very successful at helping customers reduce energy use, making energy bills affordable, and improving the comfort of their homes.

  Respondents reported that LICAP was successful in helping them reduce their energy use and bills. Seventy-three percent of clients reported that they reduced their overall energy use, and 55 percent reported that they noticed a decrease in their energy bill since participating in the Program.

  Sixty-seven percent of respondents said that the comfort of their home is much better or somewhat better since receiving services, and 30 percent reported that the comfort of the home had not changed. Weatherization clients and AEP clients were the most likely to report that the comfort of their home was somewhat better or much better, and video only clients were least likely to report that the comfort in their home had changed for the better.

- *Satisfaction with Contractor and Program*
  Client satisfaction with the contractors and the Program was very high. Eighty-nine percent of respondents reported that the contractor was very knowledgeable about energy use. Ninety-eight percent reported that the contractor spoke in clear and straightforward language. Ninety-five percent said that the contractor was very courteous and professional. Ninety-seven percent reported that the contractor left their home in as clean a state as it was when they arrived.

Sixty-eight percent of clients reported being very satisfied with the Program, and 24 percent said that they were somewhat satisfied. Only seven percent of clients reported dissatisfaction with the Program.

- *Energy Education and Actions:*
  Energy education was a positive and welcome benefit for LICAP customers. In addition, energy education helped customers take concrete actions to reduce energy use. However, video only education was not nearly as successful as workshops and in-home energy education.

  Ninety percent of LICAP clients reported that the program provided enough learning opportunities. However, video only clients were most likely to report that the program did not provide enough learning opportunities. Moreover, only 55 percent of video only customers found the education to be very helpful, while 82 percent of workshop clients and 71 percent of those receiving in-home education found those educational efforts to be very helpful.

  Ninety-six percent of clients who attended the workshop reported taking some action to reduce energy use as a result of the workshop. Eighty-nine percent of those receiving contractor visits, and 87 percent of those receiving video packets in the mail reported taking action as a result of the education they received.

  LICAP households that attended the workshop, watched the video, or received a contractor home visit most commonly reported that, as a result of the education they received, they have acted to reduce energy by: turning lights off when not needed, installing energy efficient lights or CFLs, turning down the thermostat, making weatherization improvements, turning off appliances when not in use, and setting the water heater temperature lower (or to 120 degrees).

- *Measures*
  Forty-five percent of clients reported that they received compact fluorescent light bulbs from the Program in the mail.

  Based on the responses, contractors did not consistently provide an estimate of savings for all measures installed. In addition, clients were not always able to notice savings from the measures that they received from the Program.

IV. LICAP Energy Usage Impacts

This section of the report estimates the effect of the energy services delivered on the customers' energy usage and energy bills. Due to the short timeline between the end of the program year and the report deadline, this report utilizes estimates of savings from a previous analysis to estimate savings for all participants over the two program years. Additional estimates are provided for individual retrofits that comprise the overall AEP services.

A. Usage Impact Methodology

As required under the Commission's order regarding the Systems Benefits Charge, this evaluation report, due to be submitted by September 1, 2004, covers program operations through June 30, 2004. Due to the short time period between the program year ending and the report deadline, this report uses modeling and engineering estimates to calculate impacts of the program, rather than actual bill analysis.

In order to estimate usage impacts from the program services delivered between July 1, 2002 and June 30, 2004, we use results from a previous study of actual customer bills conducted with a subset of these program participants. APPRISE conducted a "cohort study" of all households enrolled in the LICAP program between October 26, 1998 and December 31, 1998. There were 704 households enrolled in the program during this time period.

APPRISE analyzed actual usage and billing data for these households. The baseline period for data analysis was January 1, 1998 through December 31, 1998. The follow-up period for data analysis was June 1, 1999 through June 30, 2000. Due to conversion to a new billing system in February 1999, problems with billing and payment data were experienced during this time period.

