

**LOW-INCOME HOME ENERGY AFFORDABILITY
IN MARYLAND**

By:

**Roger D. Colton
Fisher Sheehan & Colton
Public Finance and General Economics
34 Warwick Road, Belmont, MA 02478
(voice) 617-484-0597 *** (fax) 617-484-0594
(e-mail) roger@fsconline.com**

November 2002

Despite the prolonged economic growth throughout the 1990s, Maryland has experienced an increase in its low-income population in recent years. As a result, it is likely that the need for low-income energy assistance has increased and will increase further as the current economic downturn adversely affects those on the lowest rungs of the economic ladder. In addition, higher and more volatile home energy prices present a serious threat to the ability of households on fixed incomes to pay their home energy bills and retain their home energy service.

The discussion below documents low-income home energy needs in Maryland. The discussion is presented in two parts:

- Part 1 documents the number of low-income households in Maryland. Using the most recent Census data, the section quantifies the number of households living below 200 percent of the Federal Poverty Level.
- Part 2 focuses on home energy burdens in particular. A household's "energy burden" is simply the household energy bill as a percent of household income. This section finds that while low-income energy *bills* are much lower than the bills for the population as a whole, the *burdens* which these low-income bills represent as a percentage of income reach unsustainable levels. The section also reports on the consequences of inability-to-pay. Not only does this inability manifest itself in unpaid utility bills, but it also results in the need to make unacceptable trade-offs between home energy bills and other basic household needs.

POVERTY IN MARYLAND

Implicit in any determination of how many low-income households live in Maryland is the subsidiary determination of what constitutes "being poor." A common misperception is that only households living at or below 100 percent of the Federal Poverty Level are "poor."¹ The Federal

¹ A uniform Federal Poverty Level is calculated for the 48 contiguous states. Separate Poverty Levels are calculated for Alaska and Hawaii. The Poverty Level is updated annually by the U.S. Department of Health and Human Services.

Poverty Level is a measure of how “low-income” a household is, taking into account household size. Using this measure, two households with identical \$10,000 incomes are not considered equally “low-income” if one household has three members and the other has five members. The five member household would be considered “poorer.” The Federal Poverty Level, standing alone, is *not* an appropriate measure of low-income status.² Appendix A presents the incomes associated with different levels of Poverty by household size for the year 2002.

Defining “Being Poor” in Maryland

For purposes of this analysis, the break-point for “being poor” in Maryland is set at 200% of Poverty Level. In 2001, a living wage in Maryland was \$37,673. For a household of four, that represents nearly 210% of the Federal Poverty Level.

This living wage is a subsistence budget, about 33% less than the average family income in Maryland. The family using this budget does not eat out at restaurants, cannot use a television or other appliances, purchases day care that is 30% cheaper than the state average, and spends half of what the average family does on transportation. This family has no money to allocate for life insurance or the purchase of a new home. There is no capacity in this family to save for a college education, retirement or a vacation. The budget is sufficient, but just minimally sufficient, to meet a family’s basic needs.

A Living Wage for Maryland (2001) (Four person household: two parents/two children)	
	Living Wage
Food	\$5,709
Transportation	\$2,975
Housing	\$8,064
Day Care	\$2,702
Health Care	\$4,216
Clothing/Personal	\$2,402
Telephone	\$766
Taxes	\$7,924
Total living wage family budget (1999)	\$34,757
1998 CPI-U (D.C.--Baltimore)	102.5
2001 CPI-U (D.C. --Baltimore)	111.1
Adjusted Living Wage (2001)	\$37,673
SOURCE: National Priorities Project (1999). Working Hard, Earning Less: The Story of Job Growth in Maryland, National Priorities Project: Northhampton (MA). (adjusted to 2001 dollars)	

² Whatever its initial legitimacy, the Federal Poverty Level is no longer an adequate mechanism to define who is “poor” in Maryland. The formula for determining the Federal Poverty Level was developed in 1960 based on the assumption that families spend one-third of their incomes on food. In 1969, the basic procedure was changed, and thereafter the previous year’s figure was simply increased by the amount of the Consumer Price Index (CPI) without further reference to the 3:1 formula. The operative logic of the Poverty Level, however, is *still* that total non-food expenses bear a constant relationship to food costs of two-thirds (non-food) to one-third (food). Set against this, however, is the relative decline in food as the driving component of the low-income budget. In the years since 1960, non-food living expenses such as housing, medical and utility costs have risen at a rate far greater than food costs.

The Number of Low-Income Households in Maryland

The choice of what percentage of Poverty Level is to be considered “low-income” will make a difference of hundreds of thousands of households in Maryland. There are “only” 170,000 households in the state that live at or below 100 percent of the Federal Poverty Level, while there are roughly 410,000 households that live at or below 200 percent of Poverty. Roughly 280,000 households live at or below 150 percent of Poverty.

In reading these numbers, care must be taken not to impute the highest income of the poverty ranges to all households within the range. Most households that live “at or below” 150% of the Federal Poverty Level, in other words, live *below* rather than *at* that ceiling. To gain an appreciation of the full extent of energy affordability problems, it is necessary to consider the range of low-income households in Maryland. The table below shows the distribution of households, by range of Poverty Level, for households living at or below 200 percent of Poverty. As can be seen, nearly 83,000 households live at or below 50 percent of the Poverty Level, often called “extreme poverty.” Of the 410,000 households living below 200 percent of Poverty in Maryland, one fifth live in extreme Poverty (below 50% of Poverty Level) and more than two-fifths live below 100% of the Poverty level.

Households Living at Different Ranges of Poverty in Maryland (2000 Census)							
Below 50%	50 – 74%	75 – 99%	100 – 124%	125 – 149%	150 – 174%	175 – 184%	185 – 200%
82,878	39,181	46,016	52,737	59,195	62,883	27,788	36,852

Source: Derived from Tables H18 and P88 (2000 Census).

Growth in Low-Income Population

Not only are there substantial numbers of low-income households in Maryland, but Maryland has experienced a disproportionate *growth* in the number of its residents living at Poverty Level income in the decade of the 1990s as well. Indeed, by 2000, not only did the state have *more* low-income residents than it did ten years prior, but the state also had *proportionately* more low-income residents. Between 1990 and 2000, the population of Maryland grew by 11% (503,785 persons). In contrast, the population of persons in extreme poverty (below 50% of the Federal Poverty Level) grew 14% (26,040) during the same time period. Disproportionate growth occurred also in the number of persons living between 50% and 100% of Poverty, as well as in the number of people living between 100% and 150% of Poverty.

	Population by Poverty Range 1990 vs. 2000 Census				
	Total	Below 50%	50-100%	100-150%	150-200%
2000 Census	5,164,376	216,311	222,365	292,143	332,835
1999 Census	4,660,591	190,271	195,025	244,687	304,487
Increase: # persons	503,785	26,040	27,340	47,456	28,348
Pct Increase	11%	14%	14%	19%	9%

While the percentage growth in the number of persons living between 150% and 200% of the Federal Poverty Level was smaller than the growth in the total state population, the

disproportionately high growth in the lower incomes indicates that this group grew more slowly because the incomes of households previously in this range went *down* rather than up.

