AN ASSESSMENT OF LOW-INCOME ENERGY NEEDS IN WASHINGTON STATE

Prepared For:

Department of Community, Trade & Economic Development
Housing Improvements and Preservation Unit
Housing Division
Olympia, Washington

July 1995

AN ASSESSMENT OF LOW-INCOME ENERGY NEEDS IN WASHINGTON STATE

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EXECUTIVE SUMMARY

THE CONTEXT

While Washington state does not have the same poverty level population that many states do, it nonetheless still is home to substantial numbers of low-income households. Unfortunately, many aspects of being poor are simply not documented. Little or no data exists, for example, regarding the disparate impacts on health and safety consequences of being poor. What *is* known, however, is that the poor in Washington state have extreme difficulties in paying for shelter expenses in general and in paying for home energy expenses in particular.

The precise number of low-income households in Washington state, of course, depends on how the term "low-income" is defined. While the definition used for this report was 125 percent of the federal Poverty Level, that definition was used merely because of its confluence with the eligibility requirements of both the federal fuel assistance program and the federal weatherization assistance program. In fact, for a variety of reasons, the federal Poverty Level is an inappropriate and inadequate means of measuring "poverty."

The choice of how to define "low-income" truly makes a difference in the extent of the problem recognized. The number of Washington households who are "poor" ranges from 108,000 to more than 730,000 depending upon the definition adopted.

Whatever definition is adopted, conscious efforts must be pursued not to assume that incomes for those households fall at the ceiling of the definition. Households found to be poor when measured by the federal Poverty Level, in other words, do not generally live *at* the Poverty Level. While, for example, the Poverty Level for a household of three in Washington is more than $10,000, the mean income for a household of three living at or below the federal Poverty Level is less than $6,000.

This income simply does not allow a low-income household to live even a minimum but adequate quality of life. A 1-person household receiving HHS fuel assistance funds, for example, has an average income of $4,334 in Washington state while the AFDC "standard of need" finds an income of $8,340 necessary to lead a minimum but adequate quality of life.

The ability of low-income households to afford home energy in Washington is quite limited, in particular, because of the nature of energy use and trend in energy prices in the state. Electricity is, by far, the primary fuel used by residential consumers in Washington state. The percentage of electricity consumed by residential consumers is more than two and a half times greater than its nearest competitor, natural gas, and more than five times fuel oil consumption.

Unlike all other residential energy sources in Washington, electricity prices have risen steadily since the mid-1970s. Average residential electrical rates have more than doubled in Washington since 1980, from $5.32/million Btu in 1980 to $12.25/million Btu in 1990.

Natural gas and petroleum both saw a substantial fly-up in prices in the late 1970s and early 1980s. By 1981, residential petroleum cost $9.05 per million Btu, roughly 150 percent of electricity on a per mmBtu basis. By 1983, however, electricity had become more expensive and, while oil prices moderated (with the exception of the 1990 oil price increase associated with the Gulf War), electricity experienced a continuing climb. Similarly, although natural gas prices never exceeded electricity on a per million Btu basis, gas prices increased and remained in the mid-$6 range throughout the early and middle 1980s before moderating through 1990. Wood has seen a constant increase in price, though not at all approaching electricity.

Perhaps as important as the price of fuels relative to each other is the price of each fuel relative to the statewide average residential energy prices. Electricity became more expensive than the statewide average fuel price in 1981 (in nominal dollars) and the spread between the average and electricity prices continues to grow bigger. The rate of growth in the spread is another indication of how electric prices are increasing faster than the prices of other fuels.

THE PROBLEM

While public perceptions might well be that because the poor live in old, ramshackle housing in poor condition, that population has disproportionately high energy use, those perceptions are wrong. In fact, low-income energy *use* in Washington state is substantially *below* the energy consumption of residential households generally. However, while low-income energy *bills* are also below the energy bills of residential consumers generally, the bill differences do not proportionately mirror the consumption differences. Low-income households pay more for their energy on a per unit basis than does the general residential population.

Low-income households, also, pay a disproportionate percentage of their income for their home energy bills. And the problem will get worse over the foreseeable future. It now appears that the average low-income household will use about five percent less energy in the year 2000 than it did in 1990. However, the same household will pay about 12 percent more for that energy than in 1990 (in constant dollars). Thus, the energy burden on low-income households is expected to increase in real terms over the next decade.

Low-income energy use is not primarily *heating* consumption. Of total home energy use, only half is devoted to home heating. In order to reduce a low-income household's home energy use by one percent, therefore, home heating consumption would need to be reduced by two percent.

Even given these insights into low-income energy consumption, it is still difficult to precisely measure what low-income energy "needs" are. Two models are generally accepted for measuring low-income energy needs. The first involves establishing an affordable energy burden, defined as the energy bill as a percentage of household income which is affordable to the household. The second involves an examination of a household's net resources. Under the second model, a low-income household has an energy need when it has inadequate resources to pay its home energy bills, irrespective of the percentage of income burden which the bills represent.

The percentage of income approach to defining energy needs is the most appropriate. Setting the affordability of total energy expenditures equal to 10 percent of a household's income yields a total energy need in excess of $21.3 million in Washington state.

It would be wrong to limit any evaluation of energy needs simply to households living in traditional housing. There exist many non-traditional low-income households in Washington state who face energy needs. These households include families living in homeless shelters, transitional housing, refugee centers, veterans shelters, sexual abuse/domestic violence shelters and the like. High energy costs pose substantial threats to the continuing viability of many of these shelters.

Not surprisingly, the disproportionate energy cost burden that low-income households bear translates into the *threat* of the loss of home heating, as well as the *actual* loss of home heating services. Of those households losing their home heating service, the overwhelming majority (84%) said they lost it because they "could not afford" to pay their bills.

Electric heating customers were disproportionately represented amongst all those households facing a "crisis" (either a shutoff notice or an actual shutoff). Fuel oil heating customers, however, were most likely actually to lose their heat. The duration of time without heat varied based on the type of fuel, with users of fuel oil seeing substantially longer periods without heat than users of electricity or natural gas.