Of the 704 households that enrolled in the LICAP program in the fall of 1998, 687 were found in the follow-up data, and 447 had usage data available in the follow-up year. However, only 120 of these households had baseline and follow-up usage data with at least 6 non-estimated bills and at least 2 non-estimated heating bills.

The usage estimation that was done used PRISM in order to weather-normalize the energy usage for heating customers. We also used a baseload weather normalization process for electric non-heating and combination customers. These savings estimates are used to estimate savings for program participants in the four program years. Additionally, engineering estimates are used to project savings for individual energy services.

B. kWh and Therm Impacts by Service Type

Estimates of savings for each type of service and for individual components of the AEP services are reported in this section.

1. Annual Energy Services Savings

Table IV-1 displays savings estimates from the analysis for the 1998 cohort for households receiving AEP or Weatherization services. AEP savings were estimated separately for households that received the video and the workshop, and Weatherization savings were estimated jointly due to the sample size. A weighted average between the findings from the full and restricted sample is calculated.[2] A weighted average of AEP and workshop and AEP and video savings to be used in the savings estimates for this report.

Weatherization customers achieve kWh savings based on attendance at the workshop and receipt of CFL's. The 1998 report estimated that customers saved 513 kWh or 184 kWh as a result of attending the workshop, depending on whether the full sample or the restricted sample is used. The weighted average of these estimates is 433 kWh, and this is the estimate of savings used in this report. On average fifty-three percent of customers attended the workshop, resulting in an average workshop savings of 229 kWh for Weatherization customers.

Customers who received Weatherization are calculated to receive an average of 5.53 bulbs.[3] Each bulb is estimated to save 50 watts and be used for four hours per day, saving 73 kWh per year. Therefore, the total CFL savings per Weatherization customer is calculated to be 404 kWh per year. Total kWh savings for Weatherization customers are estimated to be 633 kWh per year.

Table IV-1
Estimated Annual Savings From the 1998 Cohort

<table>
<tr><th></th><th colspan="2">AEP and Video</th><th colspan="2">AEP and Workshop</th><th colspan="3">Weatherization (Workshop or Video)</th></tr>
<tr><th></th><th>#</th><th>kWh Savings</th><th>#</th><th>kWh Savings</th><th>#</th><th>Therm Savings</th><th>kWh Savings</th></tr>
<tr><td>Full Sample</td><td>89</td><td>1191</td><td>40</td><td>3162</td><td>23</td><td>203</td><td rowspan="4">633</td></tr>
<tr><td>Restricted Sample</td><td>14</td><td>1355</td><td>12</td><td>1548</td><td>9</td><td>121</td></tr>
<tr><td>Full and Restricted Weighted Average</td><td colspan="2">1213</td><td colspan="2">2790</td><td colspan="2" rowspan="2">180</td></tr>
<tr><td>Workshop and Video Average</td><td colspan="4">2049</td></tr>
</table>

[2] The full sample is defined as all customers who had usage data available in the baseline and follow-up years. The restricted sample is defined as customers who had at least 6 non-estimated usage periods and at least 2 non-estimated heating periods in the baseline and follow-up years.

[3] This calculation is based upon the fact that workshop customers receive 4 bulbs on average, video customers receive 3 bulbs on average, and Weatherization customers receive an additional 2 bulbs. Fifty-three percent of customers attend the workshop.

Table IV-2 displays the adjustment in estimated savings for AEP and Weatherization services based on increases in investments since the 1998 cohort was served. Savings estimates are increased by half the percentage that investments that have increased.

Table IV-2
Increases in Expenditures on Efficiency Services and Estimated Savings

Program Year	AEP			Weatherization		
	Average Investment per Recipient	Increased Investment Over 1998	Annual kWh Savings Per Participant	Average Investment per Recipient	Increased Investment Over 1998	Annual Therm Savings Per Participant
7/01/02 - 6/30/03	$997	90%	2,974	$1,523	71%	244
7/01/03 - 6/30/04	$911	74%	2,806	$1,529	72%	244

Combination customers receive AEP and weatherization services. Average expenditures for these customers are significantly lower than the sum of average AEP and average weatherization expenditures. However, the joint delivery of services provides for cost savings on the audit/inspection visit. Therefore, we adjust savings by the ratio of average combination investment level to average AEP plus weatherization investment level minus $250. Table IV-3 displays the results of this calculation.