The growth in poverty generally, and in extreme poverty in particular, has not been uniform through the state. Appendix B presents this data on a county-by-county basis. Appendix B shows, for example, that while Baltimore City lost population in the 1990s, it lost proportionately fewer low-income residents. In contrast, several counties historically considered to be higher-income counties experienced a growth in extreme poverty dramatically higher than the population growth as a whole. Counties such as Anne Arundel, Montgomery, Prince George’s and Wicomico (among others) experienced a growth in extreme poverty of 40% or more. The growth is higher not only in percentage terms, but in terms of absolute numbers as well. Montgomery county, for example, had more than 7,600 more persons in extreme poverty in 2000 than in 1990. Price George’s county had more than 9,400 more persons in extreme poverty while Howard county had nearly 2,200 more.

“Being Poor” versus Being on Public Assistance

Low-income status in Maryland is not associated simply with the receipt of public assistance. Tracking public assistance participation rates does not provide an accurate picture of the number of low-income households in Maryland or of the trend in Poverty over time. The state’s Temporary Assistance to Needy Family (TANF) program, the program most commonly thought of as “welfare,” has seen substantial decreases in participation in the past five years. While in 1997, Maryland had more than 52,000 TANF recipient households, by 2000, the participation level was down to less than 30,000.

Similarly, the federal Food Stamp program is viewed as the most ubiquitous public assistance program in the nation. As with TANF, Food Stamp participation rates in Maryland have decreased substantially in recent years. While in 1997, Maryland had more than 150,000 households participating in the Food Stamp program, by 2001, that participation has fallen to less than 100,000. In the past five years, Food Stamp participation has decreased by nearly 55,000 households.

Public Assistance Participation Rates (households)					
Maryland: 1997 – 2001					
	1997	1998	1999	2000	2001
TANF	52,225	44,297	33,045	29,101	N/A
Food Stamps	151,910	137,309	117,311	101,048	97,026
Source: TANF: http://www.acf.hhs.gov/programs/opre/tanfindex.htm Food Stamps: http://www.fns.usda.gov/pd/fsfyhh.htm					

There may be a tendency to attribute these falling participation rates to the booming economy of the 1990s. It is important to remember, however, that despite the booming economy, and despite these falling participation rates, Maryland had 130,000 *more* low-income residents in 2000 than it did in 1990.

The Struggles of the “Working Poor”

Even many working residents of Maryland do not earn sufficient income to pay all household expenses. As discussed above, in 1998, the National Priorities Project documented a living wage for each state in the United States. Maryland’s living wage was \$34,757 for a household of four. In 2001 dollars, the living wage is \$37,673. Much of the employment in Maryland, however, does not allow a household to earn an income equal to this living wage. Indeed, Appendix C shows that more than 70% of the jobs with the most growth in Maryland pay less than this living wage. Appendix C shows further that more than two-fifths (43%) of these jobs pay below *half* a living wage.

Even Maryland counties that are traditionally viewed as being relatively wealthy have substantial numbers of workers receiving poverty level wages. Appendix D takes several such illustrative counties and presents both the number of employees and the average annual wage within selected retail and service employment jobs.³ In Frederick County, for example, more than 5,700 workers in “eating and drinking establishments” work for an average annual wage of somewhat less than \$11,400. Over 2,000 workers in Frederick County earn only \$16,050 in food stores, while nearly 1,750 earn only \$14,505 in “general merchandise stores.” The largest group of retail and service workers in Garrett County (734) earn less than \$9,100 in annual wages at eating and drinking establishments. In Howard County, nearly 14,000 workers earned less than \$15,000 in annual wages while nearly 22,000 earned less than \$20,000 in annual wages. In Kent County, five of the seven largest groups of workers earned an average annual wage of \$16,000 or less. In Montgomery County, nearly 8,000 workers earn less than \$15,000 in annual wages, while nearly 46,000 workers earned less than \$20,000. These wage levels are at Poverty Level or below. As Appendix A shows, \$15,020 is 100% of Poverty for a 3-person household while \$18,100 is 100% of Poverty for a 4-person household.

The problems of the working poor, however, do not lie simply with their *level* of income. They lie with the “fragility” of income as well. In 2002, the National Fuel Funds Network (NFFN) reported on the factors that cause a working poor household to temporarily lose its already-insufficient income. According to NFFN, one factor particularly contributing to the instability of income of the working poor involves the lack of paid leave benefits. NFFN cited research by the Institute for Women’s Policy Research (IWPR) reporting that:

Low-income workers often have few or no workforce benefits, like paid leave or flexible schedules that are essential if workers are to meet the needs of their family members. Paid leave would make it economically possible for workers to spend time away from work in order to address their family’s needs. Flexibility would allow workers to meet with teachers, care for sick or disabled family members, and deal with emergencies without having to miss work or go without wages. . . Without flexibility in their work schedules or access to paid leave, workers have no choice but to take unpaid leave when family or medical emergencies occur.

³ This data does not consider the full group of jobs that are available in any given county. It looks only at selected retail and service sector jobs.

* * *

Families in the bottom quartile of income are significantly less likely to have access to paid sick leave, paid vacation leave, or flexible work schedules than families with higher incomes. More than three fourths (76 percent) of workers in the bottom quartile of family income lack regular sick leave; more than half (58 percent) do not have consistent vacation leave. Families in the bottom income quartile are more likely than other workers to lack *both* sick leave *and* vacation leave. (emphasis in original).

Low-income families are also less likely to have flexible work schedules. Among low-income parents, 78 percent have jobs that offer no flexibility at all. The majority of workers beneath the median income level say they cannot choose or change their starting and quitting times, or take days off to care for their sick children.⁴

The lack of paid leave time directly contributes to the temporary inability of working poor households to maintain utility bill payments. A person working 35 hours a week on hourly wages may lose three days of work simply due to a sick child missing school and requiring care. If no leave time exists for that employee, the sick child translates into permanently lost wages. Personal illness, too, results in permanently lost wages, whether illness keeps a worker away from his or her job for a day, for two days, or for a week.

NFFN reported that the lost wages attributable to the lack of paid leave for the working poor is not theoretical. It cited data from the U.S. Department of Labor showing that absence rates in occupations where the working poor tend to work are from 50% to 60% higher than the absence rates in occupations populated by their higher income counterparts.⁵ Absence rates for higher income occupations are lower because time missed from work covered by paid leave is not counted as an "absence."

Growth in Income Disparity

One long-term trend in Maryland is the increasing disparity between the incomes of the wealthy and the poor.⁶ In the late 1970s, the richest 20 percent of families in Maryland had an average income that was 6.9 times as large as the poorest 20 percent of Maryland families. By the late 1990s, however, that income ratio had increased to 8.6.

