

Minnesota Universal Energy Service Report
February 2002



Minnesota Department of Commerce

85 7th Place East, Suite 500 ■ St. Paul, Minnesota 55101 ■ 651-296-4026

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INTRODUCTION

All Minnesota energy consumers should have access to reliable, sufficient, and affordable energy services. Energy is basic to most activities in our daily lives. We need energy to heat our homes in the winter, cool our homes in the summer, cook our meals, heat our water, refrigerate and freeze our food, and wash and dry our clothes. Energy is also sometimes necessary to support life in Minnesota. Harsh Minnesota winters require space heating for survival; our hot summers require space cooling to ensure the survival of vulnerable persons and the health and safety of the general population. Reliable electric service is also required for life-preserving home medical equipment. Because energy is necessary to support life and comfort, it is critical that all households have access to affordable energy services. The goal of universal energy service—meaning access to affordable, reliable, and sufficient energy services—has been an assumed part of energy policy in Minnesota for many years. Universal energy service should now be an explicit goal of Minnesota energy programs and policy.

This report is required by 2001 Minn. Laws, Ch. 212, Art. 8, Sec. 18. It will:

- recommend universal service goals and strategies to meet those goals,
- provide background on universal energy service issues,
- describe the energy programs for low income households in place today,
- discuss inadequacies in those programs, and
- list the benefits of and options for ensuring universal energy service in Minnesota.

In the *Minnesota Energy Planning Report 2001*, the Department of Commerce (the Department) identified three present and future challenges facing Minnesota's electric energy system: (1) potential supply deficiencies; (2) transmission capacity and regulation; and (3) air pollutant emissions from electric generation plants.¹ In this report, we address a fourth major challenge the state must confront: ensuring all Minnesota households have access to affordable, reliable, and sufficient energy services. Low income consumers with payment difficulties due to insufficient financial resources should be guaranteed continuity of utility service provided that they make regular affordable payments in a timely fashion. A universal energy service approach should be developed to supply additional resources and coordinate existing programs and services

to narrow or eliminate the gap between the energy needs of consumers and their ability to pay.

Efforts over the past 20 years to ensure that all households have the means to pay their energy bills have become increasingly inadequate and uncoordinated. The growing inadequacy is almost entirely due to the drastic reduction in federal energy assistance funds both for utility bill payment assistance and for weatherization services that help keep energy use and, therefore, energy bills low. Often, counties' emergency assistance funds are the last resort for low income families and others with limited incomes to keep their homes heated. The lack of coordination, which the Department of Commerce has begun to address administratively, appears due to the number of diverse programs and efforts of a multiplicity of public and private entities. These factors have been exacerbated by the complacency that arose from the relatively stable and declining prices (in real dollars for natural gas) for energy services that occurred through the late 1980s and until the late 1990s.

Despite efforts to keep retail energy prices low, many Minnesotans cannot afford energy services or must choose between paying energy bills and purchasing other necessities like food or medicine. Households with limited income struggle to pay their energy bills in all parts of the State. In Minnesota, more than 20 percent of the State's 1.94 million households have an income that is at or below 50 percent of the State's Household Median Income and qualify for the federal low income energy assistance programs.² In addition, according to estimates by the American Association of Retired Persons (AARP), about 30 percent of elderly households—or about 115,000 households (180,000 individuals)—are eligible for assistance from the federal Low income Home Energy Assistance Program (LIHEAP).³ The lower the household income, the more likely that energy bills will remain unpaid or some other necessity will be foregone in order to pay for energy costs even when the household receives some form of energy bill payment assistance.

Although low income households tend to use less energy on average for all residential purposes than non-low income households,⁴ the “energy burden” (i.e., the percentage of a household's income required to pay its energy costs) on low income households in Minnesota is approximately four to six times greater than that on non-low income households. In fact, low income households in Minnesota spend an average of approximately 13.4 percent of their income on energy needs alone, compared with approximately 2 to 3 percent for non-low income

households.⁵ Housing and heating costs represent the top two bill payment priorities for limited income households. In fact, the inability to pay heating bills is a primary contributor to homelessness.⁶

Another key indicator of energy affordability is the age of the housing stock. Older homes generally are less energy efficient than newer homes and households with limited incomes are more likely to live in these homes. More than 43 percent of Minnesota's existing housing stock is at least 40 years old.⁷

Based on the 1999, 2000, and 2001 March Current Population Survey data of the U.S. Census, 451,249 of Minnesota's 1,935,419 households, more than 23 percent, are potentially eligible for LIHEAP. The income-based eligibility criterion for LIHEAP is the greater of 60 percent of state median income or 150 percent of federal poverty level. In Minnesota, using 60 percent of state median income for eligibility would result in 451,249 potentially eligible households, 204,437 (or 45 percent) have at least one member age 60 or older, 40,466 have at least one disabled member, and 68,944 have at least one child under the age of 6.⁸ In Minnesota, however implementation of LIHEAP generally has limited eligibility to households whose income is 50 percent or less of state median income.

As more and more households in Minnesota are struggling to pay their bills, energy costs are becoming increasingly volatile. Energy prices also are likely to increase over the next few years as critical capital investment in energy infrastructure is made and reflected in energy costs to consumers.⁹ The dramatic natural gas wholesale price spike of the 2000-2001 heating season caught everyone by surprise. For many Minnesota households those prices placed a strain on family budgets. For low and moderate income households they were devastating. Despite the release of nearly double the usual amount of energy assistance dollars late in 2000 and early in 2001 by the President and Congress, Minnesota utility customers ended the 2000-2001 heating season with extremely high arrearages owed to energy service providers, a substantial portion of which were still owed at the beginning of the 2001-2002 heating season.

The ultimate consequence of not paying one's energy bill is that the energy service provider will disconnect service or refuse to refill fuel tanks. Most utilities attempt to avoid service disconnections. Disconnecting and reconnecting service can be costly. Once service is disconnected, there is usually a reconnection fee the customer must pay on top of the arrearages. This can create a downward spiral of lay-

ered arrearages that become more and more unaffordable for a household.

In addition to the costs of disconnection and reconnection, a household's safety and health is jeopardized by doing without space heating, food storage and preparation capability, and, in some cases, space cooling. While it does offer some protection against disconnection of utility service in cold weather, Minnesota's Cold Weather Rule, discussed in more detail below, does not always prohibit disconnection of heating fuel during the winter months.

RECOMMENDATIONS

Energy services are increasingly unaffordable for nearly one-quarter of our State's households. We recommend:

1. Establishing universal energy service as an express goal generally, as part of utility regulation, and as a basic statutory responsibility of energy service providers;
2. Significantly reducing the energy burden for households with limited incomes;
3. Coordinating existing programs and funds to assist low and moderate income households manage their energy use and pay their energy bills to ensure the most equitable and long term benefits possible from existing programs and funds; and
4. Enhancing existing programs and increasing available assistance funds to provide access to all Minnesotans who qualify for assistance.

Strategies to meet these goals may include, but are not limited to, the following:

- Expand available financial resources to assist low and moderate income families meet their energy burdens;
- Increase the efficiency of energy usage by low and moderate income families by increasing attention to and funding for the weatherization and conservation elements of the total energy assistance package;
- Increase reliability of and control over energy assistance funding without adversely impacting any of the existing federal grants;
- Increase program attention to households most in need of energy assistance services, including seniors and others on fixed incomes;
- Standardize Minnesota's Cold Weather Shut-off Rule and join administration and enforcement of the rule with State administration of other forms of energy assistance for low income households;

- Reduce barriers to the reestablishment of service connections, including high service reconnection fees, for households with limited income;
- Develop and strengthen public/private partnerships between government agencies, community action agencies, nonprofit groups, consumer advocates, and utilities and other energy service providers; and
- Maintain emphasis on individual household responsibility and self-sufficiency.

Among the benefits of universal energy service are:

- ensuring sufficient energy services for adequate heat, light, food storage and preparation, and cooling for all Minnesota households;
- minimizing energy service providers' uncollectible arrearages;
- minimizing the health and safety risks that result from high energy burdens on low income Minnesotans;
- preventing homelessness resulting from inability to pay energy bills; and
- increasing individual responsibility, self-sufficiency, control of household budgets, and ability to provide for the well being of families.

EXISTING PROGRAMS AND FUNDS

There are a variety of energy assistance programs and funds to help low income households with their energy burdens, including managing energy consumption, paying bills, and/or maintaining service connections. However, the existing energy assistance programs are insufficient to ensure that all low income customers have affordable access to energy. The programs are inadequately funded and do not reach the majority of eligible households. Even if an eligible person knows about availability of assistance he or she may choose not to apply, because of personal pride or fear of stigma, until a crisis occurs (such as the spike in natural gas prices in 2000-2001 or failure of a home's heating system). Finally, the legal prohibition against disconnection of the primary heating source during winter months is complicated and unclear. It is applied differently by different energy service providers and is not clearly and uniformly communicated to the local agencies who are in the best position to assist a household to understand and take action to ensure the protections the statute is intended to provide. Also, no protections similar to the Cold Weather Rule exist for fuel oil or propane customers.

These programs have been administered by various state agencies and have been shifted between agencies regularly over the past decade. Some especially diligent local

agencies, including Community Action Agencies (CAAs), local and tribal governmental units, and other non-profit agencies, have been able to successfully coordinate resources from these programs, but the programs themselves, with a couple of exceptions, have been inconsistently coordinated or uncoordinated at the state level.

On October 1, 2001 the two primary programs, Low income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP) were transferred by statute to the Department of Commerce. Oversight of the low income portion of utilities' Conservation Improvement Programs already resided with the Department, along with the analysis of and public interest advocacy on regulatory utility issues. We are beginning efforts to better coordinate the main energy assistance programs discussed below, which are:

- Bill Payment Assistance
- Conservation Assistance
- Cold Weather Rule Protections
- Utility Discount Rates

Current Administrative Structure

The Minnesota Public Utilities Commission (PUC) is charged with regulating the services and rates of public utilities (investor-owned utilities). The Department of Commerce provides the economic and financial analysis required on issues before the PUC and advocates on behalf of the broad public interest to ensure adequate, nondiscriminatory, and least-cost service to all Minnesota consumers while protecting the financial health of energy service providers. In addition, the Residential Utilities Division of the Attorney General's Office advocates before the PUC solely on behalf of the interests of residential and small business consumers. Any other entity may intervene in any proceeding before the PUC to advocate for its interests. Much of this advocacy is focused on balancing the consumers' needs for reliable, low-cost energy against the utilities' need for a reasonable rate of return.

Municipal utilities and cooperative electric associations, which are not regulated by the PUC but are subject to PUC jurisdiction regarding service standards, discriminatory rates, and Cold Weather Rule compliance, work to keep their energy prices low as well. A municipal utility's customers are also the municipality's voters so they have a form of control over the utility. Cooperative electric associations' customers are also their members.

Delivered fuel (mostly propane and fuel oil) providers are unregulated private companies who compete in private

markets. Private markets, when they are competitive, operate to keep prices as low as possible. Even in a relatively low-cost state such as Minnesota, however, wide disparities in income and ability to afford necessary energy services exist among members of the residential class. Therefore, even if textbook economic conditions necessary for a competitive market are met, a significant number of low income consumers will be unable to afford their energy costs.

Bill Payment Assistance

LIHEAP

The Low income Home Energy Assistance Program (LIHEAP)¹⁰ provides low income households with assistance in paying for the fuels used to heat their homes. This program is a block grant to the states administered by the U.S. Department of Health and Human Services (HHS). It is the source of the large majority of the funds available for energy bill payment assistance for low income households. In recent years Minnesota has provided no state dollars for low income energy assistance.

The purpose of LIHEAP is to “assist low income households, particularly those with the lowest income, that pay a high proportion of household income for home energy, primarily in meeting their immediate home energy needs.”⁴² U.S.C. 8621. HHS distributes program funds to the states using a weighted formula based on relative weather conditions and the number of households living in poverty.¹¹

The immediate goal of LIHEAP is to lessen the energy burden of low income households. A household’s energy burden is the household energy bill as a percentage of household income. If a person has an annual energy bill of \$1,000 and an annual income of \$5,000, that person’s energy burden is 20 percent. Energy burden is used as the measure of inability-to-pay at both the state and federal levels. LIHEAP is statutorily directed to target the highest level of benefits to households with the lowest incomes and the highest energy burdens, taking into account family size.

Program funds are disbursed at the state level according to plans drawn up by the states and approved by HHS. LIHEAP has been administered at the state level in Minnesota by the Office of Energy Programs (OEP). Since 1997, OEP was moved from the Department of Economic Security (DES) to the Department of Children, Families and Learning, back to DES, and on October 1, 2001, to the Energy Division at the Department of Commerce. Since its arrival in the Department of

Commerce, it has been named the Energy Assistance Office (EAO). This movement between agencies of the two primary energy assistance programs, LIHEAP and the Weatherization Assistance Program, has maximized disruption and exacerbated lack of state coordination of energy assistance programs. Stability will benefit program delivery and will improve the state’s ability to serve its low income population.¹²

LIHEAP is administered at the local level by Community Action Agencies, county social service agencies, tribal governments, and one other nonprofit agency, under contracts with the State EAO.

LIHEAP has three main components:

- basic energy bill payment assistance for households, paid directly to energy service providers;
- crisis assistance for an actual or imminent loss of home heating (e.g., purchase of heating fuel); and
- emergency repair and replacement (ERR) of heating systems.

About 85 percent of federally granted LIHEAP funds are used for these components. Ten percent pays for the administrative costs of the State (approximately 1.35 percent) and local agencies (approximately 8.65 percent). The remaining 5 percent of the LIHEAP funds is used to supplement U.S. Department of Energy (DOE) low income weatherization funds.