This loss of home heating yields serious consequences. Most households losing their home heating simply went without heat during the time their service was off. The next most common heat source used when the primary heating source was off was a portable electric heater. While the latter impact is less threatening than the complete loss of heat, it is nonetheless still disturbing. Home fires caused by portable heaters are ten times more likely to be fatal than fires caused by other means.

EXISTING RESPONSES

State and federal programs exist to help low-income households pay their home energy bills. HHS fuel assistance is the primary, but by no means exclusive, program through which energy assistance is delivered in Washington state. This program has two components, a cash supplement program called the Energy Assistance Program (EAP) and a crisis program called the Energy Crisis Intervention Program (ECIP). In order to maintain more meaningful levels of benefits (35% of a low-income household's energy bill), CTED has reduced the income eligibility level for the HHS fuel assistance program. Nonetheless, thousands of households are turned away each year because the state runs out of fuel assistance money.

One of the biggest government fuel assistance programs other than the HHS fuel assistance effort is operated by the state Department of Social and Health Services (DSHS) emergency grant program. This program has two components which can be used for utility crises: the Additional Requirements Emergent Needs (AR-EN) program and the Consolidated Emergency Assistance Program (CEAP). On average, these two programs can meet less than half the crisis needs of the low-income households they serve.

Moreover, private fuel assistance provides an important supplemental source of funding in Washington state. However, in order to serve all households who apply, are found eligible, and are found to be in need, these private sources would require a 48 percent increase in funding.

Not only does the state provide crisis grants and cash assistance, the state also seeks to help low-income households reduce their consumption, and thus their bills, by increasing the energy efficiency of low-income housing. From 1988 through 1993, CTED WAP programs had weatherized approximately 30,800 of the homes that qualify for such programs. It is estimated that an additional 15,300 eligible households have been weatherized by programs outside of the WAP. This leaves approximately 212,000 low-income homes in need of weatherization. In addition, a small number of low-income households live in units that have been built recently enough that there is no need to weatherize them.

Given the current rates of funding, assuming no increase in the number of eligible households, and assuming that no household will need to be "re-weatherized," it will take until the year 2037 to fully weatherize the current stock of low-income homes. In order to

reduce this to a 20-year period, program spending would have to increase to roughly $20 million per year.

Moreover, weatherization programs generally deal only with space heating. Thus, even if the more ambitious 20-year goal is achieved, the results will be an increase in efficiency for only the half of the typical household energy bill dedicated to heating. Low-income households will still face a burden in their energy bills, which will be exacerbated if actual weatherization program savings are lower than those predicted. As a result, current weatherization efforts will need to be increased in order to avoid losing ground.

Finally, a major assistance program that receives little attention from advocates and policymakers interested in energy is the energy assistance component of the subsidized housing program directed toward Section 8 tenants and public housing tenants who pay their own utility bills. While federal fuel assistance provides benefits to a larger number of low-income households than Section 8 home energy allowances, Section 8 allowances provide a greater number of energy assistance dollars to low-income households.

Energy assistance for nearly every Public Housing Authority studied in Washington state were inadequate to cover annual utility bills. Moreover, even if adequate on an annual basis, the amounts of such assistance were almost universally inadequate on a seasonal basis to pay for winter heating bills.

CHAPTER 1: INTRODUCTION

This report presents an energy needs assessment for the State of Washington. The research was jointly undertaken by the firms of Fisher, Sheehan and Colton, Public Finance and General Economics (FSC) (of Scappoose, Oregon) and Economic Research Associates (ERA) (of Alexandria, Virginia). The purpose of the research was five-fold:

- To identify and describe Washington state's low-income population;
- To determine the energy consumption and expenditure patterns of the state's low-income households;
- To identify the extent of energy "needs" among these low-income households, including a special examination of "crisis" needs;
- To identify the number of households in each county of the state that potentially qualify for the state's programs designed to meet their energy needs; and
- To determine how many of these households are currently receiving assistance in meeting their energy needs.

In addition, the report takes a preliminary look at the adequacy of home energy allowances in subsidized housing as a means of delivering low-income energy assistance in the state.

The numbers of households involved with this study are substantial. In 1990, there were more than 275,000 low-income households in the state. In contrast, in 1992, there were 86,000 households receiving EAP/ECIP funds and 43,000 households living in assisted housing programs administered by Public Housing Authorities.

In sum, this report is presented in nine chapters. After this Introduction, *Chapter 2* presents detailed descriptive information on low-income households in Washington state. *Chapter 3* presents data on the energy consumption of those households. *Chapter 4* places that consumption into the context of an quantification of "energy needs." *Chapter 5* examines trends in energy prices in Washington state. *Chapter 6* examines the "crisis" needs of low-income households in particular. *Chapter 7* examines the availability of fuel assistance programs to help alleviate those needs. *Chapter 8* examines the availability of weatherization assistance. *Chapter 9* presents a description of ongoing data collection that should be pursued by the state.

Throughout the report to follow, the analysis will to the maximum extent practicable set forth data on a geographically-disaggregated basis. Moreover, the data will be set forth disaggregated by fuel type and household demographics to the maximum extent practicable.

In this report, "low-income" is defined to be a household living with income at or below 125 percent of the federally-established Poverty Level. This is the income eligibility level for energy assistance, crisis, and weatherization programs. Despite adopting this standard for measuring "low-income," the report discusses why use of the federal Poverty Level (or some multiple thereof) is *not* the best means to determine whether a household is "poor."

Briefly, the report below presents the following:

Chapter 2 profiles the population and economic status of Washington's low-income citizens, emphasizing housing and income data. In this regard, "low-income" is defined as households living at or below 125 percent of Poverty.[1] Chapter 2 finds that households

1. In addition, in accompanying Appendix A, a more detailed analysis of "poverty" in Washington is presented. In this Appendix, an analysis is made of factors which significantly affect the condition of the poor over time. Differing poverty standards are used in the analysis in order to gauge their significance to policy questions. An analysis of state funding levels relative to state need standards is also presented. The migrant farmworker population is also discussed.