⁴ National Fuel Funds Network (March 2002). *A Fragile Income: Deferred Payment Plans and the Ability to Pay of Working Poor Utility Customers*, quoting, Jody Heymann (October 2001). *The Widening Gap: A New Book on the Struggle to Balance Work and Caregiving*, at 3, Institute for Women's Policy Research: Washington D.C.

⁵ *A Fragile Income*, *supra*, at 5.

⁶ Center on Budget and Policy Priorities (April 2002). *Pulling Apart: A State-by-State Analysis of Income Trends*, Maryland State Table, Center on Budget and Policy Priorities: Washington D.C.

The income disparity increased substantially in the 1990s. The average income of the poorest fifth of family in Maryland increased by \$3,540 between the late 1980s and the late 1990s, from \$17,370 to \$20,910. During that same time period, the average income of the richest fifth of families increased by \$45,510, from \$135,290 to \$180,800. While the incomes of the poorest fifth of Maryland households increased by 20.4% in the decade of the 1990s, the income of the richest fifth increased by 33.6%.

Summary

Several conclusions march forward about low-income households in Maryland in 2000:

- The state has more low-income residents in 2000 than it did in 1990. While there were 630,000 persons with income below 150% of Poverty Level in 1990, there were 730,000 persons at that Poverty Level in 2000. While there were 935,000 persons below 200% of Poverty in 1990, there were 130,000 persons below 200% in 2000
- The proportion of Maryland residents living in Poverty has increased. While 13.5% of all Maryland residents lived below 150% of Poverty in 1990, that percentage had increased to 14.2% in 2000. While 20.1% of all Maryland residents lived below 200% of Poverty in 1990, that percentage had increased to 20.6% in 2000.
- The number of Maryland residents living in extreme Poverty in Maryland has increased. While 190,000 Maryland residents lived in extreme Poverty in 1990, 216,000 residents lived in extreme poverty in 2000. “Extreme poverty” involves living with incomes at or below 50% of the Federal Poverty Level.
- The growth in Poverty generally, and in extreme poverty in particular, was not consistent across the state. Even some counties traditionally viewed as being well-off experienced disproportionate increases in extreme poverty.
- The number of low-income residents does not track the number of public assistance recipients. While, for example, both the number of Food Stamp recipients and the number of TANF recipients in Maryland have decreased dramatically through 2001, the number of low-income Maryland residents increased by nearly 135,000 persons.
- The problems of being a low-income worker do not stop with their level of income. Even this income has a fragile basis. Missed days of work can result in permanently lost wages. More than three-fourths of workers in the bottom quartile of income lack any sick leave, and nearly 60% lack vacation leave. Nearly 80% of low-income workers have no flexibility to change their starting or quitting times in response to personal or family emergencies.
- Not only do low-income Maryland households lack money in absolute terms, but they are also becoming relatively poorer *vis a vis* other Maryland residents. While the richest 20% of Maryland families had incomes 6.9 times that of the poorest 20% in the late 1980s, by the late 1990s, that ratio had increased to 8.6 times.

ENERGY CONSUMPTION AND ENERGY BURDENS IN MARYLAND

Given their poverty levels, it comes as no surprise that Maryland’s low-income consumers face substantial energy bill affordability problems. While low-income customers tend to use less energy, and spend fewer dollars, on home energy than the average household in Maryland do, the *burden* of such expenditures as a percentage of income is much greater. The lower total energy bill in Maryland is offset when differences in income are also considered.

Total Home Energy Bills

Low-income home energy bills in Maryland are smaller than bills for the population as a whole, in dollar terms, across the state. Appendix E presents home energy bills and burdens by county for the state of Maryland.⁷ As the data shows, low-income bills range from roughly 75% to 80% of the bills for the total population in the same county. In Baltimore city, for example, a low-income bill of \$1,186 compares to an average population bill of \$1,633 (73%). In Caroline County, a low-income bill of \$1,380 is 82% of the average population bill of \$1,691.⁸

Despite these lower bills, the energy burdens faced by low-income households are much higher. As a matter of arithmetic, home energy burdens increase as Poverty Level decreases. Households living with incomes at or below 50% of Poverty –remember there are nearly 83,000 of these households statewide in Maryland—have energy burdens from roughly 10 to 15 times higher than the population as a whole.⁹ The energy burden of 42% for households living in extreme poverty in Saint Mary’s County, for example, compares to the total population burden (at median income) of 4%. The energy burden of 37% for households living in extreme poverty in Charles County compares to the total population energy burden (at median income) of 3%. An energy burden of 40% means that the household experiencing that burden receives an energy bill equal to 40% of its gross household income.¹⁰

Total home energy burdens have moved so that they are, on average, across-the-board, unaffordable to Maryland residents with incomes below 150% of the Federal Poverty Level. In 2001, in no county of the state were home energy bills less than the affordable level of 6% of income.¹¹ In only three counties (Howard, Talbot, Wicomico) were bills, on average, equal to an affordable level.

⁷ The calculation of home energy bills excludes customers using the following fuels as their primary heating sources: wood, solar, kerosene, and other. These customers represent an insubstantial component of the total in Maryland.

⁸ No adjustment is made for EUSP discounts on electric bills.

⁹ Note that this data does *not* compare low-income bills and burdens to *non*-low-income bills and burdens. It compares low-income bills and burdens to those of the total population (of which low-income is one subset).

¹⁰ It would be inaccurate to say *ipso facto* that the household spends 40% of its income on home energy. That presumes that the bill gets paid. Whether a bill that is received is actually paid is an issue that this assessment does not address.

¹¹ Home utility burdens should not exceed 20% of total shelter costs. In addition, to be sustainable, a common rule is that shelter costs should not exceed 30% of income. A combination of these two “rules”

Even at incomes up to 185% of Poverty Level, home energy in Maryland has become only minimally affordable. In 12 of Maryland's 23 counties (and in Baltimore city) were home energy burdens at the top end of affordability for households with incomes at 150% to 185% of Poverty; in a 13th county (Garrett), an average bill exceeded the affordable 6% level in the 150% to 185% of Poverty range. Given that these average bills are at the top end of affordability, many households at these higher income ranges will face unaffordable burdens. Normal variations in household energy consumption will yield household bills that are higher than the average.

Home Heating Bills

Home heating bills reveal similar relationships between the low-income population and the population as a whole. As Appendix E shows, low-income heating bills are roughly 70% to 80% as high as the heating bills of the total population. The Allegany County low-income heating bill of \$687, for example, is 72% as high as the \$960 heating bill for the total population. The Howard County low-income heating bill of \$623 is 67% of the \$934 bill for the total population average.

Despite these lower bills, the home heating burden is much higher for low-income households. The heating burden for those in extreme poverty –these are annual burdens, not burdens in the month in which the heating bill is received—run from roughly 8 to 10 times the burden for the population at median income.

Appendix E shows that, as with total home energy bills, Maryland home heating bills have risen to the point where they are, on average, unaffordable to low-income Maryland residents with incomes much higher than simply those households in extreme poverty. Given an affordable heating burden of 2% of income,¹² only one Maryland county (Talbot) has an affordable heating burden for households with incomes at or below 185% of the Federal Poverty Level. In contrast, two counties (Garrett, Saint Mary's) have home heating burdens twice the affordable level of 2% for households in the 150% to 185% of Poverty range. Average heating bills are, across-the-board, unaffordable for households with incomes at or below 150% of the Federal Poverty Level.