Eligibility for the program is based on household income. A household in Minnesota can qualify by verifying an annual income of 50 percent or less of state median income; eligibility can be established by reporting income for any three-month period within the most recent twelve months. Minnesota’s program targets seniors, households with small children and those with the lowest incomes and highest energy bills.¹³

In Minnesota, LIHEAP provides bill payment assistance one time per program year (October 1 through September 30). In a typical year, applications are accepted from October 1 through the end of May. Payments are made on all qualifying applications received through May as long as funds are available. Usually a local agency makes a direct payment to an energy service provider on behalf of an eligible applicant. Households whose utilities are included in their rent or households who heat with wood may receive a direct payment if they have an electric vendor.

During FY2001 (specifically, the program year running from October 1, 2000 to September 30, 2001), LIHEAP

Figure 1. Minnesota LIHEAP Income Eligibility levels, FY2002¹⁴

Number in Household	Maximum Income (50% SMI)	Maximum 3 consecutive months of 50% SMI
1	\$17,336	\$4,334
2	\$22,670	\$5,668
3	\$28,004	\$7,001
4	\$33,339	\$8,335
5	\$38,673	\$9,668
6	\$44,007	\$11,002

Figure 2: Number of Households Receiving LIHEAP Benefits, 1980–2002

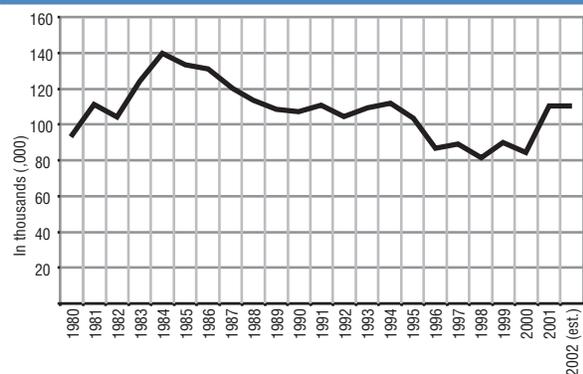
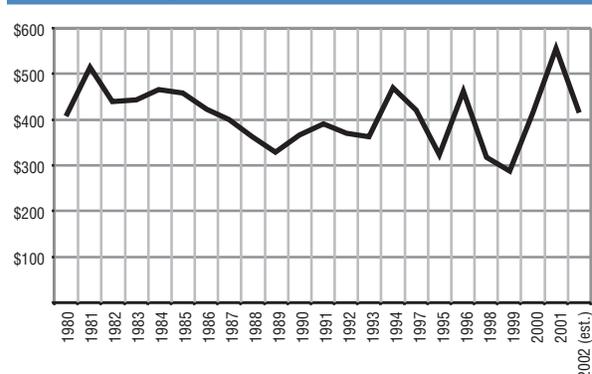


Figure 3: Average Annual Benefit per Household Served by LIHEAP in Minnesota, 1980–2002



Source: Office of Energy Assistance

provided assistance to 110,341 Minnesota households (See Figure 2), with a total average annual benefit of \$562 per household (See Figure 3). Of the 110,341 households, roughly 30 percent (33,155) had at least one member who was 60 years of age or older, approximately 16 percent (17,331) had at least one member who was disabled, and approximately 26 percent (28,271) had at least one member age six years or younger.¹⁵

The size of an individual household's grant depends on household size, income, fuel type, and fuel consumption. The average annual benefit per household served in FY 2001 totaled \$562 for the program year, with annual benefits ranging from \$100 to \$1200. Figure 3 indicates that the average annual household LIHEAP benefit in Minnesota has ranged from a low of \$286 (in FY1999) to the high of \$562 (in FY2001). The number of Minnesota households that have received heating assistance under LIHEAP over the 22 years of the program range from a high of 139,573 in FY 1984, representing about 21 percent of those eligible, to a low of 81,486 in FY 1998, representing about 19 percent of those eligible.

LIHEAP funding is inadequate in several important ways:

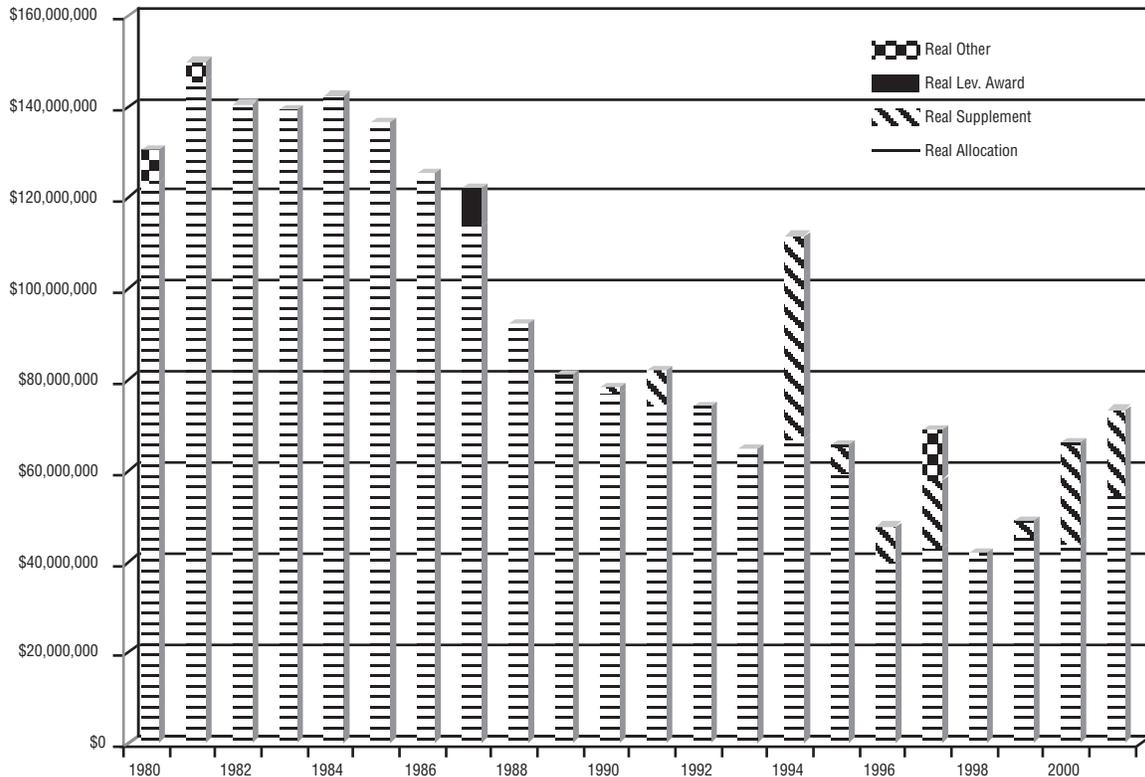
First, LIHEAP serves a small proportion of the total number of low income energy customers. In 1999-2000, LIHEAP served 84,115 energy customers in Minnesota (about 25 percent) of those eligible. In 2000-2001, even

with the substantial supplements released by the federal government, LIHEAP served 110,204 (about 32 percent) of the eligible customers.

Second, LIHEAP in Minnesota has been primarily a winter heating program. LIHEAP funding is available only during the period in which LIHEAP applications are being taken. In Minnesota, applications are received from October 1, the start of the program year, through May 1. Assistance payments are made until the money has been obligated. Even Minnesotans who need assistance because their health conditions require electricity for air conditioning or for medically necessary equipment are unable to apply for assistance except between October 1 and May 1 due to limited program funding.

Third, the size of a LIHEAP grant to an eligible household is determined by the household's costs for heating during the previous winter. However, basing grants on heating costs alone is not an accurate reflection of the low income energy consumer's total energy burden (total energy bills as a percentage of household income). Home heating represents only 35-40 percent of a low income customer's total energy burden. In contrast, electricity represents 60-65 percent of a low income home's energy burden.¹⁶ Currently, households can choose to put 25 percent of their LIHEAP grant toward their electric bill and can, under special circumstances, get up to \$300 in additional crisis assistance for electric payments if the household is eligible and addi-

Figure 4: LIHEAP Funding (MN) — Real (2000) Dollars



Source: Office of Energy Assistance

tional assistance is needed. If LIHEAP benefits are extended in Minnesota to address total energy burden, the funds allocated to the state will be depleted even more quickly than they are under the current system. The federally funded LIHEAP alone cannot adequately address the increasing energy burdens on low income households.

Fourth, LIHEAP funding has decreased substantially over time, especially when adjusted for inflation. Figure 4 shows LIHEAP funding in constant Year 2000 dollars since 1980.

In addition to bill payment assistance, services offered to energy consumers by the local agencies that administer LIHEAP include:

- providing crisis intervention for utility disconnections or necessary fuel deliveries;
- arranging and paying for emergency heating system repair or replacement;
- advocating on behalf of low income energy consumers to energy suppliers and human service providers; and
- educating low income consumers to use home heating energy efficiently and safely.

Summer Fuel Purchase Program

Approximately 25 percent of Minnesota households heat with delivered fuels: propane or fuel oil. These households live primarily in rural areas of the state and are served by close to 900 vendors. The EAO has been purchasing heating fuel in the summer for the past four years. Generally, the state negotiates with vendors to purchase propane (actually, it establishes a line of credit with the vendors) which the local agencies can access during the winter heating season. This allows low and fixed income customers to use their LIHEAP grants to purchase a portion of the fuel they need for the heating season at a lower price than they would have obtained without the pre-purchased quantities. In FY2001, the state purchased 2,256,398 gallons of propane during the summer at an average price of \$1.08 per gallon. Average price per gallon for propane fluctuated between \$1.48 to \$1.55 during the months of November 2000 through January 2001. The EAO estimates that pre-purchasing propane that year saved between \$800,000 and \$950,000.

Other Crisis and Emergency Assistance Programs

County Emergency Assistance (EA) funds may be available to eligible households, including those that receive General Assistance, Minnesota Supplemental Assistance

(MSA), Supplemental Security Income, Temporary Assistance for Needy Families, and Food Stamps. Emergency assistance is limited to once in a 12-month-and-1-day period (for example, if a household receives EA on June 7, 2002, it will not be eligible to receive EA again until June 8, 2003). EA is not limited to energy emergencies; it is also available to eligible Minnesota households for other types of emergencies. However, if a household applies for EA and includes utility bills in its request for assistance, it must have either a disconnect notice or a substantial arrearage which the household is not able to pay out of its monthly income. Further, under Minnesota law, county agencies are prohibited from issuing assistance unless the agency receives confirmation from the energy service provider that the assistance will stay a disconnection and the family has paid at least eight percent of its gross income toward utility costs during the preceding twelve months. Minn. Stat. § 256J.48, subd. g(1)(2). Therefore, availability of EA is uncertain and comes with complicated rules for low income households in need.

Reach Out for Warmth was established in 1992 by the Minnesota legislature. It is an emergency energy assistance fuel fund in which private (corporate and individual) donations are matched by federal LIHEAP dollars. In FY2001, privately raised funds totaled \$193,841. The funds are administered by the LIHEAP delivery agencies. Households eligible for LIHEAP (i.e., household incomes below 50 percent of state median income) that have exhausted their LIHEAP benefits may receive an additional crisis payment from Reach Out for Warmth funds. Households with incomes above 50 percent but below 60 percent of state median income, although not eligible for LIHEAP as it is administered in Minnesota, can receive assistance payments of up to \$350 per household.

Heat Share is administered by the Salvation Army and is funded through private and corporate contributions. Heat Share recipients do not have to meet LIHEAP eligibility to qualify. However, in practice Heat Share applicants are required to first apply to LIHEAP during the application time period and to the local county human services office before receiving Heat Share assistance. Heat Share is a year round program and in FY2001 distributed \$849,298 in Minnesota.

Other Funds. There are numerous local organizations that provide families with assistance to meet their energy bills. One example is the Saint Paul/Ramsey County Health Department House Calls Program which has, in prior years, made available up to \$50,000 per year for energy bill

payment assistance. Community Emergency Assistance Program (CEAP) which has offices in the metro area suburbs also provides approximately \$50,000 per year for energy bill payment assistance. Statewide, there are small private non-profits who provide help with energy bills, but the funds they provide are also very limited.

Conservation Assistance Programs Weatherization Assistance Program (WAP)

The low income Weatherization Assistance Program (WAP), funded by the U.S. Department of Energy (DOE), provides weatherization services for homes occupied by low income families.¹⁷ The purpose of the program is to reduce high home energy costs by providing eligible households with cost effective, long-term energy efficiency improvements. The program was administered in Minnesota through the Office of Energy Programs prior to October 1, 2001. It is now administered by the State Energy Office in the Department of Commerce's Energy Division in conjunction with other DOE energy programs. WAP is coordinated with LIHEAP and increasingly with private low income Conservation Improvement Program (CIP) dollars from utility ratepayers. In the state, LIHEAP and WAP have been coordinated for many years on an administrative level (e.g., one application qualifies a household for both programs and households that are eligible for LIHEAP are automatically eligible for WAP).