The historical development of poverty standards, and methodologies of developing those standards, is discussed. Assumptions and inadequacies of the various standards are discussed. Financial eligibility standards for various state and federal benefit programs are also discussed.

Demographic data relating to poverty in Washington is presented. Most of the demographic data was extracted from the 1990 decennial census, published on CD-ROM by the Census Bureau. The county-level data from the census made it possible to recognize wide geographic variations in key demographic statistics. From this data the number of households designated as low-income under each of the various poverty standards is determined. These data are combined to generate statewide estimates of the number of low-income households under the various standards. Proper interpretation of income distributions based upon these data are discussed.

Changes in the disparity of income between the top 20 percent versus the bottom 20 percent of the population

living at this level of Poverty have substantially fewer household resources than even the "average" household on a county-by-county basis. Moreover, this Chapter finds that households have insufficient funds to pay both their annual total energy bills generally and their winter home heating bills in particular.

Chapter 3 discusses patterns of energy consumption and expenditures for Washington's low-income population. It also seeks to identify the number of low-income households in each county that potentially qualify for benefits under Washington's energy assistance programs.

The methodology of development of household energy consumption and expenditure estimates is described. The estimates thus developed are then compared to a variety of other published consumption and expenditure estimates as a check on the validity of the model. Results are discussed.

Using the same data, annual average growth rates of energy prices, household incomes, energy consumption rates, and so forth, were projected to the year 2000. Results are compared to 1990 figures for the counties.

Chapter 4 explores the different ways of defining and measuring energy needs of Washington households, given the consumption and expenditure analysis presented in Chapter 3. Energy needs involve the absolute mismatch between household income and expenses. This Chapter reviews the two basic models used to quantify energy needs, estimates the number of low-income households in need under each definition, and seeks to quantify the level of need experienced in each county throughout the state.

The "Bill as Percent of Income" model is explained and discussed. Drawbacks to the model are outlined. The "Net Available Resources" model is explained and discussed. Drawbacks are outlined.

The energy needs of low-income households in Washington are also quantified using the percent of income as a measure of need. The methodology of this model's analysis is explained. Results are discussed in terms of counties, and the households that comprise them. The effect of changing the percent of income thresholds upon the extent of low-income energy needs is analyzed. The effects of defining heating burdens are considered.

The energy needs of low-income households in Washington are quantified using the net available resources as a measure of need. The methodology of this model's analysis is explained. The types of households who have net negative resources when considering

(..continued)

over time are discussed. Comparisons of the rates of growth of low-income household earnings, state benefit program need standards, and cost-of living estimates are quantified and discussed. The feedback of wage income upon Aid to Families with Dependent Children (AFDC) and food stamp benefits is discussed. Finally, a discussion of the energy needs of migrant farmworkers is presented.

incomes and expenses are described. The total need determinations of the two models are compared and discussed.

The energy needs of special populations of Washington citizens are quantified and discussed. These low-income persons and families may live in a variety of public and church sponsored shelters. A nonrandom survey of such shelters was conducted and the results are discussed.

Chapter 5 presents energy price trends for electricity, natural gas and fuel oil in Washington state. The price trends have been developed for a time period since 1970. It notes that a substantial majority of low-income households in the state heat with electricity. The Chapter finally presents a company-by-company analysis of electricity prices current through the summer of 1993.

Chapter 6 discusses the "crisis" needs of the poor in Washington, which involves the threatened or actual loss of utility service or home heating fuel. Reasons why households lost their service, adaptations that were made, and resolutions to the problems were investigated. The demographics of crisis situations in Washington are examined.

A survey was administered to crisis households served by public service agencies in June, 1993. Results were used to develop a profile of Washington low-income households who face an energy crisis situation sometime during the year. Biases in the survey design and administration are identified.

Chapter 7 explores low-income energy assistance programs in Washington. The various assistance programs are described, and available resources for these programs are compared to the demands for these resources. A demographic profile of Washington low-income energy assistance recipients is formulated.

Federally-funded low-income energy assistance programs, including LIHEAP's Energy Assistance Program (EAP) and Emergency Crisis Intervention Program (ECIP), are discussed in terms of household eligibility and benefit levels. Results for the counties are compared.

State-funded supplemental fuel assistance programs are profiled, including the Washington State Department of Social and Health Services (DSHS) programs: Additional Requirements Emergent Needs (AR-EN), and the Consolidated Emergency Assistance Program (CEAP). Community Services Block Grant programs are also evaluated. The Federal Emergency Management Act (FEMA) funds which can be used for energy assistance are discussed. Private fuel assisted funds are also described.

Chapter 8 discusses state-based residential low-income weatherization programs. Demographics of weatherization efforts are reviewed for Washington. The Washington

State Department of Community, Trade and Economic Development (CTED) Weatherization Assistance Program (WAP) is outlined and discussed. The outlook for weatherization efforts in the year 2000 and beyond are discussed.

Chapter 9 presents a series of recommendations regarding ongoing data collection and maintenance to be pursued by the state. Much of the analysis presented throughout this report has been hampered, or made more difficult, by the paucity of data. These recommendations, while not addressing all of the problems, will help Washington policymakers to maintain a greater ability to review low-income energy needs on an continuing basis.

CHAPTER 2: THE POOR OF WASHINGTON STATE

This Chapter examines the demographics of low-income households in Washington State. For purposes of this analysis, "low-income" is defined to include all households who live at or below 125 percent of the federal Poverty Level. Washington State uses this as the demarcation for those who are eligible for energy assistance, crisis and weatherization assistance. Where data on households at or below 125 percent of Poverty is *not* available, surrogate data is used and expressly noted.[2] Data on households determined to be "low-income" using other measures is presented in Appendix A.