Winter Season Home Heating Burdens

Not even the annual home energy burdens discussed above, however, tell the complete story with respect to low-income energy needs. Frequently, it is not the *annual* burden that presents an insurmountable affordability barrier so much as it is the higher heating burdens occurring during the winter heating season.

¹² demonstrates that home energy costs should not exceed 6% of income (20% x 30% = 6%). Moreover, this does not take into account dramatically increasing bills for water and sewer service today. Affordable home energy burdens are set at 6% of income. Heating is roughly one-third of total home energy consumption. The corresponding affordable home heating burden, therefore, would be 2% of income devoted to home heating.

Appendix F presents actual natural gas bills by month for the state of Maryland for the months of January 1998 through May 2002 (the most recent month of data available). These bills represent actual prices and consumption levels reported by the U.S. Department of Energy. They have not been weather-adjusted. Nor have they been adjusted to account for the lower low-income consumption.

Based upon this data, the table below presents the low-income winter heating burden for four winter heating seasons (1998-1999, 1999-2000, 2000-2001, 2001-2002). The winter period is defined to include the four months of December, January, February and March. Income is defined to be one third of annual income at various Poverty Levels. Unlike the bills presented in Appendix F, the bills underlying the table below includes a downward adjustment to account for the lower consumption of low-income customers. The bills underlying the table below include only natural gas consumption. They do not include electric consumption for natural gas customers.

Winter Season Low-Income Natural Gas Burdens (Maryland)				
Poverty Range	1998-1999	1999-2000	2000-2001	2001-2002
0-49%	35%	43%	71%	42%
50-74%	14%	17%	29%	17%
75-99%	10%	12%	20%	12%
100-124%	8%	10%	16%	9%
125-149%	6%	8%	13%	8%
150-184%	5%	6%	11%	6%
185-200%	5%	6%	9%	5%
Seasonal bills /a/	\$363	\$456	\$767	\$470
NOTES				
/a/ Seasonal bills are defined to include consumption for the months of December through March.				

The winter natural gas burdens for low-income households represent serious affordability problems for low-income households. The 2001-2002 winter bills presented energy burdens of 42% for households in extreme poverty (below 50% of the Federal Poverty Level). Even those households for whom heating burdens approached an affordable level on an annual basis (125% to 185% of Poverty Level) are called upon to pay between 5% and 8% of their income for natural gas in the winter heating season, between three and four times higher than what is considered to be an affordable heating burden (2%).

The natural gas price spikes in the 2000/2001 heating season are reflected in atypically high winter burdens. To the extent that the natural gas market experiences increasing volatility, however, these burdens will become more common and more of a problem. As natural gas is increasingly used for electricity generation, there is an increasing likelihood that hot summer weather will divert gas from being placed into storage during the summer months to electricity production for air conditioning. This diversion will create ongoing heating season supply shortfalls with the corresponding price volatility as experienced in the 2000/2001 winter heating season.

Appendix F also shows that natural gas prices, after the spike in the 2000-2001 period, have not returned to their 1998 and 1999 levels. January 2002 prices were more than \$0.20 higher than either January 1998 or January 1999 prices. April and May 2002 prices were more than \$0.20 higher than the April and May prices in 1998 and 1999 respectively.

These price increases have far outstripped increases in the Federal Poverty Level. The table below shows the percentage increases in winter month prices between the 1998-1999 winter heating season and the 2001-2002 winter heating season. As can be seen, with the exception of the February monthly price, the winter month natural gas prices in Maryland have increased between 20% and 30% since the 1998-1999 winter heating season.

Winter Month Natural Gas Price Increases (Maryland) 1998-1999 vs. 2001-2002 Winter Heating Season				
Month	1998-1999 Price	2001-2002 Price	Dollar Change	Percentage Change
December	\$0.812	\$0.962	\$0.150	18%
January	\$0.737	\$0.946	\$0.209	28%
February	\$0.781	\$0.820	\$0.039	5%
March	\$0.699	\$0.910	\$0.211	30%

In contrast, between 1998 and 2002, the Federal Poverty Level increased from \$8,050 to \$8,860 (for a one-person household), somewhat less than 11%.¹³ Even if a low-income household had income increases that kept pace with the increase in Poverty Level –Poverty Level is tied to increases in the Consumer Price Index, not to increases in money income— these low-income Maryland households have fallen substantially further behind in their ability to pay winter heating bills in the past three years.

The Consequences of Inability to Pay

It is reasonable to expect many low-income households to miss payments on their utility bills because of their inability to pay. There is no question but that payment-troubled customers are disproportionately low-income.¹⁴ National data reported by the U.S. Census Bureau indicates that the proportion of households in arrears at any given point in time is substantially higher for the low-income population than for the population as a whole. One 1995 census study, for example, reported that while 9.8% of non-poor families could not pay their utility bills in full, 32.4% of poor families could not do so.¹⁵

Unfortunately, systematic information on the arrears of low-income customers is not collected on a state level basis. However, there is sporadic corroborative information from the states. One 1998 Illinois report, for example, indicated that 44.5% of LIHEAP-assisted natural gas customers were in arrears.¹⁶ So, too, has an analysis by the staff of the New Hampshire Public Utilities Commission

¹³ Changes in the Poverty Levels for other household sizes would be proportionate.

¹⁴ This is not to say that all low-income customers are payment-troubled, nor that all payment-troubled customers are low-income. It is merely to say that low-income customers are disproportionately payment-troubled.

¹⁵ U.S. Census Bureau, *Extended Measures of Well-Being: 1992*, P70-50RV (November 1995).

¹⁶ Department of Energy and Community Affairs, *Residential Energy Costs and Assistance in Illinois: The 1997 – 98 Winter*, at 6, Springfield (IL).

estimated that roughly 35% of the low-income *electric* customers entering the Electric Assistance Program (EAP) entered the program with arrears. In contrast, estimates place the average number of all residential customers in arrears at any given point in time for the typical utility at around 12% of the total customer base.

Nonpayment, however, is not the only impact of home energy unaffordability. The paid-but-unaffordable bill is a common phenomenon. In order to make such payments, households are forced into making compromises on basic household necessities. One study by the Iowa Department of Human Rights, for example, found that Iowa households receiving benefits from the federal Low-Income Home Energy Assistance Program (LIHEAP) go to extraordinary lengths to pay unaffordable bills.¹⁷ The Iowa study found, for example, that:

- More than 12% of the more than 3,000 Iowa survey respondents reported going without food for at least one meal a week to try to save enough money to pay their utility bills.
- More than 20% reported going without medical care, by either not filling prescriptions, taking prescription medicines in lower than prescribed doses, or by skipping or postponing doctor's appointments in order to save money to pay for utility bills.
- Nearly 10% reported not making their rent or mortgage payments in order to pay their home heating bills.