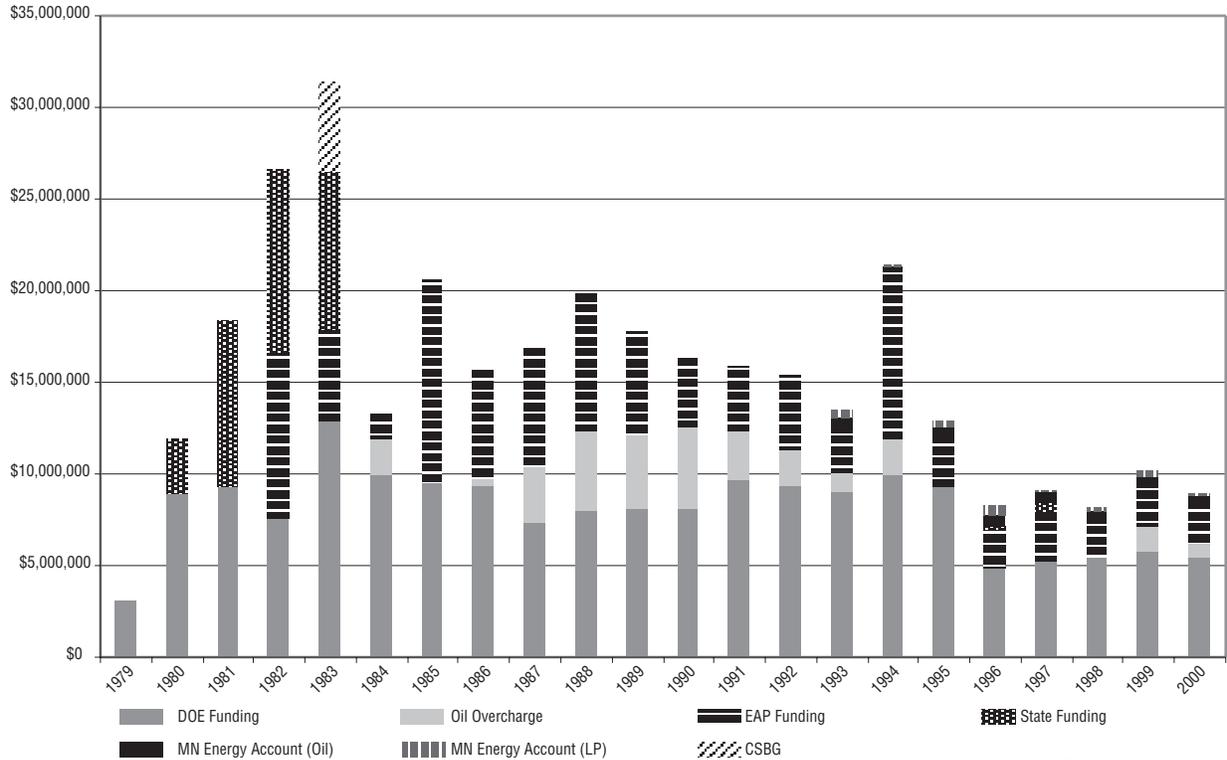
The state contracts with local agencies like CAAs and tribal governments to provide direct weatherization services to households. The program initially emphasized emergency and temporary measures, such as caulking and weather stripping of windows and doors. It has evolved, however, to address more permanent and more cost-effective measures, such as:

- wall and attic insulation and ventilation;
- air infiltration and bypass sealing and leakage control;
- improvements to existing space heating and water heating systems;
- replacement of defective furnaces and boilers; and
- advanced home energy audits.

The program gives priority service to households with at least one elderly or disabled member and to customers with high heating costs.

WAP provides professional assessment and installation services, as well as energy efficiency and conservation education for householders. The program uses advanced

Figure 5: Weatherization Assistance Program Funding in Minnesota (nominal dollars)



Source: Office of Energy Assistance

energy audits and diagnostic equipment to identify energy saving measures that are cost-effective or essential for health and safety. Professionally trained crews and contractors weatherize single family homes, multiple family dwellings, and mobile homes.

Nationally, more than 5 million homes have been weatherized since the program's inception in 1976. According to the DOE, weatherization of these households has resulted in a favorable cost benefit ratio of 1.8. In other words, for every dollar spent on the program, \$1.80 is returned in societal benefits. Since 1976, over 220,000 homes have been weatherized by WAP in Minnesota. Recent evaluation data shows average fuel consumption savings of 20 percent to 33 percent resulting from the program's conservation measures. In many cases, public utility CIP programs, which are mandated by the state, are packaged with the DOE money to increase the effectiveness of weatherization work and generate greater energy savings and comfort.¹⁸

Figure 5 shows the level of funding for WAP in Minnesota since the program began.

For the program year, July 1, 2000 to June 30, 2001, Minnesota received \$6,664,200 and weatherized approximately 2,500 households. For the current year, ending June 30, 2002, it is anticipated that WAP will serve approx-

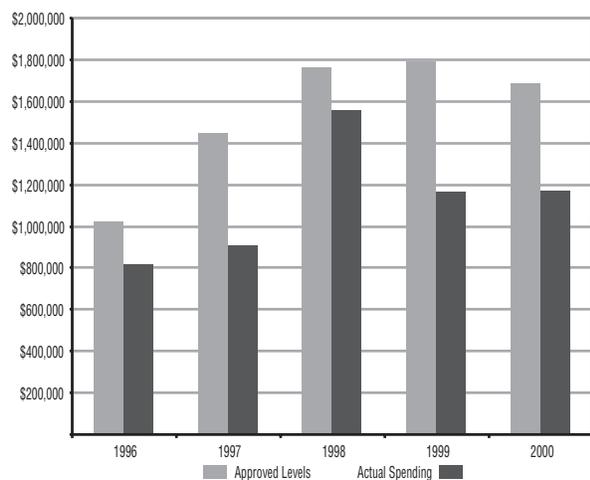
imately 2,200 eligible households. The amount of DOE weatherization money available to spend on each house averages \$2,500.

One of the difficulties in administering WAP is that the quality of the housing stock can limit the overall effectiveness of the energy conservation measures. The overall goal, however, of increasing efficiency and reducing recurring energy costs is generally met within the program.

CIP Programs for Low income Households

Minnesota's Conservation Improvement Program (CIP) was enacted by the Minnesota legislature in 1982. Since changes made in 1991, it requires Minnesota's regulated electric and natural gas utilities to spend a percentage of their annual gross operating revenue on programs to encourage conservation among all customers—residential, commercial, and industrial, with specific attention given to providing conservation opportunities for low income residential consumers. On approval by the Public Utilities Commission, which has final authority over the rates regulated utilities charge their customers, the public utilities recover from their ratepayers, as a direct pass through cost, the amounts they spend on CIP. In addition to CIP costs, utilities also are compensated by ratepayers for the loss of energy sales due to the conservation-related energy savings.

Figure 6: Low-Income CIP Spending by Minnesota Electric Investor-Owned Utilities

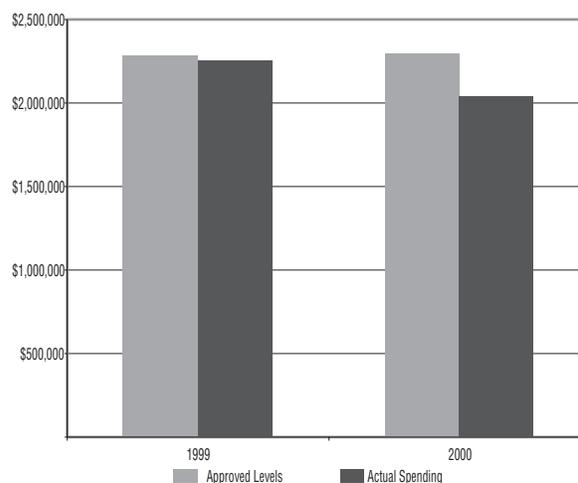


Public utilities (the investor-owned utilities) submit biennial CIP plans to the Department of Commerce for approval. Municipal utilities and cooperative electric associations submit their plans as advisory only. Residential components of CIP plans include special emphasis on low income households' abilities to manage energy use by providing weatherization measures, energy audits, incentive measures such as appliance rebate programs, direct-installation measures such as water heater wraps and compact fluorescent lamps, and consumer education programs.

As illustrated in Figures 6 and 7, the seven regulated public utilities spent approximately \$3.4 million on exclusively low income residential CIP projects in 1999 and approximately \$3.2 million in 2000.¹⁹ However, the utilities spent considerably less than the amount approved by the Commissioner of the Department of Commerce in their biennial CIP plans. The Department of Commerce does not have data on low income residential CIP spending by municipal utilities and cooperative electric associations.

As stated above, CIP is currently administered by each utility while the Department of Commerce approves and monitors CIP projects and funding levels of regulated utilities. The CIP statute, however, also provides for the possibility of direct administration by the Department of Commerce of CIP programs through an energy and conservation fund. See Minn.Stat. §216B.241, subd. 2a. Utilities that choose not to administer all or a portion of their CIP dollars may deposit them in this fund. To date, no utility has deposited CIP funds in the energy and conservation account.

Figure 7: Low-Income CIP Spending by Minnesota Natural Gas Investor-Owned Utilities



Low income Delivered Fuels Accounts

In 1992, the Minnesota Legislature created the Low income Oil Heat Conservation Program and the Low income Liquid Petroleum Gas Account which provide for the repair and replacement of residential oil and liquefied petroleum gas heating equipment in low income homes and, when necessary, weatherization services.²⁰ Funds for the programs are collected through heating oil and propane terminals at a rate of one mil for each gallon dispensed by a terminal in Minnesota or received from terminals outside of the state.

These funds are allocated to weatherization delivery agencies. The allocation is determined, in part, by the number of LIHEAP eligible households who identify propane or oil as their primary heating fuel. This distribution method has the effect of returning the funds collected into the account to be returned to the region of the state from which they were collected.

The additional funds received through these accounts can improve the energy efficiency of the households that receive the assistance and contributes to their self sufficiency. Nearly 30 percent of the households served by LIHEAP heat their homes with fuel oil and LP. (See Figure 8, next page).

The Cold Weather Rule

Minnesota has a limited rule against disconnection of utility service during cold weather months. Minn. Stat. §§ 216B.095, 216B.097; Minn. R. 7820.1500 et seq. It protects a household from public utility (i.e., investor owned utility) service disconnection from October 15 through April 15 if the household:

Figure 8: Percentage of Minnesota Households Using Types of Heating Fuels in 2000

	Statewide*	LIHEAP Recipients**
Natural Gas	67%	59.4%
Electricity	11%	8.8%
Tank, LP Gas	11%	15.5%
Fuel Oil	7%	12.1%
Other***	4%	4.2%

* Census 2000 Supplementary Survey, U.S. Census Bureau (August 2001).

** Information provided by Office of Energy Assistance.

*** This category includes coal, wood, solar, other and not reported.

- is income eligible (based on the same income criterion as for LIHEAP eligibility—50 percent of state median income or less); or,
- demonstrates an inability to pay on forms provided by the utility; or
- enters into a payment plan with the utility that considers the financial resources of the household or pays at least 10 percent of household income in any one month toward its utility bills.

Recipients of LIHEAP and other forms of public assistance qualify for Cold Weather Rule protection. Households that receive protection against disconnection must be referred by the utility to energy assistance, weatherization, and other energy programs. The rule is administered and enforced by the PUC.

The rule for municipal utilities and cooperative electric associations is slightly different and is not administered by the PUC. See Minn. Stat. § 216B.097. However, the PUC has jurisdiction to address complaints against municipal utilities and cooperative electric associations for non-compliance with the Cold Weather Rule.

Confusion exists over the interpretation and application of the Cold Weather Rule because utilities interpret and apply it differently, some more liberally than others. In addition, at least one neighboring state, Wisconsin, has a much more protective rule against disconnection in cold weather, which adds to confusion in Minnesota due to shared service territories of energy vendors that overlap state boundaries.²¹

Rate Discount Programs

Minnesota's two largest regulated utilities have had recent experience with rate discount programs for their low income consumers. Reliant Energy Minnegasco offered a 30 percent flat discount for 3,000 customers who were also LIHEAP recipients as part of a pilot program required by statute that began in January 1995 and ended in June 1998. See Minnesota Statutes §216B.16, subd. 15(c).

Xcel Energy has been required since January 1995 to provide a 50 percent electric rate discount on the first 300 kWh consumed in a monthly billing period to all their low income customers. Low income customers are defined, by statute, as those customers receiving LIHEAP grants. See Minnesota Statutes §216B.16, subd. 14. Xcel Energy estimates that the total cost of its discount rate is \$4,884,600, with \$4,809,600 for the discount and \$75,000 for administrative costs. The costs of the discount are recovered through a \$0.36 per month surcharge applied to all customer classes except fire and civil defense siren service, automatic protective lighting service, and excess energy-St. Anthony locks and dam.²²

The Minnesota Public Utilities Commission (PUC) was asked by the legislature to evaluate these two rate discount programs and, in response, issued a Low income Program Report to the Legislature in January 1998. In the Report, the PUC was unable to draw definitive conclusions on program effectiveness due to extreme cold temperatures and increases in energy costs during the evaluation period, data limitations, and system changes not related to the rate discount programs at the utilities. Among the recommendations that the Commission made in the Report are:

- review collection activities to determine if these can be made more uniform and less subjective, since there is a clear link between collection activities and payment patterns.
- to the extent possible, in order to address affordability of energy bills, tie the size of the discount to income tiers (i.e., the lower the income tier, the higher the discount).

Figure 9: Summary of major low-income energy assistance programs in Minnesota

Program	Expenditures	Time Period
Bill Payment Assistance		
LIHEAP	\$91,265,855	FY2001(10/00-09/01)
County Emergency Assistance	\$ 6,397,525	2001 (calendar year)
Conservation and Bill Reduction Programs		
WAP	\$ 6,646,200	FY2001(07/00-06/01)
CIP	\$ 3,203,113	2000 (calendar year)

- explicitly target high consumption and high arrears customers to improve program cost savings.
- coordinate discount programs with conservation investments in low income housing (including Department of Energy Weatherization program, the utility sponsored Conservation Improvement Program, and other state conservation funds).
- consider making continued receipt of the discount contingent upon regular customer payments.²³

INADEQUACIES OF EXISTING PROGRAMS

Energy Bill Payment Assistance Benefit Levels are Too Low

As discussed in the Introduction, universal energy service means access to reliable, sufficient, and affordable energy services. While elements of universal energy service exist in Minnesota, as discussed above, they do not provide the means necessary to ensure that all Minnesotans can maintain access to continuous energy service. Minnesota's Office of the Legislative Auditor recently reported that the annual average LIHEAP benefit per recipient decreased 44 percent from 1988 to 1999 (from \$527 to \$295 in constant Year 2000 dollars).²⁴ In fact, even when a relatively high level of funding is available to assist low income households as occurred in the 2000-2001 heating season, only about one-third of eligible households can be served and then with only a rather small amount of assistance compared to the overall cost of energy.