2.1 THE EXTENT OF POVERTY

2.1.1 Number of Low-Income Households

The extent of poverty in Washington State is considerable, with no county escaping its effects. Table 2-1 sets out on a county-by-county basis the number of households living at or below 125 percent of Poverty, the percentage of households living at this Poverty Level, and the weighted average income of households living at this Poverty Level.

While the statewide percentage of households who are low-income is only 17.5 percent, this figure is somewhat misleading. Of Washington's 39 counties, 30 have proportions of low-income population that exceed this statewide number.[3] Indeed, in five counties, more than 30 percent of all households are low-income, and in eleven counties, more than 25 percent of all households are low-income.

2. Unless otherwise noted, "low-income households" means households living at or below 125 percent of the federal Poverty Level.

3. The disproportionate impact of low penetration rates of poverty in Snohomish County (11.6%) and King County (13.5%) pulls the statewide average down. Snohomish and King counties are amongst the largest counties in terms of total population and have amongst the lowest proportions of low-income households.

2.1.2 Distribution of Low-Income Households Amongst Poverty Ranges

The discussion of numbers of households who are "low-income" concerns households who are at or below 125 percent of the federal Poverty Level. It is important to remember in such a discussion that 125 percent of the federal Poverty Level is the *ceiling* of assistance eligibility. Indeed, most persons who live at or below 125 percent of Poverty live below, rather than at, that ceiling. The lower ranges of Poverty are well populated in Washington State. Table 2-2 provides a breakdown of people who live at or below 125 percent of Poverty disaggregated by Poverty ranges.

On a statewide basis, fully 73,267 (22 percent) of the 329,000 households who live at or below 125 percent of Poverty actually live below 50 percent of Poverty.[4] Every county has a substantial number of these extremely poor households. In 16 of the state's counties, the number of households who live below 50 percent of Poverty *exceeds* the number of households who live at 100 to 125 percent of Poverty.

Moreover, examining the distribution amongst the Poverty ranges is necessary to fill-out any understanding based simply on an examination of the total number of households at or below 125 percent of Poverty. While "only" 11.6 percent of the Snohomish County households (19,905) live at or below 125 percent of Poverty, fully 4,354 of those households (22 percent) live at or below 50 percent. Similarly, while "only" 13.5 percent of the King County households (83,222) live at or below 125 percent of Poverty, fully 21 percent (17,753) live at or below 50 percent.

2.1.3 Income of Low-Income Households

It is difficult to grasp how poorly off these households really are in terms of their ability to afford the basics of life. One measure is to compare the income of the low-income households to the income of an "average" household in each county. As Table 2-3 shows, living at 125 percent of Poverty provides households with *substantially* fewer dollars to spend than even the average household in Washington State. Table 2-3 compares the median weighted income for households living at or below 125 percent of Poverty in each county with the county median income.

Note that this comparison does *not* involve comparing low-income households to non-low-income households. Rather, the comparison is of low-income to the *total* population, of which those low-income households are still a part. Both the number and income levels of

4. There are 189,762 persons who live below 50 percent of Poverty, with an average of 2.59 persons per household.

the poor, in other words, will pull each county's total population median income down.[5] If one were to compare the median incomes of households at or below 125 percent of Poverty to households *above* 125 percent, the disparities revealed in Table 2-3 would be substantially greater.

2.2 INCOMES VS. STANDARD OF NEED

In addition to making a comparative analysis of the low-income population to the total population, it is important, also, to gain some insight into the extent to which the income of households living at or below 125 percent of Poverty is insufficient to help households pay for their basic living expenses, including energy.

To make this comparison, recipients of fuel assistance through the federal Health and Human Services (HHS) low-income energy assistance program are used as a surrogate for low-income households. The condition of LIHEAP recipients can illustrate the desperate straits in which most Washington low-income households find themselves. Most low-income households do not come close to having adequate dollars to maintain a reasonable standard of living.

The state AFDC standard of need study, completed in December 1991, provides a benchmark against which to measure income and expenses.[6] That study found that the income necessary to have a "minimum but adequate" standard of living in Washington ranged from $8,340 (for a household of one person) to $25,668 (for a household of eight persons):[7]

- Household size of 1: $ 8,340
- Household size of 2: $10,548
- Household size of 3: $13,056
- Household size of 4: $15,348
- Household size of 5: $17,688
- Household size of 6: $20,076
- Household size of 7: $23,184
- Household size of 8: $25,668

5. Either of two results, in other words, can have a significant impact in reducing the total county median: (1) a large number of low-income households somewhat below the county median; or (2) a smaller number of low-income households substantially below the county median.

6. Mayfield and Lowin, ***Cost of Living in 1991 for Low-Income Families in Washington State*** (December 1991).

7. *Id.*, at ix.

In contrast to this standard of need for a "minimum but adequate" standard of living, one can compare the distribution of EAP/ECIP recipients by income range. EAP/ECIP reports incomes only for households of 1 person, 2 persons, 3 persons and 4+ persons. For simplicity's sake, therefore, all households included in the 4+ person category are assumed to have four persons. Nonetheless, as can be seen in Table 2-4, virtually all of these households fall short of the income necessary to maintain a "minimum but adequate" standard of living. As compared to the AFDC standard of need of $8,340 for a one person household in Washington State, for example, all but 450 of the 24,433 one person households who are EAP/ECIP recipients had incomes at or below $8,000. Indeed, roughly 18,700 of the 24,233 one person households who are EAP/ECIP recipients had incomes less than $6,000, and roughly 7,800 had incomes of less than $4,000.

Similarly, as compared to the $10,548 standard of need for a two person household, 11,044 of the 16,792 two person households who were EAP/ECIP recipients had incomes less than $10,000. Roughly 10,200 of those 16,792 had incomes less than $6,000. The pattern of shortfall continues throughout all household sizes.