Summary

Several conclusions march forward with respect to low-income energy affordability in Maryland:

- Both home heating and total home energy bills, on average, have become unaffordable to households living with incomes as high as 150% to 185% of the Federal Poverty Level. Unaffordability is no longer the exclusive province of the very low-income.
- Home heating and total home energy bills for households living in extreme Poverty (below 50% of the Federal Poverty Level) have reached crisis proportions. Annual total home energy burdens of 35% and more, as well as home heating burdens of 20% and more, are experienced in every county of the state.
- Annual heating burdens tell an incomplete story of low-income home energy needs. Winter heating season burdens of 10% to 45% are experienced for households with incomes of up to 100% of Poverty even in years without significant price spikes.
- Home heating price increases are fast outstripping increases in the Federal Poverty Level. Winter natural gas prices in Maryland increased at a rate three times faster than did the Federal Poverty Level.

¹⁷ Joyce Mercier, Cletus Mercier, Susan Collins (June 2000). *Iowa's Cold Winters: LIHEAP Client Perspective*, Iowa Department of Human Rights: Des Moines (IA).

- The inability to pay home energy bills results in a disproportionate payment impact on low-income customers. While low-income customers were three times as likely to not pay their home utility bills in a full and timely fashion, nonpayment is not the only impact of unaffordability. Even if paid, unaffordable bills force low-income households into making unacceptable choices between competing basic household needs.

APPENDIX A

Poverty Levels by Household Size 2002				
	1-person	2-person	3-person	4-person
50% of Poverty	\$4,430	\$5,970	\$7,510	\$9,050
100% of Poverty	\$8,860	\$11,940	\$15,020	\$18,100
150% of Poverty	\$13,290	\$17,910	\$22,530	\$27,150
200% of Poverty	\$17,720	\$23,880	\$30,040	\$36,200

APPENDIX B
PAGE 1 OF 2

	Population Increase by Poverty Range Percent Increase: 1990 – 2000 Maryland (by County)				
	Total Population	0-50%	50-100%	100-150%	150-200%
Allegany County, Maryland	-4%	-16%	-14%	-7%	-11%
Anne Arundel County, Maryland	15%	39%	27%	23%	8%
Baltimore County, Maryland	9%	26%	30%	35%	14%
Calvert County, Maryland	45%	35%	12%	40%	29%
Caroline County, Maryland	11%	-10%	27%	14%	0%
Carroll County, Maryland	23%	27%	22%	37%	10%
Cecil County, Maryland	22%	12%	20%	10%	6%
Charles County, Maryland	19%	20%	41%	22%	18%
Dorchester County, Maryland	1%	18%	-12%	23%	-22%
Frederick County, Maryland	30%	45%	3%	5%	22%
Garrett County, Maryland	6%	-21%	7%	6%	-12%
Harford County, Maryland	22%	20%	15%	14%	32%
Howard County, Maryland	32%	89%	46%	61%	70%
Kent County, Maryland	7%	28%	16%	7%	-12%
Montgomery County, Maryland	16%	49%	48%	66%	37%
Prince George's County, Maryland	10%	41%	52%	44%	29%
Queen Anne's County, Maryland	19%	6%	19%	23%	-7%
St. Mary's County, Maryland	14%	27%	2%	-20%	-15%
Somerset County, Maryland	1%	52%	16%	-3%	-18%
Talbot County, Maryland	11%	-10%	22%	15%	15%
Washington County, Maryland	8%	15%	7%	3%	0%
Wicomico County, Maryland	15%	54%	11%	21%	-4%
Worcester County, Maryland	33%	40%	5%	21%	13%
Baltimore city, Maryland	-12%	-9%	-7%	-3%	-13%
State	11%	14%	14%	19%	9%

APPENDIX B
PAGE 2 OF 2

	Growth/(Contraction) in Number of Persons by Poverty Range (1990 Census to 2000 Census)												
	By County (Maryland)												
	Below 50	50-74	75-99	100-124	125-149	150-174	185-184	185-200	200+	Total	50 - 100	100 - 150	150 - 200
Allegany County	(787)	(283)	(646)	(609)	89	55	(294)	(710)	(4)	(3,189)	(929)	(520)	(949)
Anne Arundel County	3,252	1,379	1,313	1,678	1,846	1,560	850	(517)	51,229	62,590	2,692	3,524	1,893
Baltimore County	4,753	2,942	2,754	3,831	5,909	2,254	2,136	977	34,683	60,239	5,696	9,740	5,367
Calvert County,	408	140	33	25	771	424	248	139	20,813	23,001	173	796	811
Caroline County	(145)	343	124	95	255	(23)	22	(8)	2,218	2,881	467	350	(9)
Carroll County	513	151	425	839	712	412	425	(197)	23,816	27,096	576	1,551	640
Cecil County	285	511	64	274	163	548	277	(447)	13,552	15,227	575	437	378
Charles County	522	461	528	570	229	719	157	68	16,100	19,354	989	799	944
Dorchester County	271	(415)	82	6	588	(129)	27	(684)	627	373	(333)	594	(786)
Frederick County	1,394	125	(24)	207	143	894	686	242	40,859	44,526	101	350	1,822
Garrett County	(336)	(177)	344	83	131	(661)	117	86	2,043	1,630	167	214	(458)
Harford County	787	260	526	516	601	1,112	895	1,046	32,746	38,489	786	1,117	3,053
Howard County	2,176	440	1,091	1,567	955	2,139	1,355	423	49,900	60,046	1,531	2,522	3,917
Kent County	213	5	181	7	81	(189)	36	(67)	842	1,109	186	88	(220)
Montgomery County	7,530	2,563	5,280	6,368	7,328	5,221	2,832	2,778	76,624	116,524	7,843	13,696	10,831
Prince George's County	9,413	4,302	5,199	4,668	7,655	6,437	3,737	1,498	28,315	71,224	9,501	12,323	11,672
Queen Anne's	60	63	179	233	135	(28)	5	(135)	5,981	6,493	242	368	(158)
St. Mary's County	564	440	(366)	(1,324)	221	(272)	(236)	(453)	11,539	10,113	74	(1,103)	(961)
Somerset County	480	134	214	(34)	(39)	(414)	140	(117)	(257)	107	348	(73)	(391)
Talbot County	(112)	157	162	194	119	(4)	405	(38)	2,316	3,199	319	313	363
Washington County	686	237	200	286	(33)	69	723	(781)	8,206	9,593	437	253	11
Wicomico County	1,596	36	552	570	778	211	31	(533)	7,156	10,397	588	1,348	(291)
Worcester County	459	194	(55)	139	487	52	482	(87)	9,713	11,384	139	626	447
Baltimore city	(7,942)	(3,627)	(1,201)	(1,923)	66	(4,188)	(576)	(4,814)	(64,416)	(88,621)	(4,828)	(1,857)	(9,578)
State	26,040	10,381	16,959	18,266	29,190	16,199	14,480	(2,331)	374,601	503,785	27,340	47,456	28,348