Table IV-3
Savings Estimates for Combination Services

Program Year	Combination				
	Average Investment per Recipient	Average AEP + WX Investment - $250	Percentage of AEP+WX Expenditures	Annual kWh Savings Per Participant	Annual Therm Savings Per Participant
7/01/02 - 6/30/03	$1,779	$2,270	78%	2,331	191
7/01/03 - 6/30/04	$1,692	$2,190	77%	2,168	189

Table IV-4 displays estimated annual savings for AEP, Weatherization, and Combination service delivery.

Table IV-4
Estimated Annual Savings from Energy Efficiency Services

Program Year	AEP			WX				
	#	kWh Savings		#	Therm Savings		kWh Savings	
		Per Customer	Total		Per Customer	Total	Per Customer	Total
7/01/02 - 6/30/03	1030	2,974	3,063,001	177	244	43,159	633	112,041
7/01/03 - 6/30/04	898	2,806	2,519,468	179	244	43,756	633	113,307
TOTAL	1,928	2,895	5,582,469	356	244	86,915	633	225,348

Program Year	Combination					TOTAL Annual Savings				
	#	kWh Savings		Therm Savings			kWh Savings		Therm Savings	
		Per Customer	Total	Per Customer	Total	#	Per Customer	Total	Per Customer	Total
7/01/02 - 6/30/03	142	2,331	330,939	191	27,136	1,349	2,599	3,505,981	52	70,295
7/01/03 - 6/30/04	140	2,168	303,471	189	26,440	1,217	2,413	2,936,246	58	70,196
TOTAL	282	2,250	634,410	190	53,576	2,566	2,511	6,442,227	55	140,491

2. Disaggregated Annual AEP Savings

The next set of tables breaks down AEP savings into savings from the workshop, refrigerators, freezers, CFL's, waterbed replacements, hot water tank fuel switches, and dryer fuel switches. The purpose of this disaggregation is to identify the sources of the AEP savings calculated in the previous section and to validate the projection methodology that was used.

The 1998 report estimated that customers saved 513 kWh or 184 kWh as a result of attending the workshop, depending on whether the full sample or the restricted sample is used. The weighted average of these estimates is 433 kWh, and this is the estimate of savings used in this report. These savings were not statistically significant given the wide variation in savings. Table IV-5 displays the number of customers attending the workshop and the estimated savings. Based on the percentage of customers who received workshop education each year, we estimate the number of customers who received workshops and AEP or Combination services, and we calculate the savings for this group of customers.

Table IV-5
Estimated Annual Savings from Workshops

	All Workshop Recipients		Workshop Recipients who Received AEP or Combination Services	
Program Year	**Number**	**kWh Savings**	**Number**	**kWh Savings**
7/01/02 - 6/30/03	1,768	765,544	595	257,747
7/01/03 - 6/30/04	1,720	744,760	460	199,089
TOTAL	3,488	1,510,304	1,055	456,836

Table IV-6 displays savings calculations for refrigerators. Average pre-usage is based upon analysis of a sample of Niagara Mohawk's replacements. The pre-usage statistics are high because they factor in some two for one switching that Niagara Mohawk has been able to achieve.[4] Average post usage is based upon the standard DOE test.

Table IV-6
Refrigerator Energy Saving Analysis
Annual kWh Saving Estimates

	15 or 16 Cubic Feet	18 or 19 Cubic Feet	21 Cubic Feet
Average kWh Pre-usage	1,608	1,809	1,777
Post kWh rating	398	434	467
Estimated kWh savings	1,210	1,375	1,310

Table IV-7 displays the estimated savings from refrigerator replacements. Total annual savings from refrigerators is estimated to be 2,156,390.