A different way to see this same result is to compare the average income of EAP/ECIP recipients, by household size, to the AFDC standard of need. On average, EAP/ECIP recipient households of all sizes fall substantially short of the income necessary to maintain a "minimum but adequate" standard of living in Washington State. Table 2-5 shows that a one-person EAP/ECIP household falls $4,000 short; a two-person EAP/ECIP household falls $5,000 short; a three-person EAP/ECIP household falls $6,000 short; and a four-person[8] EAP/ECIP household falls $6,300 short.

To geographically disaggregate these observations, Table 2-6 presents a comparison of the AFDC standard of need for a three-person household[9] to weighted average incomes of all households living at or below 125 percent of the Poverty Level. In no instance does the income allow a low-income household to meet the State's standard of need. In every instance, the shortfall is substantial.

2.3 INCOME, ENERGY AND HOUSEHOLD EXPENSES

The energy costs of low-income households play a particularly significant role in placing unmeetable burdens on a family budget. Table 2-7 reviews the low-income energy bills developed in the Chapter on energy costs below and matches those costs against the weighted average income for households living at or below 125 percent of Poverty. These energy bills, alone, impose burdens on Washington State's low-income households ranging

8. Remember, the LIHEAP household size of "four" includes all households with four or more members.

9. A typical AFDC household in Washington State is deemed to have three persons.

from roughly eleven percent (11%) to sixteen percent (16%).

Consider the significance of these burdens. According to the U.S. Department of Housing and Urban Development (HUD), low-income households with *shelter* costs (rent/mortgage plus all utilities except telephone) exceeding 30 percent of their annual income are over-extended. Table 2-8 sets forth on a county-by-county basis the number of households[10] whose rent or homeowner costs, standing alone without adding energy costs, exceed 30 percent of income. For each of these households, *any* utility costs will push shelter costs beyond the 30 percent limit.

Of course, as should be apparent, with low-income energy burdens universally exceeding 10 percent of income, a problem exists whenever a renter or homeowner experienced a housing cost burden of *20* percent or more. An energy cost coupled with this lower rent/homeowner cost burden would push *total* shelter costs in excess of the HUD-prescribed 30 percent limit.[11] Table 2-9 sets forth on a county-by-county basis the number of households[12] whose rent or homeowner costs, standing alone without adding energy costs also, exceed 20 percent of income.

Finally, it is not simply annual bills that wreak havoc with low-income household budgets. Winter home heating bills, in particular, place burdens on the ability of the low-income household to pay household expenses. Table 2-10 explores on a county-by-county basis the funds which low-income households have left to pay all other living expenses after paying their winter home heating bills. This impact on a low-income budget results from the combined effect of the level of incomes and the level of home heating bills. The weekly funds left to pay all remaining household expenses ranges from a low of $99 in Wahkiakum County to a high of $131 in San Juan. This weekly income must pay for housing, clothing, food, transportation, insurance, health, education, and miscellaneous household expenses.[13]

2.4 SUMMARY AND CONCLUSIONS

10. Since data is not reported by Poverty Level, "low-income" for purposes of this analysis was defined to be either households with less than $10,000 annual income and households with annual incomes of $10,000 to $20,000. These income ranges are reported separately in the Table.

11. This assumes that other utility costs are equal to zero dollars. To the extent that utilities such as water/sewer, solid waste pick-up, and the like impose costs, a low-income household's energy cost burden would need to be even lower, when matched with rent/homeowner costs of 20 percent, to have total shelter costs stay within the 30 percent limit.

12. Since data is not reported by Poverty Level, "low-income" for purposes of this analysis was defined to be either households with less than $10,000 annual income and households with annual incomes of $10,000 to $20,000. These income ranges are reported separately in the Table.

13. The total resources available for household expenses is considered in more detail in Chapter 4 below.

Poverty is a pervasive problem throughout the State of Washington. Even when measured by a 125 percent of Poverty Level standard,[14] every county in the State has significant numbers of households considered to be "poor."

The impact of this poverty is not surprising. When measured by the State's own calculation of the income necessary to experience a "minimum but adequate" standard of living, these households fall substantially short. When measured by the federal government's calculation of the burden which shelter costs should not exceed, these households are over-burdened. When measured by the availability of resources for total household expenses, these households have insufficient funds.

When considering the numbers of low-income households, and the annual incomes which these households have, the reader should remember that not all households fall at the *ceiling* of the poverty guideline. Thus, while eligibility for the various state energy assistance programs is set at 125 percent of Poverty, substantial numbers of households live at or below 50 percent, not 125 percent. While the income for a family of three at 125 percent of Poverty may be in excess of $10,000, the *actual* weighted average income of all three-person households living at or below 125 percent is substantially less.

Given these general observations about poverty in Washington State, this Report will next turn to a more detailed examination of energy needs, and the assistance which the State provides for those needs in particular.

14. *See*, Appendix A, *supra*, for a discussion of other standards by which to measure "low-income."

TABLE 2-1. BASIC DEMOGRAPHICS BY COUNTY				
County	**Total Households**	**No. of HHs Below 125% of Poverty**	**Pct. of HHs Below 125% of Poverty**	**Weighted Incomes of HHs Below 125% of Poverty**
Adams	4,608	1,106	24.0%	$7,110
Asotin	7,119	2,016	28.3%	$7,031
Benton	42,384	7,250	17.1%	$7,328
Chelan	20,638	5,104	24.7%	$7,276
Clallam	22,820	5,260	23.1%	$7,406
Clark	88,571	14,275	16.1%	$7,307
Columbia	1,583	441	27.9%	$6,898
Cowlitz	31,714	7,026	22.2%	$7,177
Douglas	9,693	1,914	19.8%	$7,437
Ferry	2,243	605	27.0%	$6,849
Franklin	12,248	3,134	25.6%	$6,726
Garfield	915	201	22.0%	$6,923
Grant	19,852	5,218	26.3%	$7,110
Grays Harbor	25,603	6,941	27.1%	$7,267
Island	21,918	2,960	13.5%	$7,480
Jefferson	8,622	1,970	22.9%	$7,597
King	616,691	83,222	13.5%	$7,202