APPENDIX C

OCCUPATIONS IN MARYLAND WITH THE LARGEST GROWTH RATE							
		Occupation	Wage	% of Living Wage	Annual Growth	Growth Rank	
Below Living Wage	Half Living Wage	Waters and waitresses	\$11,440	33%	1,045	1	
		Food preparation workers	\$12,626	36%	391	20	
		Cashiers	\$13,666	39%	1,032	2	
		Teacher aides & Edu assistants	\$14,144	41%	405	18	
		Jans, Clenrs, Maids, Housekeepers	\$14,498	42%	768	6	
		Salespersons – Retail	\$15,288	44%	827	5	
		Guards	\$16,182	47%	455	15	
	Nurse aides, orderlies, attendants	\$16,515	48%	523	11		
			Receptionists and information clerks	\$17,930	52%	523	12
			Truck drivers, light and heavy	\$23,899	69%	709	9
			Food service and lodging managers	\$24,939	72%	545	10
			Supervisors, marketing and sales	\$27,165	78%	873	4
			Carpenters	\$28,309	81%	477	13
			Clerical supervisors and managers	\$30,160	87%	477	14
Above a Living Wage		Teachers—Secondary schools	\$36,473	105%	445	16	
		Registered nurses	\$38,501	111%	723	8	
		System analysts	\$43,992	127%	741	7	
		General managers and top executives	\$51,854	149%	909	3	
		Computer engineers	\$58,781	169%	427	17	
		Computer scientists	\$94,182	271%	395	19	

APPENDIX D
PAGE 1 OF 5

Employees and Average Annual Wage by SIC Code: Frederick County (MD)	Number of Employees				Average Annual Wage			
	1997	1998	1999	2000	1997	1998	1999	2000
SIC 52: Building materials and garden supplies	690	781	926	865	\$19,789	\$22,760	\$23,211	\$24,232
SIC 53: General merchandise stores	1,659	1,708	1,753	1,746	\$12,523	\$13,089	\$13,564	\$14,505
SIC 54: Food stores	1,561	1,674	1,706	2,069	\$15,636	\$15,482	\$15,608	\$16,050
SIC 56: Apparel and accessory stores	666	834	955	899	\$9,852	\$10,277	\$10,957	\$12,092
SIC 57: Furniture and home furnishing stores	683	826	915	1,011	\$21,702	\$22,147	\$23,043	\$24,922
SIC 58: Eating and drinking establishments	5,416	5,440	5,429	5,707	\$10,054	\$10,674	\$11,445	\$11,389
SIC 59: Miscellaneous retail (private)	1,632	1,605	2,069	2,218	\$15,100	\$16,332	\$17,140	\$18,316
SIC 70: Hotels and other lodging places	356	313	398	489	\$12,890	\$14,567	\$14,455	\$14,009
SIC 72: Personal services (private)	677	676	725	722	\$14,985	\$15,452	\$16,392	\$17,427
SIC 75: Auto repair, services, parking	647	644	673	772	\$23,288	\$24,023	\$26,813	\$26,939
SIC 78: Motion pictures	215	187	162	154	\$6,464	\$7,792	\$9,844	\$9,359
SIC 79: Amusement and recreation services	1,114	1,132	1,025	971	\$14,667	\$14,886	\$12,006	\$11,440
SIC 82: Educational services (private)	1,296	1,356	1,345	1,247	\$21,850	\$22,194	\$23,014	\$23,742
SIC 83: Social services (private)	1,299	1,348	1,475	1,546	\$16,202	\$16,887	\$18,089	\$19,252
SIC 88: Private households	121	123	109	101	\$8,709	\$8,924	\$9,759	\$11,673

APPENDIX D
PAGE 2 OF 5

Employees and Average Annual Wage by SIC Code: Garrett County (MD)	Number of Employees				Average Annual Wage			
	1997	1998	1999	2000	1997	1998	1999	2000
SIC 52: Building materials and garden supplies	249	256	251	298	\$18,367	\$18,654	\$19,523	\$20,770
SIC 53: General merchandise stores	ND	55	57	79	ND	\$14,783	\$14,777	\$11,738
SIC 54: Food stores	388	390	387	414	\$12,350	\$13,356	\$13,552	\$13,464
SIC 56: Apparel and accessory stores	ND	23	ND	ND	ND	\$14,985	ND	ND
SIC 57: Furniture and home furnishing stores	ND	57	NF	NF	ND	\$13,779	ND	ND
SIC 58: Eating and drinking establishments	600	645	624	734	\$7,988	\$9,187	\$9,514	\$9,082
SIC 70: Hotels and other lodging places	254	227	297	287	\$7,781	\$8,347	\$9,075	\$9,564
SIC 72: Personal services (private)	50	61	61	61	\$10,690	\$117,376	\$14,340	\$14,158
SIC 75: Auto repair, services, parking	73	63	83	94	\$16,514	\$16,262	\$16,666	\$16,463
SIC 76: Miscellaneous repair services	88	102	104	101	\$21,131	\$21,846	\$25,632	\$28,772
SIC 78: Motion pictures	ND	ND	ND	ND	ND	ND	ND	ND
SIC 79: Amusement and recreation services	ND	241	260	259	ND	\$11,352	\$9,930	\$10,050
SIC 82: Educational services (private)	ND	ND	ND	ND	ND	ND	ND	ND
SIC 83: Social services (private)	314	346	352	379	\$14,405	\$14,233	\$15,146	\$15,892
SIC 88: Private households	29	28	38	30	\$9,832	\$10,774	\$10,218	\$10,857

Employees and Average Annual Wage by SIC Code: Howard County (MD)	Number of Employees				Average Annual Wage			
	1997	1998	1999	2000	1997	1998	1999	2000
SIC 52: Building materials and garden supplies	595	610	600	518	\$16,134	\$18,973	\$20,543	\$23,161
SIC 53: General merchandise stores	2,269	2,241	2,352	2,463	\$13,827	\$14,335	\$15,727	\$16,534
SIC 54: Food stores	3,692	3,654	3,647	3,519	\$22,956	\$24,568	\$23,921	\$25,534
SIC 56: Apparel and accessory stores	944	947	906	3,408	\$12,057	\$13,248	\$13,698	\$14,270
SIC 57: Furniture and home furnishing stores	1,191	1,337	1,472	1,500	\$27,375	\$34,136	\$42,188	\$45,307
SIC 58: Eating and drinking establishments	7,279	7,727	7,901	8,071	\$9,922	\$10,319	\$10,991	\$11,526
SIC 59: Miscellaneous retail (private)	3,302	3,600	3,745	3,578	\$18,954	\$21,807	\$23,531	\$22,754
SIC 70: Hotels and other lodging places	621	711	729	920	\$15,741	\$21,080	\$22,112	\$20,706
SIC 72: Personal services (private)	1,286	1,969	2,381	2,403	\$16,849	\$22,984	\$27,144	\$28,511
SIC 75: Auto repair, services, parking	676	673	715	818	\$29,538	\$30,723	\$31,605	\$33,791
SIC 78: Motion pictures	156	208	258	221	\$12,706	\$12,781	\$15,005	\$14,334
SIC 79: Amusement and recreation services	2,130	2,379	2,273	2,281	\$12,740	\$13,070	\$13,377	\$13,271
SIC 82: Educational services (private)	807	855	997	1,226	\$23,372	\$23,933	\$23,307	\$23,740
SIC 83: Social services (private)	2,873	2,802	3,127	3,346	\$17,336	\$17,398	\$17,960	\$19,230
SIC 88: Private households	289	307	318	295	\$12,444	\$13,111	\$14,542	\$15,751