Households that do receive bill payment and/or WAP or CIP assistance still make very difficult decisions to do without other life necessities in order to continue to pay part or all of their reduced bills to avoid disconnection of utility service. In 1998, the Energy CENTS Coalition, with the cooperation of several local LIHEAP program administrators, conducted a survey of Minnesota LIHEAP recipients statewide. Of the 40,000 survey forms mailed, 14,000 completed forms were returned.²⁵ Some of the findings of the survey were:

- 73.8 percent could not pay other bills;
- 51.4 percent turned their thermostat below 65 degrees;
- 46.8 percent could not pay their electric bill;
- 38.8 percent did not seek needed dental care;
- 30 percent could not pay their full rent or mortgage payment;
- 29.8 percent did not seek needed medical care;
- 17.6 percent went at least one day without food;

- 11.4 percent had their heat shut off or ran out of heating fuel.

These results indicate that the LIHEAP benefit level is neither adequate to provide sufficient energy for low income households nor to always avoid disconnection of service. In addition, low income households that do receive LIHEAP assistance must go without other necessities to maintain utility service and they still may not be able to prevent a service disconnection.

A similar survey by the Iowa State Department of Human Rights during the 1999-2000 winter heating season documented similar effects of home energy bills on low income households.²⁶ The Iowa survey found:

- Over 12 percent went without food at least one day in order to pay their home heating bill.
- More than 20 percent went without medical care. "Without medical care" may mean not seeking medical assistance when it was needed, not filling prescriptions for medicine that a doctor has prescribed, and/or taking less than the prescribed medication dosage.

Almost 30 percent of Iowa's low income households reported that they did not pay other bills, but did not elaborate as to which bills were not paid. In addition to not paying other bills, many low income households incurred debt in order to pay both their home heating bills and other basic necessities-e.g., borrowed from friends and/or neighbors, used credit cards to pay for food and other necessities, or did not pay the heating bill.

Funding for Bill Payment Assistance is Too Low and Has Decreased Over Time

Federal funding for low income energy programs has decreased over time. Nationally, federal funding for LIHEAP has declined from \$2.1 billion in FY1985 to \$1.4 billion in the FY2001. In constant Year 2000 dollars, the decline has been from more than \$3.4 billion in FY1985 to \$1.4 billion in FY2001.

In response to the rising price of natural gas and the colder than normal November and December in the year 2000, the federal government allocated an additional \$855 million nationwide in emergency LIHEAP funding in FY2001 to help offset some of the additional costs associated with home energy. Even so, the additional funding increased the percentage of eligible households in Minnesota that actually received assistance from about 25 percent to only about 32 percent.

Present Bill Payment Assistance Does Not Address Cooling

Air conditioning is a medical necessity for a number of vulnerable people.²⁷ At least three deaths of elderly people in Minnesota were attributed to the heat in the summer of 2001. Although LIHEAP funding may be used for cooling assistance and is in many states, Minnesota's LIHEAP does not include an explicit benefit to pay for electric costs mainly due to the limited amount of funding available to the program. WAP funds in other jurisdictions are sometimes used to help purchase efficient air conditioners, but they are very limited as well. In addition, there is no federal assistance available in Minnesota in the summer to help pay for electricity for food storage.

The Energy Burden is Too High for Low Income Households

An average low income household in Minnesota spends nearly six times, as a proportion of its income, what a median income household spends for energy needs.²⁸ See Attachment 1. A median income household with the same energy burden as the average low income household would have average monthly energy bills of \$350. Likewise, a family with an annual income of \$65,000 would spend \$525 per month on household energy needs, if it had the same energy burden as a working family earning minimum wage.²⁹

Energy Assistance Programs Have Lacked Coordination on the State Level

Historically, LIHEAP and WAP have been administered by state agencies (Economic Security and Children, Families, and Learning) which had very different practices and were completely separate from the agencies that oversee CIP, the Cold Weather Rule, and utility rate programs to benefit low income households (Department of Commerce and the Public Utilities Commission).

As federal LIHEAP funding has become increasingly inadequate to address the needs of limited income families, county Emergency Assistance (EA) has increasingly been called upon. Although \$6,397,525 in county EA funds were disbursed in 2001 for energy emergencies in Minnesota, oversight of this program and administration of funds occurs at yet another agency, the Department of Human Services.³⁰ Few opportunities for interagency cooperation to provide low income energy bill payment assistance and to coordinate services have been pursued. The state must do a better job of coordinating these programs and their limited resources to ensure at least a minimally meaningful benefit level for the largest number of households.

The Minnesota Legislature transferred LIHEAP and WAP to the Department of Commerce in October 2001. In the short time since then, we have begun to establish connections between the transferred programs and the programs previously within our purview. The Department intends to aggressively administer funds for LIHEAP and WAP, and together with our oversight of CIP, to get the most resources to the households with the highest energy burdens in the most efficient manner possible.³¹ We have begun a dialogue with utilities about increasing coordination of their low income CIP programs with WAP and LIHEAP or, for some of them, simply placing their low income CIP funds in a central fund to be administered—along with WAP funds—by the Department of Commerce. In either event, utility CIP dollars approved for low income residential projects must be spent for their intended purposes.

In addition, we are requesting that the Legislature transfer authority for and enforcement of the Cold Weather Rule and for collection and reporting of utility disconnections to the new EAO at the Department of Commerce. The EAO's close relationships with local agencies that work directly with low income households can help ensure more uniform application of the Cold Weather Rule. The ability to collect disconnection/refusal to deliver (home heating fuel) data, which must be required of all energy service providers, including delivered fuel vendors, will substantially increase the state's ability to target energy assistance, particularly weatherization and conservation services, to those most in need.

ACHIEVING UNIVERSAL SERVICE

Minnesota requires a more comprehensive approach to universal energy service with adequate resources available throughout the year. This approach could combine bill payment assistance and weatherization and conservation programs, but it needs to be designed comprehensively to coordinate services to ensure the most effective application of benefits.

The Benefits of Universal Service

Reducing excessive energy burdens on low income households generates substantial public benefits to all of society. A successful universal service approach will result in:

- more low income households able to pay more of their energy bills;
- low income households able to pay for other necessities such as housing, food, and health care;
- general improvement of the energy efficiency of affordable housing stock through conservation-related improvements;

- a reduction in energy vendors' collection costs;
- a reduction in arrearages or amounts past due;
- a reduction in uncollectible amounts written off by energy service providers;
- a decrease in utility service disconnections and the problems associated with them—e.g., health and safety concerns, forcing households to move, and homelessness;
- a reduction in utility reconnections and reconnection costs;
- potential increases in working capital for the utilities;
- an overall reduction of energy usage (demand for natural gas or electricity), which can reduce the need for expensive capital investment in new infrastructure and can reduce pollution from power production; and
- a reduction in peak demand, which increases system reliability and provides savings for all consumers.

In addition efficiency investments, like WAP and CIP, can substantially reduce the vulnerability of households to volatile energy price spikes. Taken together, energy conservation programs can provide protections for all consumers from market price swings and decreases in system reliability. For example, the California Legislature recently required that their Energy Agency and the California Public Utilities Commission engage in a “reevaluation of all efficiency cost-effectiveness tests in light of increases in wholesale electric costs and natural gas costs to explicitly include the system value of reduced load in reducing market clearing prices and volatility.” (California Code §7.339.15(b)(8)).

Universal Service Program Design and Options

Numerous states have imposed a universal service charge (sometimes called a public benefits charge) to fund energy programs, including bill payment assistance, development of renewable energy, and energy efficiency programs. Most, but not all, of the states that have implemented a universal service charge have done so in connection with a plan to restructure their energy markets. The states that have established a universal service charge as part of a restructuring plan include Arizona, California, Connecticut, Delaware, the District of Columbia, Illinois, Maryland, Massachusetts, New Hampshire, New Jersey, Pennsylvania, Rhode Island, Texas, and West Virginia. States that have established a universal service charge independent of restructuring its energy markets include Vermont and Wisconsin.

The approaches and experiences of these states may reveal which approaches would work best in Minnesota. In

addition to the information that follows, please see Attachment 2 for a more detailed explanation, prepared by the Energy Programs Consortium, of universal service programs in four states: Massachusetts, New York, California, and Wisconsin.

Universal Service programs in most states include three primary components:

- policy declarations that establish access to affordable energy service as an essential requirement;
- program design elements; and,
- funding mechanisms to provide additional resources for utility bill payment and conservation resources.

For example, New Hampshire's legislation includes the following universal service policy declaration:

Electric service is essential and should be available to all customers. A utility providing distribution services must have an obligation to connect all customers in its service territory to the distribution system. A restructured electric utility industry should provide adequate safeguards to assure universal service. Minimum residential customer service safeguards and protections should be maintained. Programs and mechanisms that enable residential customers with low incomes to manage and afford electricity requirements should be included as a part of industry restructuring. 34 N.H. Stat. § 374-F:3, subd. V(a).

And, in Maine:

In order to meet legitimate needs of electricity consumers who are unable to pay their electricity bills in full and satisfy eligibility criteria for assistance, and recognizing that electricity is a basic necessity to which all residents of the State should have access, it is the policy of the State to ensure adequate provision of financial assistance. 35A Me. Stat. §3214.

Program design elements generally combine bill payment, energy conservation and efficiency programs, crisis prevention and assistance, and energy education.

Bill Payment Assistance Program Elements

Targeted benefits are linked to a customer's ability to pay heat and electric bills. This type of program expressly aims to reduce the total energy burden to a certain percentage of household income, such as the “percentage of income payment system” used in Ohio and Pennsylvania.

Certain demographic groups also can be targeted to receive additional focus, such as those on fixed-incomes, those who do not qualify for federally-funded programs, and those for whom the federally-funded programs simply do not make enough of a difference.

Included in this category can be the traditional LIHEAP **bill payment assistance**, as well as state funded bill payment programs like the Campaign to Keep Wisconsin Warm and other state universal service funding mechanisms.

Under the **Percentage of Income Payment (PIP)** model, low income consumers receive a fixed credit designed to bring their energy burdens to sustainable levels, based on a percentage of household income. This model has been used extensively in Ohio and Pennsylvania. Energy bills are set equal to a percentage of the household's income. To be eligible, customers are required to meet both of two requirements: they must (1) have annual income of at or below the eligibility guidelines; and (2) have an annual bill that is at or above the required income percent. Distinctions are made between heating and non-heating customers; a primary heat customer might be asked to pay 7 percent of the household's income toward home heating, while a non-primary heat customer would be asked to pay 3 percent toward the non-primary heat utility bill.

The **Available Resource** model has been used in Iowa and it is based on a calculation of disposable income left after paying "necessary" household expenses (Iowa's Affordable Heating Payment Program (AHPP) requires 25 percent of available income, after other necessary expenses have been deducted, be paid toward home energy).³² This model, which requires the construction of a household budget for each applicant, has the flexibility to ask whether there is enough household income to pay home energy bills regardless of whether household income is above or below a designated percentage of poverty level. Its main drawback is that it is administratively complicated and costly.

Other options that have been used in other states but have not raised significant amounts of money on their own include:

- A **waiver of the fixed-monthly customer charge** for eligible customers by the utility. Fixed-monthly charges cover the utility's cost for transmission lines, maintenance, billing, customer service, etc. Each customer of the utility pays the same amount; these charges are not dependent on consumption. In Minnesota, assuming a \$12 fixed-monthly charge,

customers pay \$156 per year. If 300,000 households qualified for this waiver, utilities would lose \$46.8 million each year. Since these are fixed costs, the utilities would likely be able to increase their rates to recover these costs. This option would provide a relatively small benefit (\$156 per qualifying household) and impose a relatively large cost on utilities' ratepayers.

- **Unclaimed utility deposits** are another potential source of limited funds. Rather than letting this ratepayer supplied money revert to the state's general fund, those funds could be returned to benefit the ratepayer class (residential ratepayers) most likely to have paid them in the first place by using it to provide fuel assistance. Deposit refunds most often go unclaimed when households move and leave no forwarding address. It can be impossible for the utility to find these households. Many mobile households have low incomes. Colorado enacted a provision in 1990 that requires unclaimed deposits to be used as a supplemental source of LIHEAP benefits; state officials estimated at the time that unclaimed residential and commercial deposits would generate \$300,000 per year.
- Similarly, **unclaimed rate refunds** that would otherwise revert to the state could be captured to supplement a universal energy service program. As with unclaimed deposits, it would be "fair" to capture these funds for low income benefits since it is fairly likely that low income households paid the funds in the first place. To do so would cost ratepayers and utilities nothing.

All three of these approaches, taken together are not likely to generate a lot of additional energy assistance funds, but they are worth exploring further.

Rate Affordability Measures

Rate Discounts can take the form of either a straight rate discount or an income-based straight rate discount. California, Massachusetts, Montana, and West Virginia have offered across the board, straight rate discounts ranging from 15-40 percent to income eligible (or LIHEAP eligible) households. Colorado offers an income-based straight rate discount that features a graduated discount rate, based on the household's income as a percentage of poverty level. Participating households are required to enter into twelve month budget billing plans with the utility.