TABLE 2-1. BASIC DEMOGRAPHICS BY COUNTY				
County	**Total Households**	**No. of HHs Below 125% of Poverty**	**Pct. of HHs Below 125% of Poverty**	**Weighted Incomes of HHs Below 125% of Poverty**
Kitsap	69,488	10,268	14.8%	$6,972
Kittitas	10,563	3,504	33.2%	$6,824
Klickitat	6,240	1,729	27.7%	$7,383
Lewis	22,566	5,779	25.6%	$7,262
Lincoln	3,613	907	25.1%	$7,508
Mason	14,545	3,221	22.2%	$7,377
Okanogan	12,773	3,910	30.6%	$7,045
Pacific	7,903	2,568	32.5%	$7,465
Pend Oreille	3,360	1,010	30.1%	$7,115
Pierce	214,795	38,058	17.1%	$7,232
San Juan	4,373	595	13.6%	$7,753
Skagit	30,661	5,807	18.9%	$7,184
Skamania	3,043	661	21.7%	$7,556
Snohomish	171,851	19,905	11.6%	$7,480
Spokane	141,859	33,821	23.8%	$7,151
Stevens	11,347	3,039	26.8%	$7,016
Thurston	62,047	10,019	16.2%	$7,326
Wahkiakum	1,269	271	21.4%	$6,317

TABLE 2-1. BASIC DEMOGRAPHICS BY COUNTY				
County	**Total Households**	**No. of HHs Below 125% of Poverty**	**Pct. of HHs Below 125% of Poverty**	**Weighted Incomes of HHs Below 125% of Poverty**
Walla Walla	17,589	4,385	24.9%	$7,305
Whatcom	48,645	9,397	19.3%	$7,229
Whitman	13,582	4,216	31.0%	$6,741
Yakima	66,174	17,161	25.9%	$6,970
STATE	1,875,508	328,874	17.5%	xxx

Source: Census, STF 3A, Tables P-1 and P-5.

TABLE 2-2. PEOPLE AT OR BELOW 125% OF THE FEDERAL POVERTY LEVEL RATIOS OF INCOME TO POVERTY LEVEL				
County	**< 50%**	**50%-74%**	**75%-99%**	**100%-124%**
Adams	920	625	815	922
Asotin	1,017	1,388	926	971
Benton	3,908	4,495	3,999	4,597
Chelan	2,493	2,397	2,954	2,583
Clallam	2,311	2,126	2,415	2,942
Clark	8,032	7,075	6,803	8,754
Columbia	238	211	308	237
Cowlitz	3,806	3,662	3,279	3,180
Douglas	973	1,059	1,138	1,291
Ferry	617	336	531	275
Franklin	3,389	2,734	2,368	2,166
Garfield	82	71	78	105
Grant	3,697	2,702	4,232	3,664
Grays Harbor	3,744	3,400	3,162	3,912
Island	1,543	1,233	1,380	2,088
Jefferson	809	926	949	1,172
King	45,979	32,595	39,015	39,929

TABLE 2-2. PEOPLE AT OR BELOW 125% OF THE FEDERAL POVERTY LEVEL RATIOS OF INCOME TO POVERTY LEVEL				
County	**< 50%**	**50%-74%**	**75%-99%**	**100%-124%**
Kitsap	6,861	4,821	5,437	5,922
Kittitas	1,833	1,537	1,543	1,340
Klickitat	961	982	843	1,195
Lewis	2,682	2,735	2,968	3,040
Lincoln	352	357	362	478
Mason	1,648	1,753	1,416	1,694
Okanogan	2,453	2,163	2,416	2,541
Pacific	853	1,212	1,101	1,246
Pend Oreille	609	623	544	496
Pierce	23,073	19,434	21,561	23,152
San Juan	276	122	330	433
Skagit	3,385	2,707	2,920	3,048
Skamania	273	220	281	403
Snohomish	11,278	8,364	10,531	12,285
Spokane	15,911	14,490	17,626	17,954
Stevens	1,689	1,875	1,685	1,630
Thurston	5,533	5,083	5,291	6,089
Wahkiakum	105	112	124	99

TABLE 2-2. PEOPLE AT OR BELOW 125% OF THE FEDERAL POVERTY LEVEL RATIOS OF INCOME TO POVERTY LEVEL				
County	**< 50%**	**50%-74%**	**75%-99%**	**100%-124%**
Walla Walla	2,271	2,155	2,718	2,684
Whatcom	5,662	4,557	4,923	5,359
Whitman	3,856	2,018	1,953	1,689
Yakima	14,640	10,203	12,643	12,713
NO. STATE PERSONS	189,762	154,558	173,568	184,278
NO. STATE HOUSEHOLDS	73,267	59,675	67,015	71,150
PCT STATE HOUSEHOLDS	22%	18%	20%	22%
Source: 1990 Census, STF 3A, Table P-121.				

TABLE 2-3. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. COUNTY MEDIAN INCOMES		
County	**County Median Household Income**	**Weighted Incomes of HHs Below 125% of Poverty**
Adams	$24,604	$7,110
Asotin	$22,897	$7,031
Benton	$32,593	$7,328
Chelan	$24,312	$7,276
Clallam	$25,434	$7,406
Clark	$31,800	$7,307
Columbia	$22,418	$6,898
Cowlitz	$27,866	$7,177
Douglas	$27,054	$7,437
Ferry	$25,170	$6,849
Franklin	$24,604	$6,726
Garfield	$25,156	$6,923
Grant	$22,372	$7,110
Grays Harbor	$23,042	$7,267
Island	$29,161	$7,480
Jefferson	$25,197	$7,597
King	$36,179	$7,202
Kitsap	$32,043	$6,972

TABLE 2-3. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. COUNTY MEDIAN INCOMES		
County	**County Median Household Income**	**Weighted Incomes of HHs Below 125% of Poverty**
Kittitas	$20,489	$6,824
Klickitat	$23,012	$7,383
Lewis	$24,410	$7,262
Lincoln	$24,617	$7,508
Mason	$26,304	$7,377
Okanogan	$20,303	$7,045
Pacific	$20,029	$7,465
Pend Oreille	$20,808	$7,115
Pierce	$30,412	$7,232
San Juan	$31,278	$7,753
Skagit	$28,389	$7,184
Skamania	$28,778	$7,556
Snohomish	$36,847	$7,480
Spokane	$25,769	$7,151
Stevens	$24,440	$7,016
Thurston	$30,976	$7,326
Wahkiakum	$26,969	$6,317
Walla Walla	$24,414	$7,305
Whatcom	$28,367	$7,229

TABLE 2-3. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. COUNTY MEDIAN INCOMES		
County	**County Median Household Income**	**Weighted Incomes of HHs Below 125% of Poverty**
Whitman	$21,674	$6,741
Yakima	$23,612	$6,970

Source: Census, STF 3A, Tables P-1 and P-5.