Employees and Average Annual Wage by SIC Code: Kent County (MD)	Number of Employees				Average Annual Wage			
	1997	1998	1999	2000	1997	1998	1999	2000
SIC 52: Building materials and garden supplies	91	84	81	106	\$15,273	\$17,414	\$17,265	\$19,075
SIC 53: General merchandise stores	104	89	73	75	\$8,894	\$8,846	\$9,995	\$9,991
SIC 54: Food stores	210	217	238	249	\$16,668	\$15,798	\$14,907	\$14,668
SIC 56: Apparel and accessory stores	19	21	23	28	\$7,587	\$7,537	\$9,868	\$10,103
SIC 57: Furniture and home furnishing stores	51	44	52	61	\$16,443	\$17,738	\$19,767	\$18,027
SIC 58: Eating and drinking establishments	614	627	628	651	\$9,228	\$10,189	\$9,952	\$10,370
SIC 59: Miscellaneous retail (private)	154	162	188	192	\$15,845	\$15,861	\$15,268	\$14,402
SIC 70: Hotels and other lodging places	217	206	226	262	\$14,977	\$13,928	\$14,608	\$16,052
SIC 72: Personal services (private)	47	58	59	51	\$11,357	\$12,120	\$12,592	\$14,112
SIC 75: Auto repair, services, parking	71	67	60	66	\$21,092	\$22,805	\$24,014	\$23,953
SIC 78: Motion pictures	ND	ND	ND	ND	ND	ND	ND	ND
SIC 79: Amusement and recreation services	83	80	79	93	\$11,713	\$13,439	\$12,371	\$13,650
SIC 82: Educational services (private)	ND	478	490	515	ND	\$23,886	\$24,138	\$25,107
SIC 83: Social services (private)	147	149	163	188	\$13,648	\$14,912	\$13,505	\$16,742
SIC 88: Private households	61	65	73	63	\$11,863	\$11,977	\$12,435	\$13,273

APPENDIX D
PAGE 5 OF 5

Employees and Average Annual Wage by SIC Code: Montgomery County (MD)	Number of Employees				Average Annual Wage			
	1997	1998	1999	2000	1997	1998	1999	2000
SIC 52: Building materials and garden supplies	2,391	2,329	2,309	2,332	\$21,819	\$23,003	\$24,922	\$26,745
SIC 53: General merchandise stores	6,737	6,594	6,648	7,106	\$17,219	\$18,064	\$17,473	\$18,318
SIC 54: Food stores	10,852	10,799	11,107	11,460	\$21,130	\$22,350	\$21,883	\$22,028
SIC 56: Apparel and accessory stores	4,371	4,378	4,473	4,594	\$13,765	\$14,636	\$14,282	\$14,808
SIC 57: Furniture and home furnishing stores	5,226	5,460	5,714	5,669	\$29,434	\$30,351	\$31,950	\$34,342
SIC 58: Eating and drinking establishments	21,116	21,355	21,026	22,411	\$13,707	\$14,981	\$14,786	\$15,143
SIC 59: Miscellaneous retail (private)	11,179	11,613	12,292	12,403	\$17,938	\$18,741	\$18,983	\$19,392
SIC 70: Hotels and other lodging places	7,101	7,785	8,568	8,602	\$43,840	\$45,058	\$52,054	\$49,151
SIC 72: Personal services (private)	4,768	4,832	4,842	5,093	\$18,420	\$18,988	\$20,267	\$21,008
SIC 75: Auto repair, services, parking	3,144	3,171	3,585	3,310	\$28,618	\$30,044	\$30,818	\$33,677
SIC 78: Motion pictures	612	633	630	685	\$19,968	\$20,418	\$24,908	\$22,326
SIC 79: Amusement and recreation services	5,567	5,897	6,297	6,404	\$16,396	\$16,278	\$16,610	\$17,690
SIC 82: Educational services (private)	4,925	5,417	5,824	6,363	\$28,036	\$29,590	\$30,334	\$30,164
SIC 83: Social services (private)	10,424	10,286	10,989	12,096	\$20,295	\$21,519	\$22,342	\$23,401
SIC 88: Private households	5,528	5,593	5,513	5,375	\$12,289	\$12,890	\$13,797	\$14,802

APPENDIX E
(page 1 of 2)

County	Home Energy Bills in Maryland		
	Low-Income	Total Population	LI as Pct of Total
Allegany County, Maryland	\$1,229	\$1,682	73%
Anne Arundel County, Maryland	\$1,294	\$1,680	77%
Baltimore County, Maryland	\$1,231	\$1,680	73%
Calvert County, Maryland	\$1,480	\$1,815	82%
Caroline County, Maryland	\$1,380	\$1,691	82%
Carroll County, Maryland	\$1,364	\$1,824	75%
Cecil County, Maryland	\$1,327	\$1,771	75%
Charles County, Maryland	\$1,344	\$1,742	77%
Dorchester County, Maryland	\$1,168	\$1,475	79%
Frederick County, Maryland	\$1,278	\$1,689	76%
Garrett County, Maryland	\$1,526	\$1,905	80%
Harford County, Maryland	\$1,276	\$1,736	74%
Howard County, Maryland	\$1,214	\$1,765	69%
Kent County, Maryland	\$1,217	\$1,508	81%
Montgomery County, Maryland	\$1,308	\$1,777	74%
Prince George's County, Maryland	\$1,367	\$1,844	74%
Queen Anne's County, Maryland	\$1,248	\$1,566	80%
St. Mary's County, Maryland	\$1,493	\$1,915	78%
Somerset County, Maryland	\$1,183	\$1,513	78%
Talbot County, Maryland	\$1,104	\$1,409	78%
Washington County, Maryland	\$1,202	\$1,640	73%
Wicomico County, Maryland	\$1,204	\$1,547	78%
Worcester County, Maryland	\$1,160	\$1,428	81%
Baltimore city, Maryland	\$1,186	\$1,633	73%