The key advantage of rate discounts is the ease of administration, especially when the discount automatically applies to all LIHEAP recipients. A common criticism of

rate discounts is that they are ratepayer financed: ratepayers fund the program so limited income households not participating in the program, instead of receiving the lower discount rate, are confronted with a rate even higher than the rate in existence prior to the implementation of the rate discount program. At the very least, this kind of approach should be avoided in states like Minnesota that only reach 25 to 32 percent of the eligible households with LIHEAP if LIHEAP participation is the lone qualification criterion. This could work better in conjunction with increasing funding for LIHEAP and therefore increasing its participation rates. Other drawbacks include the difficulty in defining measurable outcomes, the lack of incentives for customers to develop a habit of paying their bills, and the potential disincentive for using energy efficiently.

Arrearage Forgiveness Programs

Another frequently found component of universal service programs is an arrearage forgiveness component. Low income households tend to have higher arrearages than do other households because they are unable, not necessarily unwilling, to pay their energy bills. This type of program commonly requires the customers to pay a negotiated percentage of their income and apply for bill payment assistance in exchange for the elimination of their outstanding arrears upon completion of the program (i.e., making the negotiated payment on time for a predetermined number of months). Results from other jurisdictions show that under an arrearage forgiveness or arrearage management program, delinquent payments decrease and the total amount of cash payments by participating households increase; collection activities taken against participating households decrease; and arrearages among participating households are substantially reduced.³³

Other Rate Design Options

Marginal cost rates mean determining the payment obligation of a customer to recover the variable costs of serving the customer and obtain some contribution toward the fixed costs of the system, although not necessarily the same level of contribution to fixed costs paid by other customers.³⁴ This approach is similar to rates utilities charge to industrial and other very large customers capable of bypassing the utility. If the rate is structured so that it will recover the variable costs of delivering natural gas or electricity to program participants, other ratepayers on the system are no worse off as a result of the program. In other words, low income customers are charged only as much as it costs the utility to provide their energy, without profit.

Two options, inverted block rates and usage-based discounts, are premised on the theory that lower-income households systematically have lower energy consumption. The Department does not have Minnesota specific data that support this premise. The data would need to be collected and analyzed before these approaches should be adopted in Minnesota.

An **inverted block** rate means that the rates charged for energy consumption are proportional to the amount consumed. In Minnesota and many states that regulate utility rates, the more a customer consumes the less the customer pays per unit of consumption. To illustrate an inverted block rate, the first 5 units of energy consumed by a household would be charged at a rate x ; the next 5 units would be charged at a slightly higher rate y , and so on. The biggest advantages of this model are low administrative costs, the benefits are provided outside of a low income administrative structure, and delivery is universal—no one is left out because they are unwilling or unable to apply. This rate structure also rewards conservation. Inverted block rates are cost justified because costs of energy production increase as consumption increases. The biggest disadvantage is that the rates do not make distinctions about consumption. Low income households with high consumption (e.g., households with large families and renters who cannot control weatherization of their residences) pay more with inverted block rates than those who need to maintain a higher indoor-ambient temperature for health or other reasons. A combination of inverted block rates and carefully targeted bill payment assistance for those who have little or no control over consumption could reduce this adverse effect.

Under **usage-based discounts**, income-eligible households receive a discounted rate as long as their usage remains below a maximum level. Once the usage cap is exceeded, the discount is lost. For example, in Arizona the Tucson Electric Power Company's "Residential Lifeline Discount Rate Program" provides rate discounts of 15-25 percent, based on monthly energy usage; in addition, customers age 65 and older are eligible for another 10 percent off.

Energy Conservation and Efficiency Programs

Energy conservation and efficiency programs assist limited income households to manage energy use and reduce total needs through weatherization and energy efficiency programs, including activities such as attic and wall insulation, air sealing, furnace "clean and tunes," and energy-

related health and safety actions. According to the DOE, while low income households use less energy in their homes overall, they have less energy efficient housing and appliances. If bills can be reduced and kept low, the need for other future assistance is reduced.

Crisis Prevention

Early identification and crisis management can substantially reduce the level of cash assistance needed by a household. Screening and referral to other state and community services to help avoid failure to pay bills or failure of heating systems can also help reduce the need for expensive crisis assistance.

Education efforts

Providing consumer education on energy conservation, consumer rights and responsibilities, and budget management when combined with bill payment assistance and direct impact conservation measures, has been shown to reduce household energy bills by an additional 7 to 9 percent.³⁵

Advocacy

Funding for low income consumer advocacy in administrative and legislative proceedings is important. This inter-

est group (i.e., the low income population) cannot fund advocates and too often lacks resources to ensure its interests are adequately represented in administrative and legislative proceedings. Advocacy efforts may also result in leveraging additional resources.

Universal Service Funding Options

Generally, there are two primary funding options to support universal service programs. Funds are raised either on a per meter basis (e.g., Illinois) or on a volumetric basis. Per meter assessments place a fixed fee on each meter, regardless of the amount of energy used by the household. A volumetric charge, on the other hand, is based on the amount of energy used by the household.

A universal energy service program may be funded by a nonbypassable volumetric charge on electric customers, natural gas customers, and/or delivered fuels customers. An "all fuels" charge based on BTU content of the energy supply would provide equitable and adequate funding to reduce the energy burden of all low income households. It is fuel source neutral and would have a minimal impact on consumers relying on any one of these fuels. Although no state current imposes an all fuels surcharge, Figure 10 shows how such a surcharge could work in Minnesota.

Figure 10: Universal Service Surcharge Impact²⁴

EXAMPLE 1: \$20 Million Fund; surcharge on residential class only

In order to raise \$20 million on a volumetric basis from a surcharge imposed only on residential rates:

	Electricity	Natural Gas	Fuel Oil	Kerosene	LPG
Price per fuel unit	\$0.0003227	\$0.09636	\$0.02292	\$0.0172	0.01430
Total Annual Use	17,998,000,000	118,938,000	46,000,000	1,000,000	116,000,000
Total dollars/fuel	\$5,807,955	\$11,460,866	\$1,054,320	\$17,200	\$1,658,800
					TOTAL = \$19,999,141

EXAMPLE 2: \$50 Million Fund; surcharge on residential class only

In order to raise \$50 million on a volumetric basis from a surcharge imposed only on residential rates:

	Electricity	Natural Gas	Fuel Oil	Kerosene	LPG
Price per fuel unit	\$0.0008068	\$0.2409	\$0.0573	\$0.0430	0.02860
Total Annual Use	17,998,000,000	118,938,000	46,000,000	1,000,000	116,000,000
Total dollars/fuel	\$14,520,786	\$28,652,164	\$2,635,800	\$43,000	\$3,317,600
					TOTAL = \$49,169,350

EXAMPLE 3: \$50 Million Fund; surcharge on all customer classes

In order to raise \$50 million on a volumetric basis from a surcharge imposed on all customer classes:

	Electricity	Natural Gas	Fuel Oil	Kerosene	LPG
Price per fuel unit	\$0.0002909	\$0.08686	\$0.02080	\$0.02017	\$0.01295
Total Annual Use	56,671,000,000	311,186,000	180,000,000	3,000,000	207,000,000
Total dollars/fuel	\$16,485,594	\$27,029,616	\$3,744,000	\$60,510	\$2,680,650
					TOTAL = \$49,973,370

EXAMPLE 4: \$100 Million Fund; surcharge on all customer classes

In order to raise \$100 million on a volumetric basis from a surcharge imposed on all customer classes:

	Electricity	Natural Gas	Fuel Oil	Kerosene	LPG
Price per fuel unit	\$0.0005818	\$0.17372	\$0.04160	\$0.04034	\$0.02590
Total Annual Use	56,671,000,000	311,186,000	180,000,000	3,000,000	207,000,000
Total dollars/fuel	\$32,971,188	\$54,059,232	\$7,488,000	\$121,020	\$5,361,300
					TOTAL = \$100,000,740

Universal service funds would be applied to eligible households' energy bills in order to reduce the percentage of income devoted to energy costs to no more than a predetermined equitable percentage of household income, taking into account family size.

If average annual natural gas consumption is 95 mcf,³⁷ the average annual increase in a residential natural gas bill resulting from a \$50 million fund generated from a surcharge on all customer classes, would amount to a little more than \$8.25 per year,³⁸ or just under 70 cents per month. Likewise, assuming average annual residential electric use of 8,037kWh per account,³⁹ the average electric bill would increase \$2.34 per year or just under 20 cents per month. With this additional money, an additional 88,968 limited income households could receive a benefit of \$562, the average benefit LIHEAP recipients received in FY2001; this would raise the percentage of LIHEAP eligible households actually receiving energy assistance to over 50 percent.

Alternatively, a universal service funding mechanism could be set up to only fund what is needed rather than collecting a set amount over time. It could be modeled after the state Petrofund, which only collects revenue when it is needed. For the universal service fund, the customer charge would only be collected for the space of time to collect a predetermined amount. When all but \$10 million dollars, for example, of the fund has been obligated, utilities would collect the charge again for the set period of time. This would allow the fund to float enough so that, in warmer winters or cooler summers or when energy prices are lower, the fund would not over collect and in extremely cold winters or in times of price spikes like for natural gas in 2000-2001, it would not undercollect.

SUMMARY

Programs and funds available to ensure universal energy service in Minnesota are dismayingly inadequate. Energy costs will rise and are increasingly more volatile. Low income households will find it harder and harder to pay their energy bills as capital improvements in energy infrastructure increase customer rates. Many already do without necessities to enable them to pay their energy bills or enough of their bills to avoid disconnection during the critical winter months.

A serious discussion should commence now with the goal of significantly reducing the energy burden of limited income households. There are a number of means of reaching this goal. Weatherization and energy conservation measures that provide the long-term benefit of reducing energy use and therefore the size of the energy bills should be maximized. Consumer education on wise energy use and individual responsibility should also be emphasized strongly. Even with substantial reductions in the bills themselves, however, the majority of low income households will continue to struggle to pay their energy bills.

Substantial additional bill payment assistance is needed. This could come from a combination of approaches, including one or more of the various rate options or payment plans noted above along with a universal service utility customer charge based on BTU usage to ensure equity between the various kinds of energy.

Attachment 1: Poverty and Energy Burdens in Minnesota⁴⁰

All Households

Households	Poverty Level	Max. Annual Income ⁴¹	% of Minnesota Population
180,660	0-99%	\$16,450	10.2%
81,202	100-124%	\$20,563	4.6%
79,481	125-149%	\$24,675	4.5%

341,343 Minnesota households live at or below 150% of federal poverty level.

Low income Home Energy Assistance Program assisted 81,486 Minnesota households in 1997-98.

Senior Households

Households	Poverty Level	Max. Annual Income ⁴²	% of MN Senior Population
27,189	0-74%	6,038	21.7%
33,726	75-99%	\$8,050	25.5%
32,925	100-124%	\$10,063	26.2%
33,358	125-150%	\$12,075	26.6%

125,538 Minnesota households headed by seniors live at or below 150% of federal poverty level.

In 1997-1998, the Low income Home Energy Assistance Program assisted 28,402 senior households. In 2000-2001, it served 26,405 (or 21%).

Average Percentage of Income devoted to energy costs (energy burden)

Family of 4	Family of 4	One-person Household	One-person Household
Max. Income (100% of Poverty)	Mid-point Income (100% of Poverty)	Max. Income (100% of Poverty)	Max. Income (75% of Poverty)
7% ⁴³	14%	14%	19%
Median income household energy burden ⁴⁴ = 2%			

Attachment 2: ISSUE BRIEF

Energy Programs Consortium, February 23, 2001

A Snapshot of Developing Public Benefit Programs in Four States

Much activity is occurring in states with established public benefits programs. A reasonable question is - What programs are being funded and implemented? The following review of activities in four key states—California, Massachusetts, New York and Wisconsin—provides some insights into current activities. The review includes a summary of the programs by major sector and a brief discussion of their legislative history.

Some interesting trends have been observed in these four states:

- Public benefits programs are being extended when their sunset dates approach (California and New York)
- Public benefits programs are being broadened when renewed (New York)
- States with tight peak supply situations are placing greater emphasis on peak demand reduction in their public benefits programs (California and New York)
- Greater focus on market transformation activities through market facilitation and less focus on rebates

is occurring (Wisconsin, New York, California)

- Programs are supporting comprehensive efficiency, renewables, and low income programs (California and Wisconsin)
- Aggregation of retail customers combined with energy efficiency programs is being advanced as a means to reduce customers' bills (New York, Massachusetts and Wisconsin)

The Energy Programs Consortium (EPC) is a joint venture of the National Energy Assistance Directors' Association (NEADA); the National Association of State Energy Officials (NASEO); and the National Association for State Community Services Programs (NASCS). The purpose of the EPC is to foster coordination and cooperation among state and federal agencies in the energy area. EPC provides technical assistance to state and local officials, community groups, and others who are interested in seeking out new opportunities for all Americans to benefit from changes in the utility industry. For additional information about EPC contact: Mark Wolfe, Executive Director, 202-237-5199.

This issue brief was prepared by Chuck Guinn for EPC.

CALIFORNIA

The California public benefits program was initially authorized in 1996 as part of legislation to restructure the state's electricity industry. The funds will be used as follows: energy efficiency—\$218 million; renewable energy technologies— \$135 million; research, development and demonstration (RD&D)—\$62 million; and low income affordability—\$84 million. The California legislature extended the programs through 2012 on September 30, 2000.

Under the legislation, the California Energy Commission (CEC) is responsible for the administration of the renewable energy programs and Public Interest Research Demonstration and Development Programs, while the California Public Utility Commission (CPUC) oversees the administration of the public benefit energy efficiency and low income programs by the state's three major utilities.

The 2001 legislation requires the California Energy Commission to develop the following by the end of March 2001:

- A renewable investment plan recommending the allocation of program funds through 2007 among the following activities:
 - production credits for new renewable energy;
 - rebates, buy downs or equivalent incentives for emerging technologies;
 - customer credits for renewables not under contract with a utility;
 - customer education;
 - incentives for reducing fuel cost at solid fuel bio-mass energy facilities;
 - incentives for improving air quality;
 - solar thermal generating sources that enhance environmental value or system reliability; and specified fuel cell technologies.