TABLE 2-4. EAP/ECIP RECIPIENTS BY INCOME AND HOUSEHOLD SIZE (1992)					
Yearly Income	**HOUSEHOLD SIZE**				
	1 Person	**2 Person**	**3 Person**	**4+ Persons**	**Total**
Under $2000	6,233	2,773	1,899	2,462	13,367
$2000-$3,999	1,564	829	632	733	3,758
$4,000-$5,999	10,922	6,770	2,297	1,479	21,468
$6,000-$7,999	5,064	2,582	7,069	6,721	21,436
$8,000-$9,999	449	2,694	1,934	5,796	10,873
$10,000-$11,999	0	1,135	1,840	3,668	6,643
$12,000-$14,999	0	3	1,065	4,032	5,100
$15,000 & over	1	6	3	3,260	3,270
TOTAL	24,233	16,792	16,739	28,151	85,915

TABLE 2-5. ANNUAL LOW-INCOME STANDARD OF NEED IN WASHINGTON STATE VS. AVERAGE EAP/ECIP INCOME BY FAMILY SIZE		
HH SIZE	**AFDC STANDARD OF NEED**	**AVERAGE EAP/ECIP INCOME**
1	$ 8,340	$4,334
2	$10,548	$5,601
3	$13,056	$6,980
4[15]	$15,348	$9,056

15. Again, the average income calculated for the LIHEAP population aggregates all households with four or more persons in this category of "four person households."

TABLE 2-6. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. AFDC STANDARD OF NEED BY COUNTY

County	AFDC Standard of Need	Weighted Incomes of Households Below 125% of Poverty
Adams	$11,412	$7,110
Asotin	$12,876	$7,031
Benton	$12,192	$7,328
Chelan	$12,072	$7,276
Clallam	$12,924	$7,406
Clark	$11,928	$7,307
Columbia	$12,840	$6,898
Cowlitz	$10,740	$7,177
Douglas	$12,060	$7,437
Ferry	$11,652	$6,849
Franklin	$12,048	$6,726
Garfield	$12,924	$6,923
Grant	$10,968	$7,110
Grays Harbor	$12,684	$7,267
Island	$13,536	$7,480
Jefferson	$12,984	$7,597
King	$14,280	$7,202

TABLE 2-6. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. AFDC STANDARD OF NEED BY COUNTY

County	AFDC Standard of Need	Weighted Incomes of Households Below 125% of Poverty
Kitsap	$13,320	$6,972
Kittitas	$12,264	$6,824
Klickitat	$12,384	$7,383
Lewis	$12,204	$7,262
Lincoln	$11,652	$7,508
Mason	$12,792	$7,377
Okanogan	$11,772	$7,045
Pacific	$12,708	$7,465
Pend Oreille	$11,184	$7,115
Pierce	$12,612	$7,232
San Juan	$13,500	$7,753
Skagit	$13,332	$7,184
Skamania	$12,300	$7,556
Snohomish	$14,280	$7,480
Spokane	$12,492	$7,151
Stevens	$11,592	$7,016
Thurston	$13,632	$7,326

TABLE 2-6. WEIGHTED AVERAGE INCOME AT OR BELOW 125% OF POVERTY VS. AFDC STANDARD OF NEED BY COUNTY

County	AFDC Standard of Need	Weighted Incomes of Households Below 125% of Poverty
Wahkiakum	$12,384	$6,317
Walla Walla	$12,900	$7,305
Whatcom	$13,392	$7,229
Whitman	$13,032	$6,741
Yakima	$12,612	$6,970

Sources: Census, STF 3A, Tables P-1 and P-5; Mayfield and Lovin (1991).

TABLE 2-7. ENERGY BILL AS PERCENT OF INCOME FOR LOW-INCOME HOUSEHOLDS BY COUNTY			
County	**Low-Income Total Energy Bill**	**Weighted Incomes of HHs Below 125% of Poverty**	**Energy Bills As Pct. of Income**
Adams	$1,028	$7,110	14.5%
Asotin	$810	$7,031	11.5%
Benton	$1,025	$7,328	14.0%
Chelan	$732	$7,276	10.1%
Clallam	$945	$7,406	12.8%
Clark	$962	$7,307	13.2%
Columbia	$821	$6,898	11.9%
Cowlitz	$719	$7,177	10.0%
Douglas	$757	$7,437	10.2%
Ferry	$826	$6,849	12.1%
Franklin	$1,071	$6,726	15.9%
Garfield	$866	$6,923	12.5%
Grant	$754	$7,110	10.6%
Grays Harbor	$835	$7,267	11.5%
Island	$1,062	$7,480	14.2%
Jefferson	$888	$7,597	11.7%
King	$1,044	$7,202	14.5%