Table IV-7
Estimated Annual Savings from Refrigerators

Program Year	15 or 16 Cubic Feet		18 or 19 Cubic Feet		21 Cubic Feet		TOTAL	
	#	kWh Savings	#	kWh Savings	#	kWh Savings	#	kWh Savings
7/01/02 - 6/30/03	169	204,490	431	592,625	299	391,690	899	1,188,805
7/01/03 - 6/30/04	143	173,030	313	430,375	278	364,180	734	967,585
TOTAL	312	377,520	744	1,023,000	577	755,870	1,633	2,156,390

[4] Pre-usage of old refrigerators is based on two random samplings of meterings for previous program years.

Table IV-8 displays annual kWh savings estimates for freezers. The estimated savings from a 9 cubic foot replacement is 1,131 kWh, and the estimated savings from a 14 cubic foot replacement is 1,469.[5]

Table IV-8
Freezer Savings Analysis
Annual kWh Savings Estimates

	9 Cubic Feet	14 Cubic Feet
Average kWh Pre-usage	1,453	1,911
Post kWh rating	322	442
Estimated kWh savings	1,131	1,469

Table IV-9 displays estimated savings from freezer replacements. The total estimated savings from freezer replacements is 563,537 kWh.

Table IV-9
Estimated Annual Savings From Freezers

Program Year	9 Cubic Feet		14 Cubic Feet		TOTAL	
	#	kWh Savings	#	kWh Savings	#	kWh Savings
7/01/02 - 6/30/03	58	65,598	139	204,191	197	269,789
7/01/03 - 6/30/04	61	68,991	153	224,757	214	293,748
TOTAL	119	134,589	292	428,948	411	563,537

Table IV-10 displays the number of CFL's provided to AEP or Combination recipients in each program year and the estimated savings from these CFL's. This analysis assumes that each CFL reduces the watts used by 50 and that each CFL is used four hours per day. This yields an average savings of 73 kWh per CFL per year. Total annual savings from CFL's are 887,315 kWh.[6]

[5] Pre-usage of old freezers is based on a random sampling of data collected from in-home metering of 40 units. Post kWh ratings of new freezers is based on the standard DOE test.
[6] Niagara Mohawk uses a 15 watt CFL replacement for a 60 watt incandescent and a 20 watt CFL replacement for a 75 watt incandescent.

Table IV-10
Estimated Annual Savings from CFL's

	CFL's	
Program Year	**Number of CFL's**	**kWh Savings**
7/01/02 - 6/30/03	6,446	470,558
7/01/03 - 6/30/04	5,709	416,757
TOTAL	12,155	887,315

Table IV-11 displays estimated annual savings from waterbed mattress replacements. Savings are estimated to be 1300 kWh per year per replacement. Total annual savings from waterbed replacements are 117,000 kWh.[7]

Table IV-11
Estimated Annual Savings from Waterbed Mattress Replacements

Program Year	**Mattress Replacements**	**kWh Savings**
7/01/02 - 6/30/03	52	67,600
7/01/03 - 6/30/04	38	49,400
TOTAL	90	117,000

Table IV-12 displays the annual savings from electric hot water tank fuel switches. Savings from switches to natural gas or propane are estimated to be 4,800 kWh per year. Natural gas, propane, or oil usage will have to be factored in to arrive at net bill savings. Switches to new electric hot water heaters are due to significant leaks. These new tanks are estimated to save 2,000 kWh per year.[8]

[7] Waterbed mattress replacement savings are based on a study done by Duquense Light Co. in Pittsburgh, Pennsylvania, cited in Home Energy Magazine, September/October 1994.