- A Public Interest Energy Research (PIER) Program investment plan recommending the allocation of funds through 2007. This plan is to address the recommendations of the PIER Independent Review Panel report (March 2000) to either transform the PIER program within CEC or to administer it through, or in cooperation with, an external organization.

Delivery of Programs (1998 to 2001)

The following is a summary of renewable energy, public interest research, development and demonstration, and energy efficiency programs supported by the California public benefits program:

Renewable energy programs provide approximately \$135 million per year and are administered directly by the California Energy Commission and support the following activities:

Existing Technologies (\$61million/year average): This program is designed to help maintain existing renewable technologies through a per kWh production incentive. The Program is divided into three tiers. Tier 1 (55.5 percent funding), biomass and solar thermal, is viewed as requiring the greatest incentive. Tier 2 (29 percent funding), wind, is viewed as requiring a middle range incentive. Tier 3, (15.5 percent funding), geo-thermal, small hydro, and digester gas, is viewed to require the least incentive.

Emerging Technologies (\$13 million/year average): AB 1890 defined emerging technologies to include but not be limited to photovoltaic technology. Currently eligible emerging renewable technologies are photovoltaic, solar thermal electric, fuel cell technologies that use renewable fuels and small wind systems (10 kW or less per customer site). A buy down program is provided to reduce the net cost to the end user of generating equipment using emerging renewable technologies, thus stimulating sales of such systems.

New Technologies Program (\$40.5 million per year average): This program is designed to provide new projects with a fixed generation-based production incentive awarded through a simple competitive bid. The competitive bid was determined based upon the cents per kWh of incentive desired over a five-year period and the estimated annual average generation over the same five-year period.

Consumer-side Program (\$13.5 million per year average): The Consumer-side Program is designed to reduce the cost premium that customers may pay for renewable energy and thus encourage customers to buy renewable power. Helping develop green marketing infrastructure is a goal of this program. The customer credit is a 1.0 cent-per-kilowatt hour credit for the purchase of eligible renewable energy from a registered renewable provider delivering electricity through the grid. CEC distributes funds to registered renewable providers after they purchase eligible electricity and pass on the credit to eligible consumers.

Consumer Education Program (\$1.35 million per year): The goals of the program are to: 1) raise consumer awareness of renewable electricity generation options and their benefits; 2) increase purchases of both renewable energy from the grid and small scale emerging renewable systems installed at customer premises; and 3) mobilize a self-sustaining educational effort.

Public Interest Research Demonstration and Development Programs provide \$62.5 million per year, administered by the California Department of Energy, to support the following six program areas:

- renewable energy technologies
- environmentally preferred advanced generation
- energy-related environmental enhancement
- industrial/agricultural water end-use efficiencies
- buildings end-use efficiencies
- strategic programs including a small grant program.

The programs are implemented through: conventional competitive contracts, negotiated competitive contracts, interagency agreements and membership agreements.

Energy Efficiency programs provide \$218 million per year. The three California distribution utilities carry out four public benefits energy efficiency programs, including low income energy efficiency, under the oversight of the CPUC. The Los

Angles and Sacramento municipal electric utilities carry out separate programs not included in this discussion. The three utilities have merged their efforts under a number of statewide energy efficiency programs. These programs include:

New Construction: Savings by Design is a program to encourage high performance non-residential building design and construction through design assistance, owner incentives and design team incentives. The Comfort Home Program is designed to encourage construction and purchase of new homes at least 25 percent more energy efficient than currently constructed homes following the building code. Builder education and training coupled with consumer marketing drive this program.

Standard Performance Contract-Residential: The Small Business Standard Performance Contract offers financial incentives of up to \$200,000 for energy savings from retrofitting small business through a performance contract. The price per kWh, performance measurement protocols, payment terms and all other operating rules of the program are specified in the standard contract. The Large Non-residential Standard Performance Contract Program provides incentives of up to \$1.5 million for custom-designed projects that measure and verify the kWh saved through use of the performance contract.

Equipment Rebates: The 2001 Express Efficiency Program offers a variety of rebates to business for more energy efficient equipment. The rebate programs for customers include lighting, air conditioning, and refrigeration equipment. Distribution rebate programs include \$45 per ton incentives to approved distributors of energy efficient package AC units and incentives to approved distributors of energy efficient motors.

Low income Energy Efficiency: Weatherization services provided include attic insulation, weather stripping and caulking, exhaust fan dampers, air duct repairs, water heater blankets, lowflow showerheads, compact fluorescent bulbs, and replacement of refrigerators that are at least 10 years old. In addition, eligible customers can receive, with a \$40 co-payment, an evaporative cooler to lower the temperature of outside air running through an existing A/C unit.

MASSACHUSETTS

The Massachusetts public benefits fund was enacted in 1997 as part of the state's Electric Industry Restructuring Act. The legislation included a systems benefit fund to support public benefits programs. The levels of funding were set at 3.3 mills/kWh in 1998 decreasing to 2.5 mills/kWh in 2002. The total funds collected for the energy efficiency program are estimated to be \$620 million during the five-year period. A proportion of the overall energy efficiency fund was mandated for low income energy efficiency programs (at least .25 mills/kWh of funding each year).

A separate renewable energy fund was also established by the legislation. The funding level was set at .75 mills/kWh in 1998, 1.0 mills/kWh in 1999, 1.25 mills/kWh in 2000, 1.0 mills/kWh in 2001, and .50 mills/kWh in 2002. The legislation also directed the Massachusetts Division of Energy Resources (DOER) to establish a Renewable Energy Portfolio Standard (RPS).

The energy efficiency programs, except for the low income programs, are administered by the distribution utilities with oversight provided by DOER. The low income program is implemented through the low income weatherization and fuel assistance network.

The DOER oversight function includes:

- developing statewide energy efficiency goals;
- conducting oversight of energy efficiency activities; and
- preparing annual reports to the legislature regarding the extent to which energy markets are meeting the efficiency goals.

DOER is also required to report to the legislature in 2001, whether or not ratepayer-funded efficiency programs should continue beyond 2002.

Energy Efficiency Programs

The individual electric utilities carry out the public benefits energy efficiency programs based on five-year plans approved by Massachusetts DOER with suggestions provided by individual collaboratives advising the utilities. The Massachusetts utility energy efficiency programs have been in place for over a decade; the public benefits funding extended these programs.

The public benefits energy efficiency programs have two objectives:

- providing immediate savings for participating customers; and
- transforming energy efficiency markets.

The majority of the funds (61 percent of funding in 1999) are used in rebate programs, which lower the customer's cost of high-energy efficiency equipment. The rebate programs target equipment and systems including: lighting, heating and cooling, motors, energy management systems and process redesign and improvement.

Another set of programs (21 percent of funding in 1999) focuses on encouraging investment in higher energy efficiency at the time of naturally-occurring market events, such as construction of a new home or building, major expansion, renovation or remodeling, or replacement of failed equipment. Such programs include technical assistance and marketing to architects, designers and builders; changing standard building practices; upgrading building codes and standards; and targeted equipment rebates.

The Regional Market Transformation programs (12 percent of funding in 1999) focus on changing the long-term production; purchasing; design; and stocking practices of manufacturers, builders, engineers, architects and retailers. An example of such a program is the Energy Star appliance program, which provides information and labels for retailers to identify high efficiency appliances. Another example of the Regional Market Transformation program is the Northeast Premium Efficiency Motor Initiative facilitated by the Northeast Energy Efficiency Partnership.

Renewable Energy Programs

The Board of Directors of the Massachusetts Technology Park Corporation (MTPC) administers the renewable energy program (Renewable Energy Trust Fund). Legal challenges delayed operation of the renewable energy program until mid-2000. However, the appropriate public benefits funds were deposited in the Renewable Energy Trust Fund Account from 1998. Between 1998 and 2003 the Fund will receive about \$200 million. The Fund will receive \$20 million per year starting in 2003.

About \$54 million of the collected funds were earmarked to provide grants to Massachusetts municipalities and other government bodies to reduce public financial obligation for air pollution controls at waste to energy facilities or the closure of such facilities. This program is underway.

The remaining \$146 million is targeted for projects that accelerate the use of cleaner sources of electricity and invest in the development of the renewable energy industry in Massachusetts. Eligible technologies under the Trust are: solar photovoltaic and solar thermal electric energy; wind energy; ocean thermal, wave or tidal energy; naturally flowing water and hydro electric; low emission, advanced bio-mass power conversion technologies connected to qualifying generation projects; and fuel cells.

The initial operating plan for the Trust activities was approved November 1, 2000. The plan provides that project financing is available to all programs to help reduce the cost of developing new generation capacity. Such financing could be structured as loans, loan guarantees, equity investments or grants. Requests for financing will be reviewed based on potential economic and environmental benefits, net cost per kWh, commercial potential, leverage of the Trust financing, geographic location and contribution to public debate.

The initial plan includes a green buildings program, a premium power program and wind development program. The focus of each program is assessing and developing individual renewable energy projects in Massachusetts and is summarized as follows:

Green Buildings: The focus of the green buildings program is to support necessary technical services to help design green buildings. Also the program provides financial incentives to reduce the cost barrier for energy efficiency measures and renewable energy technologies including commercially available PV systems. The pro-

gram plan has a target of up to ten projects over a 20-month period. MTPC has targeted local public schools and libraries as green building candidates as well as low income housing. The technical services budget is \$1.5 million and the project financing budget is \$15 million over the next 20 months.

Premium Power Program: The focus of the Premium Power Program is to promote the use of commercially available fuel cells in on-site applications that require high reliability and/or power quality. Both technical services and project financing assistance are offered. However, if the project financing assistance is in the form of a grant, not more than 25 percent of the total system cost can be provided.

The target industries included financial services, telecommunications, health care and manufacturing. The project must have a load of at least 400 kW. By June 30, 2002 MTPC expects to have firm commitments for up to five fuel cell system installations representing about 8 MW of new generation. Technical services are budgeted at \$1.5 million and \$15 million is budgeted for project financing costs.

Wind Development Program: The objective of the Wind Development Program is to promote green power both through demand and supply side activities. MTPC will help negotiate green power purchase agreements between wind developers and aggregators, public agencies and municipal lighting plants. MTPC will support the development of new wind generating capacity in Massachusetts and elsewhere through technical assistance and project financing (limited to the equivalent grant of 1.5 cents/kWh over a 5-year period.) The technical services for these programs are budgeted at \$0.45 million and the financial assistance at \$3 million.

NEW YORK ENERGY \$MART

The New York State public benefits funds was ordered by the New York Public Service Commission (PSC) in May 1996 (Opinion No.96-12) to fund public benefits programs through a systems benefit charge. Funding for the public benefits programs was authorized by the PSC at a level of \$234 million over three years from July 1, 1998 through June 30, 2001. The PSC order covers the six New York investor-owned utilities but not the Long Island Power Authority, New York Power Authority or municipal electric systems.

The New York State Energy Research and Development Authority (NYSERDA), a public benefits corporation, was designated the administrator of the statewide public benefits program by the PSC (Opinion No. 98-3) on January 30, 1998. Of the funds made available, 75 percent (\$177 million) of the \$234 million was directed to NYSERDA administration and the remaining 25 percent (\$57 million) was reserved to fund prior commitments of New York's utility programs.

The public benefits program—New York Energy \$mart—covers energy efficiency, low income affordability, research and development and environmental programs. Renewable energy programs are a major component of the research and development programs.

The PSC approved (January 24, 2001) a staff proposal to extend the SBC program for 5 years (July 1, 2001 through June 30, 2006), retain NYSERDA as the program administrator, establish a uniform funding formula and increase the total amount collected annually for public benefits programs from \$78.1 million to \$150 million. The NYSERDA program will undergo evaluations at the end of 2002 and 2004.

Detailed program allocation and fund descriptions, by program area, under the initial allocation for energy efficiency are as follows:

Performance Contracting (\$36.8 million)

Standard Performance Contract Program (\$33.5 million): fosters the growth of the energy services industry in New York through incentives for standard performance contracts between ESCOs and customers in the commercial, industrial and institutional sectors.

Institutional Energy Performance Contracting Program (\$3.3 million): increases energy performance contracting in the health care, colleges and universities, and municipal buildings sectors and provides financial assistance to cover 50 percent of the cost of a comprehensive energy audit and other expenses related to the development of an energy performance contract.

Market Transformation (\$66.7 million)

New Construction Program (\$17 million): changes standard design and building practices among architects and engineers, informs building owners about the long-term advantages of building to higher energy standards; and provides financial incentives to building owners and technical assistance to building designers.

Premium Efficiency Motors Program (\$5.6 million): supports lasting structural changes in the motors market resulting in increased use of Consortium for Energy Efficiency (CEE) qualified premium efficiency motors in commercial buildings, institutions, industries and municipal applications and provides financial incentives to meter vendors, as well as marketing training.

Commercial HVAC Program (\$1.7 million): increases the availability, promotion, sale, and long-term performance of energy-efficient commercial or industrial HVAC products and services; provides educational and technical assistance for HVAC commission services to both purchasers and providers of such services; and targets HVAC distributors and contractors with training and marketing support services that promote high efficiency air conditioning equipment.

New York Energy Smart Loan Fund (\$9.8 million): expands the list of criteria used by lending institutions in approving loans to include projected savings for energy efficiency projects and provides interest reduction on loan amounts up to \$500,000 for 5 years.

Loan Fund Multifamily Building Demonstration (\$1 million): increases lender's use of projected savings from energy efficiency projects as a consideration in approving loans for energy efficiency improvements in multifamily buildings and provides guaranteed loans for energy efficiency improvements in publicly assisted and other hard-to-finance housing.