**APPENDIX E
(page 2 of 2)**

County	Total Home Energy Burden						Median Income
	Federal Poverty Level						
	Below 50%	50-74%	75-99%	100-124%	125-149%	150-185%	
Allegany County, Maryland	38%	15%	11%	8%	7%	6%	5%
Anne Arundel County, Maryland	37%	15%	11%	8%	7%	6%	3%
Baltimore County, Maryland	37%	15%	11%	8%	7%	6%	3%
Calvert County, Maryland	40%	16%	11%	9%	7%	6%	3%
Caroline County, Maryland	40%	16%	11%	9%	7%	6%	4%
Carroll County, Maryland	38%	15%	11%	8%	7%	6%	3%
Cecil County, Maryland	38%	15%	11%	8%	7%	6%	4%
Charles County, Maryland	37%	15%	11%	8%	7%	6%	3%
Dorchester County, Maryland	36%	14%	10%	8%	7%	5%	4%
Frederick County, Maryland	36%	15%	10%	8%	7%	5%	3%
Garrett County, Maryland	45%	18%	13%	10%	8%	7%	6%
Harford County, Maryland	36%	15%	10%	8%	7%	5%	3%
Howard County, Maryland	34%	14%	10%	8%	6%	5%	2%
Kent County, Maryland	38%	15%	11%	8%	7%	6%	4%
Montgomery County, Maryland	37%	15%	11%	8%	7%	6%	2%
Prince George's County, Maryland	38%	16%	11%	9%	7%	6%	3%
Queen Anne's County, Maryland	36%	15%	10%	8%	7%	5%	3%
St. Mary's County, Maryland	42%	17%	12%	9%	8%	6%	4%
Somerset County, Maryland	36%	15%	10%	8%	7%	5%	5%
Talbot County, Maryland	34%	14%	10%	8%	6%	5%	3%
Washington County, Maryland	36%	14%	10%	8%	7%	5%	4%
Wicomico County, Maryland	35%	14%	10%	8%	6%	5%	4%
Worcester County, Maryland	36%	14%	10%	8%	7%	5%	4%
Baltimore city, Maryland	36%	14%	10%	8%	7%	5%	5%

APPENDIX E
(page 1 of 2)

Home Heating Bill			
County	Low-income	Total Population	LI as Pct of Total
Allegany County, Maryland	\$687	\$960	72%
Anne Arundel County, Maryland	\$651	\$841	77%
Baltimore County, Maryland	\$661	\$912	72%
Calvert County, Maryland	\$788	\$936	84%
Caroline County, Maryland	\$712	\$864	82%
Carroll County, Maryland	\$720	\$960	75%
Cecil County, Maryland	\$691	\$926	75%
Charles County, Maryland	\$649	\$857	76%
Dorchester County, Maryland	\$578	\$725	80%
Frederick County, Maryland	\$629	\$833	76%
Garrett County, Maryland	\$945	\$1,170	81%
Harford County, Maryland	\$653	\$891	73%
Howard County, Maryland	\$623	\$934	67%
Kent County, Maryland	\$635	\$782	81%
Montgomery County, Maryland	\$687	\$958	72%
Prince George's County, Maryland	\$721	\$999	72%
Queen Anne's County, Maryland	\$626	\$762	82%
St. Mary's County, Maryland	\$877	\$1,131	78%
Somerset County, Maryland	\$604	\$776	78%
Talbot County, Maryland	\$534	\$676	79%
Washington County, Maryland	\$627	\$877	71%
Wicomico County, Maryland	\$579	\$749	77%
Worcester County, Maryland	\$576	\$701	82%
Baltimore city, Maryland	\$591	\$833	71%
Home heating and domestic hot water fuels are assumed to be the same. Home heating and DHW bills have not been disaggregated in this table.			

APPENDIX E
(page 2 of 2)

County	Home Heating Burden						Median Income
	Below 50%	50-74%	75-99%	100-124%	125-149%	150-185%	
Allegany County, Maryland	21%	9%	6%	5%	4%	3%	2%
Anne Arundel County, Maryland	19%	8%	5%	4%	3%	3%	2%
Baltimore County, Maryland	20%	8%	6%	4%	4%	3%	2%
Calvert County, Maryland	21%	9%	6%	5%	4%	3%	3%
Caroline County, Maryland	20%	8%	6%	5%	4%	3%	2%
Carroll County, Maryland	20%	8%	6%	4%	4%	3%	2%
Cecil County, Maryland	20%	8%	6%	4%	4%	3%	2%
Charles County, Maryland	18%	7%	5%	4%	3%	3%	2%
Dorchester County, Maryland	18%	7%	5%	4%	3%	3%	2%
Frederick County, Maryland	18%	7%	5%	4%	3%	3%	2%
Garrett County, Maryland	28%	11%	8%	6%	5%	4%	3%
Harford County, Maryland	18%	7%	5%	4%	3%	3%	2%
Howard County, Maryland	18%	7%	5%	4%	3%	3%	2%
Kent County, Maryland	20%	8%	6%	4%	4%	3%	2%
Montgomery County, Maryland	20%	8%	6%	4%	4%	3%	2%
Prince George's County, Maryland	20%	8%	6%	5%	4%	3%	2%
Queen Anne's County, Maryland	18%	7%	5%	4%	3%	3%	2%
St. Mary's County, Maryland	25%	10%	7%	6%	5%	4%	3%
Somerset County, Maryland	18%	7%	5%	4%	3%	3%	2%
Talbot County, Maryland	17%	7%	5%	4%	3%	2%	2%
Washington County, Maryland	19%	8%	5%	4%	3%	3%	2%
Wicomico County, Maryland	17%	7%	5%	4%	3%	3%	2%
Worcester County, Maryland	18%	7%	5%	4%	3%	3%	2%
Baltimore city, Maryland	18%	7%	5%	4%	3%	3%	2%

Space heating and hot water are assumed to use the same primary fuel and have not been disaggregated for this table.

APPENDIX F

Price and Bills of Natural Gas by Month: January 1998 - May 2002 (Maryland)										
Month	1998		1999		2000		2001		2002	
	Price	Bill	Price	Bill	Price	Bill	Price	Bill	Price	Bill
January	\$0.738	\$103	\$0.737	\$115	\$0.738	\$145	\$1.194	\$261	\$0.946	\$149
February	\$0.735	\$91	\$0.781	\$92	\$0.767	\$138	\$1.285	\$204	\$0.820	\$119
March	\$0.752	\$81	\$0.699	\$84	\$0.895	\$98	\$1.082	\$154	\$0.910	\$108
April	\$0.835	\$54	\$0.798	\$52	\$0.921	\$74	\$1.268	\$105	\$1.101	\$64
May	\$0.984	\$33	\$0.972	\$34	\$1.176	\$49	\$1.437	\$54	\$1.212	\$46
June	\$1.081	\$26	\$1.187	\$28	\$1.415	\$40	\$1.463	\$40		
July	\$1.201	\$25	\$1.222	\$25	\$1.587	\$38	\$0.731	\$16		
August	\$1.150	\$24	\$1.297	\$24	\$1.509	\$36	\$1.468	\$33		
September	\$1.122	\$23	\$1.270	\$27	\$1.575	\$40	\$1.351	\$31		
October	\$1.006	\$32	\$1.002	\$38	\$1.323	\$62	\$0.895	\$56		
November	\$0.792	\$57	\$0.901	\$60	\$1.049	\$105	\$0.978	\$75		
December	\$0.812	\$83	\$0.818	\$93	\$1.006	\$194	\$0.962	\$113		