[8] Pre-usage Estimates for electric hot water are based on the American Council for an Energy-Efficient Economy which states that the most efficient electric hot water heaters are rated between 4,624 kWh and 4,671 kWh per year (Consumer Guide to Energy Savings, 7th Edition). Since almost all hot water tanks replaced in the program are considerably older, some loss of efficiency was factored in and an estimate of 4,800 kWh per year was used. A leaking hot water tank was metered before and after replacement. The metering showed an estimated savings of 3,674 kWh per year. However, since hot water tank leaks have such a wide range of volume, a more conservative estimate of 2,000 kWh per year was used.

Table IV-12
Estimated Annual Savings from Electric Hot Water Tank Fuel Switches

Program Year	To Natural Gas or Propane		To Electric		TOTAL	
	Number	kWh Savings	Number	kWh Savings	Number	kWh Savings
7/01/02 - 6/30/03	69	331,200	39	78,000	108	409,200
7/01/03 - 6/30/04	37	177,600	43	86,000	80	263,600
TOTAL	106	508,800	82	164,000	188	672,800

Table IV-13 displays estimated savings from electric dryer fuel switches. Niagara Mohawk only replaces dryers if the customer does at least 7 loads of laundry per week. Therefore, the average number of loads per week is assumed to be 9 for the dryer fuel switches completed. Savings are estimated as 4.4 kWh per load, or 2059 kWh per year. Natural gas or propane costs will need to be added in to arrive at net bill savings.[9]

Table IV-13
Estimated Annual Savings from Electric Dryer Fuel Switches

Program Year	Fuel Switches	kWh Savings
7/01/02 - 6/30/03	54	111,186
7/01/03 - 6/30/04	52	107,068
TOTAL	106	218,254

Table IV-14 displays the breakdown of savings from the measures provided to AEP customers. The average savings per participant is also calculated. Savings per participant are lower than those calculated based on the analysis of the 1998 cohort. This is due to the fact that savings from some measures are not included here, such as waterbed mattress covers, hot water tank wraps, and hot water temperature turndowns, as well as additional education provided by the contractors when they visit the home.

[9] According to Department of Energy Data, Electric Dryer Wattage ranges from 1800 to 5000 Watts, from apartment size dryers to larger family size. Since our dryer replacements occur in homes with average to large family sizes, an average of 4400 Watts was used and an average hour of drying time, resulting in an estimate of 4.4 kWh per load.

Table IV-14
Estimated Annual Savings Per Customer
By Measure

Program Year	Workshop kWh Savings	Refrigerator kWh Savings	Freezer kWh Savings	CFL kWh Savings
7/01/02 - 6/30/03	257,747	1,188,805	269,789	470,558
7/01/03 - 6/30/04	199,089	967,585	293,748	416,757
TOTAL	456,836	2,156,390	563,537	887,315

Program Year	Waterbed Mattress Replacement kWh Savings	Hot Water Tank kWh Savings	Dryer kWh Savings	Total kWh Savings	# of AEP and Combination Recipients	kWh Savings Per Participant
7/01/02 - 6/30/03	67,600	409,200	111,186	2,774,885	1,172	2,368
7/01/03 - 6/30/04	49,400	263,600	107,068	2,297,247	1,038	2,213
TOTAL	117,000	672,800	218,254	5,072,132	2,210	2,295

3. Total Program Energy Savings

This section calculates total program energy savings. These savings are based upon the estimates from Table IV-3 that were validated in the previous section.

Table IV-15 displays the calculation of measure life for AEP savings. The weighted average is 13.52 years.

Table IV-15
Calculation of AEP Savings Life

Measure	Percent of Total Annual AEP Savings	Measure Life
Workshop	9%	5
Refrigerator	43%	19
Freezer	11%	19
CFL	17%	5.5
Waterbed mattress replacement	2%	7
Hot water heater fuel switch	13%	10

Measure	Percent of Total Annual AEP Savings	Measure Life
Dryer fuel switch	4%	10
Weighted AEP Measure Life	13.52	

Table IV-16 displays total program savings. AEP savings are estimated to last 13.52 years as calculated in the above table, and Weatherization savings are estimated to last ten years. Additionally, CFL savings and workshop savings for those customers who received these services but who did not receive additional Energy Efficiency Services are included in the table below.