Innovative Opportunities: Commercial and Industrial (\$2.6 million): proposes to influence the behavior of market participants of all levels to increase the availability, promotion and sale of energy-efficient products and services not addressed through NYSERDA's other market transformation programs. Targeted areas include geothermal heat pumps, energy-efficient LED traffic signals, energy and environmentally sensitive schools, improved lighting quality and efficiency.

Residential Appliance and Lighting Program (\$8.5 million): works in tandem with the ENERGY STAR Public Awareness Program to increase awareness and understanding of the ENERGY STAR logo and increase sales of qualifying products; targets mid-stream market actors including retailers, remodelers, multifamily building owners and manufactured home dealers, in an effort to improve stocking, promotions, and sales of ENERGY STAR products; and provides training, marketing and financial incentives to New York ENERGY STAR partners.

ENERGY STAR® Public Awareness Program (\$8.3 million): targets end-user customers through a multi-media campaign to increase awareness and understanding of the ENERGY STAR logo and sales of these products.

Home Improvement Loan Program (\$2.0 million): works with the federal Fannie Mae Residential Energy Efficiency Financing Program and provides financial assistance to buy-down or decrease the interest rate of Fannie Mae Loans.

Residential New Construction (\$2.4 million): proposes to implement and promote an enhanced ENERGY STAR Homes program within New York and provides technical assistance to builders to help them assess the potential range of improvements available for specific projects.

Residential Building Performance Market Enhancement Program (\$7.0 million): enhances the existing capacity for delivering energy efficiency services to one- to four-family residences and provides training and qualifying for building performance contractors, home energy raters, and contractors who provide energy efficiency services.

Innovative Opportunities: Residential Program (\$0.8 million): increases the availability, promotion and sale of energy efficiency products and services not currently addressed through NYSERDA's other market transformation programs by influencing the behavior of up-stream and mid-stream participants and residential customers. Targets include coin-operated washing machines, residential PC-based home energy audits, sub metering cooperatives.

Technical Assistance (\$15.4 million)

Energy Feasibility Studies (\$3.2 million): improves electrical efficiency by identifying and encouraging implementation of cost-effective, energy-efficient capital improvements and provides financial assistance on a cost-shared basis for feasibility and technical assistance studies including guidance with industrial process improvements, waste minimization and environmental performance.

Energy Operations Management (\$1.9 million): proposes to identify and encourage operational efficiency improvements through engineering analysis and on-site energy management services and provides financial assistance for development of baseline information on energy use, energy use planning, facility staff outreach and training, and commissioning of existing systems.

Rate Analysis and Aggregation Program (\$1 million): helps customers purchase and use energy in a more cost-effective and efficient manner through a better understanding of their electricity use and purchase options; increases the number of identified rate analysis and aggregation service providers; and provides financial assistance to customers for hiring rate analysis and aggregation service providers.

Energy Audits Pilot Program (\$0.3 million): assists small facilities (less than \$100,000 in annual electricity bills) to achieve energy performance goals and become ENERGY STAR partners, participating in NYSERDA and other energy efficiency programs, and provides energy audits to approved applicants.

Flex Tech Program (\$3.5 million): provides project managers at customer facilities with the information necessary to obtain management support and project financing for energy-efficient improvement measures and provides 24 energy efficiency consultants (selected on a three-year basis through an RFP) to conduct energy efficiency studies for interested customers in industrial, institutional, government and commercial sectors.

Cooling Recommissioning Program (\$3.0 million): helps commercial cooling customers more effectively manage and shed load and address high energy demand changes during peak periods; provides technical assistance on a cost-shared basis to identify load shedding/shifting opportunities and strategies; provides financial incentives to implement strategies, and provides an evaluation of results.

Residential Comprehensive Energy Management Services Program (\$2.5 million): proposes to spur the acquisition and installation of sophisticated energy management and advanced metering systems and prepare the residential sector for aggregation and provides financial assistance for design and implementation services, and capital subsidies on qualifying equipment.

Research and Development (\$28.8 million)

Wind Power Plant Demonstration (\$6 million): supports the installation, demonstration, and operation of utility-scale wind power plants to foster future wind power development and provides partial funding through a solicitation in three \$2 million contracts (about 29Mw).

Wind Prospecting Program (\$0.3 million): sustains wind power development by providing assistance to help companies find, measure and develop specific locations for building wind farms.

Residential Photovoltaic (\$1.3 million): encourages the installation of grid-connected PV systems by supporting companies with an interest in marketing and installing residential grid-connected PV in New York.

Photovoltaics in Buildings (\$2.3 million): fosters New York's market for installing PV buildings by supporting projects that demonstrate innovative PV technologies and applications on commercial and industrial, institutional, and certain multifamily buildings and provides partial funding through competitive project solicitation.

High Value Photovaltics and Wind Program (\$1.3 million): fosters markets for customer- and cooperative-owned wind systems and remote PV systems and provides funding for a competitive solicitation to obtain proposals to install customer- and cooperative-owned wind systems and remote PV systems in New York.

Willow Plantation Development (\$0.9 million): commercializes the dedicated energy crop concept to make long-term renewable biomass supplies a reality and provides partial funding to the Salix Consortium (a partnership of over 25 groups and organizations representing research institutions, farming, environment groups, government and industry) engaged in the Willow plantation concept implementation.

Environmental Monitoring, Evaluation and Protection (\$7.1 million): supports research to increase the scientific understanding of behavior, cycling and interaction of primary and secondary pollutants related to electricity generation in the environment, so that policy makers can identify effective strategies for mitigating the impacts of energy use.

Energy Efficiency R & D Program (\$5.8 million): focuses on innovative end-use energy efficient and energy saving technologies and systems applicable to the New York market that could be manufactured in New York and predominate-ly focuses in three areas: heating and cooling, lighting, and meters and controls.

Strategic R & D Program (\$2.7 million): proposes to implement, demonstrate and evaluate innovative electrical end-use technologies with the potential to play a critical role in improving New York's air quality, electrical power factor and end-use reliability.

Low income Affordability (\$16.2 million)

Low income Direct Installation Program (\$9.9 million): builds upon the existing infrastructure of the federal Weatherization Assistance Program (WAP) to offer electric reduction measures. Targeted areas include CFLs, hard-wired lighting in unit, hard-wired lighting in common areas, and energy efficiency refrigerators.

Low income Aggregation Program (\$1.7 million): improves energy affordability for low income customers by aggregating energy buyers to secure lower prices through bulk purchases of electricity, natural gas, fuel oil, and propane combined with energy efficiency services. Provides funding to develop a variety of aggregation models for low income customers.

Technical Assistance of Publicly-Assisted Housing (\$0.8 million): increases the affordability of public housing for low income residents by improving energy efficiency and management in the State's publicly-assisted housing and provides a series of pilot projects to incorporate design, selection, and installation of energy-efficient equipment into the State's portfolio of publicly-assisted housing.

Affordable Assisted Housing (\$3 million): builds upon the Technical Assistance of Publicly-Assisted Housing Program, establishing an incentive pool to track the incremental cost of energy efficiency measures and electric heat conversions in the DHCR and HUD publicly-assisted housing portfolios.

Low income Public Awareness (\$0.8 million): informs low income persons and state and community-based providers of the services and options available under Low income Energy Affordability Programs and other changes taking place in the restructured energy marketplace.

Environmental Disclosure Program (\$3.0 million)

This program facilitates informed customer choice by providing useful environmental information, which could lead to improved environmental quality and greater use of clean resources and provides funds for a tracking mechanism for parties to disclose to all customers the environmental characteristics of the electricity they are supplying.

WISCONSIN

The Wisconsin public benefits program was enacted in October 1999 as a separate piece of legislation. Only Wisconsin and Vermont have passed legislation authorizing a public benefits programs that was not part of an overall utility restructuring program. The legislature assigned the Department of Administration (DOA) the tasks of establishing and overseeing public benefits programs previously operated by investor owned utilities under the Public Service Commission (PUC) regulatory supervision. The transition from utility to state management is expected to be completed by December 31, 2002.

The program being developed—WISCONSIN FOCUS ON ENERGY—includes benefits to low income consumers, energy efficiency programs, renewable energy programs and research and development efforts. The funding for the program is provided through a public benefits charge that is expected to raise \$37.4 million per year in addition to rate-based funding at the 1998 level of \$67.1 million per year.

In August 1998 DOA launched a successful major pilot program which demonstrated that a state agency was an appropriate and reasonable entity to implement energy efficiency, market transformation programs. DOA has developed an overall implementation plan for WISCONSIN FOCUS ON ENERGY and is in the process of implementing the plan. The major plan elements and their assigned funding are: energy efficiency—\$65.8 million per year; low income—\$89.0 million per year (including \$34.7 million from federal Low income Home Energy Assistance Program (LIHEAP) and \$9.0 million from federal Weatherization Assistance Program (WAP).

The Low income programs are being carried out by DOA; the Energy Efficiency programs are being selected through an RFP process evaluating the quality of their proposals in meeting DOA's objectives. While the final Energy Efficiency program selections have not been made, the following guidance from DOA shows the likely program direction of WISCONSIN FOCUS ON ENERGY.

Major Markets

New Construction: performance incentives are considered if the new commercial building exceeds the Wisconsin Commercial Building Code by at least 15 percent and encourages incorporating equipment that meets Energy Star, FEMP Guidelines or Consortium for Energy Efficiency (CEE) standards into new commercial buildings.

Existing Buildings: encourages using the Energy Star Buildings program as a platform.

Small Retail: encourages use of the Energy Star Small Business program as a platform.

Industrial: targets energy intensive industries including metal casting, forest products, biotechnology, food processing, chemicals, glass and printing; encourages using the Industries of the Future as an umbrella program; and develops a proposal for creating and funding industrial technology transfer offices similar to the Ohio Department of Development's Thomas Edison program.

General Industry: develops programs that simultaneously address energy use, water use and pollution prevention; encourages developing holistic, plant-wide approaches to improving energy and environmental performance rather than a system-by-system approach; and encourages the use of existing programs such as U.S. DOE's Best Practices program, Energy Star for Industry and electric utility programs.

Agriculture: targets farms and farm commodity suppliers and distributors and focuses on improving energy efficiency, preventing pollution, promoting on-farm energy production, and helping to transfer new innovations from the Industry of the Future.

Schools: builds on the exiting Wisconsin Energy Initiative 2 program by continuing project implementation through cooperative Educational Service Agencies.

Government Building and Operations: includes an estimated 6,000 federal and local government buildings and builds upon the federal Energy Star Building program.

Water and Waste Water Treatment: encourages using Industries of the Future as an umbrella program.

Energy Efficiency Related Goods and Services: focuses on enhancing on increasing the supply of energy efficiency goods and services in Wisconsin and providing financing options that enable customers to implement energy efficiency measures that would otherwise not be implemented.

Training and Education Programs: focuses on both specific training programs and educational programs for the general public.

Residential

Single Family New Construction: the Energy Star Homes program will be the platform for building upon the successful FOCUS ON ENERGY pilot.

Existing Homes (1- 4 units): for the design and implementation of a program based upon the Home Performance Rating, which uses a whole house market approach to reach consumers, contractors and building professionals, as well

as the design and implementation of a program based upon the Energy Star Appliance, Lighting and Windows program, which has proven to be successful in Wisconsin.

Rental and Large Residential Buildings: encourages program designers to consider in order of priority: 1) retrofitting energy efficiency improvements and weatherization in existing multi-family housing; 2) energy consulting; 3) new building technologies, research and assessment; 4) promotion and support of adoption of accepted high-efficiency technologies in new and existing rental construction; 5) tenant education; and 6) creation of a mechanism to train and certify skills in O & M practices.

Education and Training: encourages continuing the Energy Star Homes Program training services and the “Building and High Performance Home” conferences in all regions of the state and encourages investigating the possibility of continuing the Building Performance Contractor Certification program currently under early development.

Renewables

At least 4.5 percent of the energy efficiency appropriation (\$2.8 million per year) must be set aside for proposals that encourage the development or use of customer applications of renewable resources. This funding will be supplemented by amounts budgeted by both Major Markets and Residential Administrators.

Environmental Research

The Environmental Research and Development program will consist of the creation and management of an Environmental Research Forum (ERF). The ERF will make recommendations to the Environmental Research Administrator and ultimately to DOA on the types of research to be conducted under the program. The legislature set aside 1.75 percent (\$1.1 million per year) for the Environmental Research and Development program.

Low income

The low income programs are under the direct supervision of the DOA. Funding is provided for weatherization (\$28.6 million year) and bill-payment assistance (\$56.8 million per year). The weatherization program combines \$19.6 million in state public benefits and continued rate-based funding with an estimated \$9.0 million in federal Weatherization funds. The bill payment assistance program combines \$22.1 million in state public benefits and continued rate-based funding with an estimated \$34.7 in federal Low income Home Energy Assistance Program funds.

Attachment 3

Policy Recommendations of the Energy Assistance Program Task Force

1. Customer prioritization

Continue with a “first-come, first-served” policy to determine how to prioritize the program’s eligible population.

2. Eligibility criteria and income definition

- A. Income should be defined as total gross earned and unearned income received by the household that is available to meet obligations and expenses including energy.
- B. Eligibility time period would be any sequential three months or 12-month period.
- C. Income eligibility would be 50 percent of the state’s median income.
- D. Household should be defined as the number of people who reside in the household permanently or for an extended time as residents on the date of application.
- E. Income verification should move the burden of proof from the applicant to the system.
- F. All assets limits should be eliminated.

3. Benefits tables

Total energy burden, which is the combined cost of both heat and electricity, should be used in the calculation for benefits payments, depending on further analysis.

4. Yearlong program

Energy programs should be conducted on a yearlong basis.

5. Universal statewide application

A universal statewide form should be used.