Table IV-16
Total Program Savings

Type	Total Annual Savings	Measure Life	Total Lifetime Savings
Weatherization therms	140,491	10	1,404,908
AEP and Weatherization kWh	6,442,227	13.52	87,095,539
Additional CFL kWh savings	632,399	5.5	3,478,195
Additional workshop kWh savings	1,053,468	5	5,267,342
Total kWh savings			95,841,075

C. *kW Savings*

Peak reduction estimation is conducted according to NYSERDA's appendix to their Final Report on the Initial Three Year SBC Program. Applying NYSERDA'S methodology, a factor of 6,556 kWh/kW is applied to the energy savings attained from refrigerator installation and a factor of 7,634 kWh/kW is applied to the energy savings attained from CFL's. The total kW saved by the program is calculated to be 796. There are peak reductions resulting from other measures provided by the program, but a methodology for determining the kW savings has not yet been determined.

Table IV-17
Calculation of kW Savings

Measure	Total Annual kWh Savings	Total kW savings
Refrigerators and Freezers	2,719,927	415
CFL's	1,519,714	199

Measure	Total Annual kWh Savings	Total kW savings
TOTAL	4,239,641	614

D. Customer Bill Savings by Service Type

All savings in this section are calculated based upon estimated savings from the 1998 cohort, as shown in Table IV-3.

Table IV-18 calculates bill savings from AEP services. Electric savings are calculated at a cost of .126 per kWh. However, the costs of the alternate fuels must be subtracted from the savings. Natural gas hot water tanks are estimated to cost $240 per year, propane hot water tanks are estimated to cost $392 per year. At 9 loads per week, natural gas dryers are estimated to cost $79 per year and propane dryers are estimated to cost $134 per year. Total annual savings from AEP are $660,657. Annual savings per participant average $340.[10]

Table IV-18
AEP Annual Bill Savings

Program Year	Annual kWh Savings from AEP	Costs Savings from AEP	Costs of Alternate Hot Water Tanks	Costs of Alternate Dryers	Annual AEP Savings	Number of AEP Recipients	Annual AEP Savings per Participant
7/01/02 - 6/30/03	3,063,001	$385,938	$22,184	$5,091	$358,663	1,030	$348
7/01/03 - 6/30/04	2,519,468	$317,453	$10,856	$4,603	$301,994	898	$336
TOTAL	5,582,469	$703,391	$33,040	$9,694	$660,657	1,928	$343

Table IV-19 calculates savings from Weatherization services. Gas savings are calculated at the retail cost of $1.02 per therm. Total annual savings from Weatherization services are $117,047. Average annual Weatherization savings per participant are $330.

[10] An estimate of 26 therms a month was used for hot water tank natural gas consumption, based on random samplings of customer bills. Propane estimates were extrapolated from natural gas estimates, as above, assuming the same amount of therm usage, but adjusted for the variance in propane heat content and cost.

Table IV-19
Weatherization Annual Bill Savings

Program Year	Gas Savings		Electric Savings		Total Dollar Savings	Number of Weatherization Recipients	Annual Weatherization Savings Per Recipient
	Therms	Dollars	kWh	Dollars			
7/01/02 - 6/30/03	43,159	$44,023	112,041	$14,117	$58,140	177	$328
7/01/03 - 6/30/04	43,756	$44,631	113,307	$14,277	$58,907	179	$329
TOTAL	86,915	$88,653	225,348	$28,394	$117,047	356	$329

Table IV-20 displays annual bill savings from Combination services. Total annual savings from Combination services are $134,583. Average annual savings per participant are $477.

Table IV-20
Combination Annual Bill Savings

Program Year	Electric Savings		Gas Savings		Total Dollar Savings	Number of Combination Recipients	Annual Combination Savings Per Participant
	kWh	Dollars	Therms	Dollars			
7/01/02 - 6/30/03	330,939	$41,698	27,136	$27,678	$69,377	142	$489
7/01/03 - 6/30/04	303,471	$38,237	26,440	$26,969	$65,206	140	$466
TOTAL	634,410	$79,936	53,576	$54,647	$134,583	282	$477

Table IV-21 displays the savings from all Energy Efficiency Services. Total annual savings are $955,021. Total annual savings per recipient average $372.

Table IV-21
Total Annual Bill Savings
All Energy Efficiency Services Recipients

	Electric Savings		Gas Savings		Total Dollar Savings	Total Number of Recipients	Total Dollar Savings Per Recipient
Program Year	kWh	Dollars	Therms	Dollars			
7/01/02 - 6/30/03	3,505,981	$441,754	70,295	$71,701	$513,455	1,349	$381
7/01/03 - 6/30/04	2,936,246	$369,967	70,196	$71,600	$441,567	1,217	$363
TOTAL	6,442,227	$811,721	140,491	$143,301	$955,021	2,566	$372

V. Other Program Impacts

The Energy Efficiency Services provided by the LICAP program have large impacts on reductions in energy usage and on affordability of customer bills. Additionally, the program benefits the participants by improving their health and safety. Linkage with the Affordable Payment Plan benefits the program by targeting the right customers who have incentive to participate in the program and take advantage of energy education to reduce their energy usage. The program also provides customers with greater control over their energy usage and causes changes in behavior that positively impact the participants.

A. Health, Safety, and Comfort Impacts

Energy services provided to program participants have many potential impacts on health and safety. Impacts include safer heating systems and hot water heaters, more comfortable homes, reduced use of space heaters and stoves for heating, refrigerators that keep food at the correct temperature, as well as many others.

The customer survey documented some of these benefits. These benefits are summarized below.

- Program participants reported an increase in the comfort level of their homes.

- Some participants reported that health had improved due to the home being warmer in the winter, cooler in the summer, the quality of air in the home, and the method used to heat the home.

B. Impacts from Linkage to Affordable Payment Plan

The Niagara Mohawk LICAP program targets payment troubled customers. Most of these customers have been enrolled in the program through the Affordable Payment Plan. These customers have experienced significant difficulty in paying their bills, and have incentive to reduce their energy usage. The benefits from linking the Energy Efficiency Services with the Affordable payment plan are that the program is targeting customers who are in need of the Energy Efficiency Services, and that the targeted customers have an incentive to participate in the program and to reduce energy usage.

- *Targeting appropriate customers:* Affordable Payment Plan customers receive HEAP, have a negative cash flow, and have defaulted on a minimum payment agreement. These customers need to reduce their energy usage in order to afford their utility bills.

- *Incentive for customers to participate in program:* In order to receive arrearage forgiveness, customers must attend the workshop, if assigned. They are also asked to fill out an energy services questionnaire that allows the coordinators to determine if there are cost-effective opportunities for energy savings in their homes. Customers are more

willing to participate in these activities in order to receive the arrearage forgiveness. Although not strictly required for receipt of the Affordable Payment Plan, it is likely that these program aspects are connected to the discount in the customer's mind, and therefore the customer had an additional incentive to participate.

- *Incentive for customers to reduce energy usage:* Although customers have a percentage of the current bill deferred as a result of participating in the Affordable Payment Plan, the resulting difference between the customer's full bill and the monthly payment is added to the customer's arrears. Customers have an incentive to reduce their energy usage so that they can afford their entire bill and so that their arrears do not continue to grow.

C. Customer Behavior Impacts

Energy Use Management Education and Energy Efficiency Services impact the way that customers use energy in their homes. The customer survey with program participants found that some of the customers had changed their behaviors to reduce energy use. Findings from this study is summarized below.