6. Vendor agreement

Vendor agreements (agreements between the Energy Assistance Programs, delivery guiding principle: Energy assistance clients should be treated in the same fashion as any other utility or energy provider’s customers.

7. Direct payments

- A. Payments for heat included in rent should not be sent to landlords.
- B. Direct payments should be sent to households when:
 - Heat is included in the rent for the heat portion of their assistance or
 - Clients heat with wood and do not have a wood vendor for the heat portion of their assistance.
- C. The state should collect information and develop a formula to calculate grants for heat and electric use that is inclusive of rent.
- D. Electronic transfer capability of funds should be developed for vendors.
- E. The policy for wood costs per cord should be changed to allow for actual cost of wood. This would reflect a more accurate cost for heating with wood than using a state maximum figure, which has been the past practice.
- F. The state should develop best practices for check cashing.
- G. No direct payments should be made to reimburse payments already made to the energy vendor.
- H. The application should include a section that informs potential participants about the circumstances under which payment would be made directly to households.
- I. Electronic transfer payments, ATM cards, and electronic benefits transfer should be explored.

8. Crisis assistance and Energy Related Repair (ERR)

Crisis assistance and Energy Related Repair should continue as separate components within the Energy Assistance Program with separate funds. New approaches for effectively providing crisis assistance and ERR should be explored.

Program Operation Recommendations

9. Business needs

Business needs of the program should be considered in making decisions related to technology and centralized or decentralized functions.

10. Centralization and decentralization

Several centralized and decentralized activities in addition to those determined by the Department of Commerce should be explored

11. Technology needs

Technology should be able to meet needs in the areas of security, reporting, communication to consumers, training, policies and online documentation, automatic transfers, connectivity with other systems, user friendliness, weatherization, Web, and ease of system entry.

12. Outreach

Outreach strategies should inform the state and community about the energy programs and reach those who need services.

13. Monitoring

Monitoring should focus on consistency and regularity and take a problem-solving approach. Monitoring should include:

- Turnaround time in the application process,
- Notification of payments,
- Outreach efforts,
- ERR and carbon monoxide (CO) safety, and
- Service to target groups such as seniors and non-English speakers.

14. Grant management

The state Energy Assistance Programs consider suggestions for contracting and grant management as it develops its overall performance management system.

15. Administrative funds

Energy Assistance Programs should consider a number of possible uses of administrative funds.

16. Program service funds

There should be a consistent use of program services funds by local service agencies for a set of targeted activities with outcomes and measures that can be used for evaluation and accountability.

17. Leveraging funds

The Energy Assistance Programs' staff and a future work group should explore ways to leverage additional resources.

Program Outcomes

Based on its vision of the future for energy programs, the task force recommended outcome measures for each aspect of the vision, along with a timeline. In addition, with a focus toward developing a more performance-based system, the task force recommended that a process to identify customer needs should be implemented as soon as possible.

Conclusion

Prior to the finalization of this report, the Energy Assistance Programs began to implement some of the task force's suggested program improvements. Specifically, the following recommended improvements, either in whole or in part, are in effect as of Oct. 1, 2001:

- Criteria for customer prioritization
- Changes in eligibility time period to any three-month period
- Changes to the benefits table
- A universal statewide application form
- Direct payments changes

Other recommendations contained in this report will be more challenging to implement. The next steps for improvements will require strong leadership and a well-developed strategy for program implementation that understands that the task force recommendations are interrelated and that many build on one another.

For example, the challenge of developing a centralized payment system will require agreement among a range of interested parties: the State of Minnesota, local service agencies, energy providers, eligible households, etc. In addition, the implementation of a centralized payment system directly affects such issues as administrative funds, program services funds, and monitoring.

Although EAP has operated basically unchanged for over twenty years, there appear to be several indications that the system is ready to embrace change. Interested parties are experiencing stronger and better relationships, energy issues in general are again getting national and state attention, and, with reports such as this one, a roadmap now exists for overall program improvements.

ENDNOTES:

- 1 Minnesota Department of Commerce, **Minnesota Energy Planning Report 2001**, January 2002, page 23.
- 2 See Census 2000 Supplementary Survey, U.S. Census Bureau (August 2001). The 2000 Census results will be released later this year. LIHEAP is discussed in greater detail in Section III.B.1 below.
- 3 Estimated by AARP Knowledge Management.
- 4 The average low income household uses 90.9MMBtu annually whereas the average median-income household uses 103.9MMBtu. Roger Colton, National Consumer Law Center, Direct Testimony before the Wisconsin Public Utilities Commission in the matter of NSP's petition for approval to merge with Wisconsin Energy Corp., October 1996, Docket No. E002-PA-95-500.
- 5 Energy CENTS Coalition, **Minnesota's Energy Gap: Unaffordable Energy and Low Income Minnesotans** (January 1999).
- 6 Roger D. Colton, **The Road Oft Taken: Unaffordable Home Energy Bills, Forced Mobility and Childhood Education** in Missouri, Fisher, Sheehan & Colton, Public Finance and General Economics (June 1995).
- 7 U.S. Census, Profile of Selected Housing Characteristics: 2000.
- 8 LIHEAP Income Eligibility Estimates for Minnesota, developed for U.S. Department of Health and Human Services by RoperASW, November 2001. On file with the Office of Energy Assistance.
- 9 See Minnesota Department of Commerce, Minnesota Energy Planning Report, January 2002, at www.commerce.state.mn.us.
- 10 Authorized by Title XXVI of the Omnibus Budget Reconciliation Act of 1981 (PL- 97-35, as amended) [42 U.S.C. 8621 et seq.]. In this report, the term LIHEAP will be used to include the Emergency Contingency Fund (ECF), which is operationally indistinguishable from LIHEAP. The Emergency Contingency Fund is under the control of the President and is used to augment LIHEAP appropriations, especially in colder or hotter than normal seasons.
- 11 An additional amount of funding can come from the Leveraging Incentive Program that has been available since FY 1991. A \$25 million leveraging incentive fund is included as part of LIHEAP's annual authorization. In order to receive funding from the leveraging fund, states must demonstrate that they have devoted non-federal funds to low income energy programs. States compete for leveraging awards and those awards are based on the amount of non-federal low income energy assistance and conservation dollars raised each year. Examples of eligible leveraging activities include utility-sponsored discount rates, utility conservation programs, state appropriations, regulatory settlements, and fuel funds.
- 12 The Department of Economic Security Energy Assistance Programs convened the Minnesota Energy Assistance Program Energy Task Force at the beginning of 2001 in order to improve LIHEAP program delivery. The task force met in 11 two-day meetings between January and October 2001. The purpose of the task force was to:
 - make policy and operational recommendations on the Energy Assistance Program's (EAP) strategic direction,
 - improve program effectiveness,
 - address issues surrounding potential changes in the energy industry, the unpredictability of external factors such as weather, fuel prices, and variable funding, and
 - acknowledge the diverse interests of key stakeholder groups.

For a list of Policy Recommendations adopted by the task force, please see either Attachment 3 to this report or the **Final Report: Energy Assistance Program Task Force**, Management Analysis Division, Minnesota Department of Administration (December 2001).
- 13 Note: Minnesota has chosen to use more limited income eligibility than allowed by federal law, which sets income eligibility at 60 percent of state median income or 150 percent of federal poverty guidelines, whichever is higher.
- 14 Information provided by EAO.
- 15 Information provided by EAO. Heating costs for natural gas in 2000-2001 increased by well over 100 percent over costs for the year before. In FY2000, LIHEAP provided assistance to 84,115 households, with a total average program year benefit per household of \$414. Therefore, the average LIHEAP grant increased by

- about 35 percent over the same time period when natural gas prices more than doubled.
- 16 Lester Baxter, "Low Income Energy Policy in a Restructured Electric Industry: An Assessment of Federal Options," U.S. Department of Energy, Contract # DE-AC05-96OR22364 (January 1997), at page 7.
- 17 See 10 C.F.R. 440.1 *et seq.*
- 18 Information provided by EAO. See also, http://www.eren.doe.gov/buildings/weatherization_assistance/technical_advances.html. The state Energy Office projects fuel savings from WAP worth over \$280,000 this program year, based on average low income fuel costs of \$660 (taken from the 2000 - 2001 heating season), and 2200 homes serviced in FY 2001.
- 19 Information from "the CIP database," maintained by Department of Commerce Energy Policy and Advocacy division.
- 20 See 1992 Minn. Laws Ch. 597.
- 21 Wisconsin prohibits disconnection from November 1 through April 15 to every household whose gross quarterly income is at or under 250 percent of federal poverty guidelines and vulnerable persons (elderly, very young, those with developmental or mental disabilities) over that income level. Even where disconnection is allowed, it must be only as a last resort after all other legal means of recourse have been exhausted. A utility carries a very heavy burden to prove in every instance that the household can be disconnected, including utility verification of income, two mandatory face to face meetings with the household, plus a visit to the home the day after the disconnection, certification by a utility executive, and prior notice to the Wisconsin Public Service Commission. Wisc. Admin. Code § 113.0304 (2000).
- 22 See MPUC Docket No. E002/M-01-1087.
- 23 **Low Income Program Report to the Legislature**, Minnesota Public Utilities Commission (January 1998), at p. 53 *et seq.*
- 24 **Economic Status of Welfare Recipients**, Program Evaluation Report of the Office of the Legislative Auditor, Table B.4 at page 71.
- 25 Energy CENTS Coalition, **Minnesota's Energy Gap: Unaffordable Energy and Low Income Minnesotans** (January 1999). Among the questions asked on the survey, as presented in Appendix 1 to the Energy CENTS Coalition report, were:
- Because of the cold winter and higher fuel costs, my family or I: (check all that apply)
- ___ could not pay full rent/mortgage
- ___ did not seek needed dental care
- ___ went at least one day without food
- ___ turned thermostat below 65 degrees
- ___ could not pay electric bill
- ___ could not pay other bills (telephone, groceries, car repair, etc.)
- ___ did not seek medical care
- My heat was shut off or I ran out of fuel
- ___ yes ___ no
- 26 Joyce Mercier, Cletus Mercier and Susan Collins, *Iowa's Cold Winters: LIHEAP Recipient Perspective*, Iowa Department of Human Rights (June 2000).
- 27 Roger Colton, **The Other Part of the Year: Low income Households and Their Need for Cooling: A State-by-State Analysis of Low income Summer Electric Bills**, Fisher, Sheehan & Colton, Public Finance and General Economics, Belmont, MS (November 1994).
- 28 Energy CENTS Coalition, **Conserving the Public Interest: Low Income Energy Efficiency and the Deregulation of the Electric Utility Industry (June 1997, updated February 1998)**. In a study funded by Northern States Power, the Minneapolis Energy Office found that the average electric bill as a percentage of income for LIHEAP recipients in the city of Minneapolis was 4 times higher than it was for the general population (4.8 percent compared to 1.2%). "Electric Use of Energy Assistance Program Recipients in Minneapolis, Minnesota," Martha J. Hewett, Timothy S. Dunsworth, and Maureen A. Quaid, Minneapolis Energy Office, May 1987, pages E-3, E-14.
- 29 Energy CENTS Coalition, **Conserving the Public Interest**, at page 17 (citing Initial Comments of Low Income Consumer, Investigation by the Department of Public Utilities on its own motion into electric restructuring, Massachusetts DPR 95-30, March 31, 1995, p. 24).
- 30 Information provided by EAO. Of the \$6,397,525, \$3,712,180 came from state funds and \$2,676,345 came from federal funds.
- 31 In addition, better coordination of CIP funds with the federally-funded programs may reduce administrative

- costs for local agencies which deliver the programs to eligible Minnesotans.
- 32 Roger D. Colton, "Funding Fuel Assistance: State and Local Strategies to Help Pay Low income Home Energy Bills," May 1996, pp. 59-61.
- 33 Jerrold Oppenheim and Theo MacGregor, "Low Income Consumer Utility Issues: A National Perspective," October 2000, pp. 26-27. See also, **The ABC's of Arrearage Forgiveness**, Roger D. Colton and Adrienne Quinn, National Consumer Law Center, Inc. (1991).
- 34 Variable costs are those costs that vary with the level of output. They are contrasted with fixed costs, those which remain constant regardless of the amount of output.
- 35 Jerrold Oppenheim and Theo MacGregor, "Low Income Consumer Utility Issues: A National Perspective," October 2000, p. 31.
- 36 The data are taken from **State Energy Price and Expenditure Report, 1999**, Energy Information Administration, U.S. Department of Energy. The data are 1999 data and are for all sales in Minnesota. If a universal service surcharge is placed on retail sales only, more of the costs would be shifted to residential customers.
- 37 The 95mcf figure is a non-weighted average of the average residential consumption by utility for the 1999-2000 heating season as reported by the Minnesota Department of Commerce in its **Review of the 2000 Annual Automatic Adjustment Reports**, Docket No. G,E999/AA-00-1027 (April 16, 2001), at page 49.
- 38 $\$0.08686/\text{mcf} \times 95\text{mcf} = \8.2517 .
- 39 The 8,037kWh figure is calculated from information in the **Minnesota Utility Data Book: A reference guide to Minnesota electric and natural-gas utilities 1965 through 1998**, Minnesota Department of Commerce (2000). The calculation is based on 1,814,547 non-farm residential customers and 14,584,205,000kWh consumption attributed to non-farm residential customers.
- 40 This attachment was generated by EAO staff, using data contained in Energy CENTS Coalition's **Conserving the Public Interest: Low Income Energy Efficiency and the Deregulation of the Electric Utility Industry (June 1997, updated February 1998)**.
- 41 Based on family of four.
- 42 Based on family of one.
- 43 Based on average residential natural gas and electric bills. Note that increased family size will increase energy use and bills and that higher cost fuels (propane and fuel oil) will also increase the energy burden.
- 44 Minnesota median income for family of four was \$56,200 in 1997.