- Most of the customers said they had committed to take actions to reduce their energy use, and the majority of customers could independently name an action they had taken due to the program services that had high potential for energy savings.

- Most customers said that their energy bills had declined due to changes in their energy usage behavior.

VI. Other Public Benefits from Program

The LICAP program benefits the program participants by making their energy payments more affordable. The program also benefits the ratepayers and the community in several ways. First, the program reduces customers' bills and therefore there future arrears, therefore lowering the burden on other ratepayers. Second, the program lowers the peak energy usage and the cost of adding capacity to the system. Third, the program transforms the market by training WAP agencies and building an infrastructure of private contractors to provide service delivery.

A. Reduction of Future Arrears

Section IV of this report estimates that customers who receive Energy Efficiency Services may have a reduction in their annual bills of about $372. Receipt of these services can make bills more affordable for customers. As a result, the difference between the customers' energy usage and their payments should decline, and future arrearages should be lower than if these services had not been provided.

B. DSM Benefits

The primary purpose of the LICAP program is to make energy more affordable for low-income households. The analysis in Section IV of the report showed that the program has the potential to make bills more affordable for customers. However, the program has the additional public benefit of reducing peak load. Analysis in Section IV showed that program services resulted in a 614 kW reduction.

C. Market Transformation Benefits

Niagara Mohawk contracts with thirteen WAP agencies to provide services under the AEP and Weatherization programs. They also contract with more than eight private contractors for service delivery. These contracts have transformed the market in three important ways:

- *Training WAP agencies in baseload measures:* Niagara Mohawk has been working with WAP agencies to provide AEP services for several years. They trained these agencies to provide the baseload measures as well as the education around these measures. As WAP rules have changed to allow inclusion of baseload measures, this training has benefited the agencies in preparing them for the expanded scope of WAP services.

- *WAP Agencies developed a private division:* Another result of Niagara Mohawk's efforts to collaborate with the Weatherization Assistance Program sub-grantee network is that five of these agencies developed a "for profit" arm in order to better manage some of Niagara Mohawk's program's energy services delivery. These agencies include P.E.A.C.E., Inc., New Buffalo Impact (organized by Neighborhood Housing Services of

South Buffalo). C.A.P.C. of Jefferson County, Supportive Services and Washington Co. Community Action Agency.

- *Building an infrastructure of private contractors:* Niagara Mohawk has built an infrastructure of contractors who can provide Energy Efficiency Services. Niagara Mohawk has been working with more than eight private contractors to provide Energy Efficiency Services to its customers. Some of these contractors work almost exclusively for Niagara Mohawk, and some have expanded to serve private customers and NYSERDA. There are four private contractors who incorporated specifically so that they could do LICAP energy services work. These include Snell's Home Energy, Adirondack Home Energy Inspection Services, Adirondack Energy Services, and Energy Management Technical Services. While each of these operations perform a significant portion of LICAP work, they also do work for other customers.

VII. Continued Program Evolution

On July 1, 2004 the LICAP program administration was transferred to the New York State Energy Research and Development Authority (NYSERDA). LICAP will be run as EmPower New York. Niagara Mohawk worked with NYSERDA and NYSEG to develop this new program. The Process Evaluation activities discussed in this evaluation, primarily the customer and contractor surveys, were instrumental in helping to design this new approach to low-income energy efficiency.

EmPower New York will offer a very similar set of services, as those previously offered by LICAP, to NYSERDA and NYSEG customers. Niagara Mohawk will refer customers who receive ratepayer funded payment assistance to NYSERDA for energy efficiency and weatherization services. The EmPower New York implementation contractor will then send the referred customers an energy services questionnaire. Responses to the questionnaire and energy usage will be used to prioritize customers for energy efficiency services. One key difference is that workshop attendance will be voluntary under the EmPower New York program.

Under EmPower New York, low-income customers will have the opportunity to participate in other low-income programs offered by NYSERDA. Additionally, there may be more coordination with other weatherization services.