TABLE 2-7. ENERGY BILL AS PERCENT OF INCOME FOR LOW-INCOME HOUSEHOLDS BY COUNTY			
County	**Low-Income Total Energy Bill**	**Weighted Incomes of HHs Below 125% of Poverty**	**Energy Bills As Pct. of Income**
Kitsap	$976	$6,972	14.0%
Kittitas	$971	$6,824	14.2%
Klickitat	$937	$7,383	12.7%
Lewis	$800	$7,262	11.0%
Lincoln	$903	$7,508	12.0%
Mason	$963	$7,377	13.1%
Okanogan	$738	$7,045	10.5%
Pacific	$856	$7,465	11.5%
Pend Oreille	$731	$7,115	10.3%
Pierce	$1,049	$7,232	14.5%
San Juan	$806	$7,753	10.4%
Skagit	$929	$7,184	12.9%
Skamania	$905	$7,556	12.0%
Snohomish	$988	$7,480	13.2%
Spokane	$890	$7,151	12.5%
Stevens	$825	$7,016	11.8%
Thurston	$1,013	$7,326	13.8%

TABLE 2-7. ENERGY BILL AS PERCENT OF INCOME FOR LOW-INCOME HOUSEHOLDS BY COUNTY			
County	**Low-Income Total Energy Bill**	**Weighted Incomes of HHs Below 125% of Poverty**	**Energy Bills As Pct. of Income**
Wahkiakum	$865	$6,317	13.7%
Walla Walla	$904	$7,305	12.4%
Whatcom	$948	$7,229	13.1%
Whitman	$1,019	$6,741	15.1%
Yakima	$962	$6,970	13.8%
Source: Census, STF 3A, Tables P-1 and P-5; Appendix F.			

TABLE 2-8. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS				
	HHs with gross rent over 30% of income for HHs with Incomes:		HHs with homeowner costs over 30% of income for HHs with Incomes:	
County	**< $10,000**	**$10,000--$20,000**	**< $10,000**	**$10,000--$20,000**
Adams	271	110	90	80
Asotin	751	254	210	127
Benton	2,680	1,425	672	619
Chelan	1,734	859	350	423
Clallam	1,351	889	619	412
Clark	4,854	4,850	1,489	1,841
Columbia	122	29	46	23
Cowlitz	2,582	1,204	537	378
Douglas	418	302	201	93
Ferry	77	22	46	18
Franklin	1,268	437	198	246
Garfield	37	3	28	6
Grant	1,377	521	410	258
Grays Harbor	2,113	898	690	490
Island	673	1,170	383	491
Jefferson	368	307	166	187

TABLE 2-8. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS

	HHs with gross rent over 30% of income for HHs with Incomes:		HHs with homeowner costs over 30% of income for HHs with Incomes:	
County	**< $10,000**	**$10,000--$20,000**	**< $10,000**	**$10,000--$20,000**
King	34,830	40,227	7,002	8,766
Kitsap	3,652	3,352	1,347	1,291
Kittitas	1,585	422	297	169
Klickitat	362	168	133	103
Lewis	1,461	750	641	386
Lincoln	131	52	139	63
Mason	805	389	309	311
Okanogan	819	223	316	167
Pacific	512	221	328	124
Pend Oreille	225	64	65	62
Pierce	15,281	12,845	4,115	4,280
San Juan	116	147	45	125
Skagit	1,570	1,334	699	550
Skamania	105	71	51	62
Snohomish	6,558	9,289	2,087	2,617
Spokane	12,792	6,870	3,492	3,612
Stevens	563	176	249	157

TABLE 2-8. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS				
	HHs with gross rent over 30% of income for HHs with Incomes:		HHs with homeowner costs over 30% of income for HHs with Incomes:	
County	**< $10,000**	**$10,000--$20,000**	**< $10,000**	**$10,000--$20,000**
Thurston	3,372	3,985	1,061	1,200
Wahkiakum	38	15	49	11
Walla Walla	1,796	2,476	367	290
Whatcom	3,297	2,874	826	996
Whitman	2,204	931	189	72
Yakima	5,768	2,557	1,648	1,500
STATE	118,518	102,718	31,590	32,606
Source: 1990 Census, STF 3A, Tables H-50 and H-59.				

TABLE 2-9. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS			
	HHs with gross rent over 20% of income for HHs with Incomes:		HHs with homeowner costs over 20% of income for HHs with incomes
County	**< $10,000**	**$10,000--$20,000**	**<$20,000**
Adams	67	153	59
Asotin	122	287	179
Benton	416	1,728	569
Chelan	190	841	371
Clallam	293	546	637
Clark	734	2,342	1,338
Columbia	0	28	62
Cowlitz	390	1,189	666
Douglas	26	258	149
Ferry	28	40	25
Franklin	237	368	224
Garfield	0	25	32
Grant	389	844	426
Grays Harbor	391	949	837
Island	99	627	307
Jefferson	148	143	292

TABLE 2-9. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS

County	HHs with gross rent over 20% of income for HHs with Incomes:		HHs with homeowner costs over 20% of income for HHs with incomes
	< $10,000	**$10,000--$20,000**	**<$20,000**
King	5,432	12,265	7,,285
Kitsap	655	1,686	921
Kittitas	199	531	258
Klickitat	98	231	162
Lewis	194	615	606
Lincoln	48	80	103
Mason	90	252	352
Okanogan	239	388	386
Pacific	110	213	320
Pend Oreille	68	66	89
Pierce	1,697	6,891	3,952
San Juan	0	41	33
Skagit	327	681	660
Skamania	18	44	63
Snohomish	1,044	2,192	2,141
Spokane	1,919	5,648	3,841
Stevens	94	196	222

TABLE 2-9. COST OF HOUSING FOR LOW-INCOME HOUSEHOLDS			
	HHs with gross rent over 20% of income for HHs with Incomes:		HHs with homeowner costs over 20% of income for HHs with incomes
County	**< $10,000**	**$10,000--$20,000**	**<$20,000**
Thurston	384	1,369	698
Wahkiakum	2	32	63
Walla Walla	243	866	540
Whatcom	487	1,262	920
Whitman	142	673	175
Yakima	663	2,843	1,868
Source: 1990 Census, STF 3A, Tables H-50 and H-59.			

TABLE 2-10. WEEKLY INCOME LEFT FOR ALL OTHER HOUSEHOLD EXPENSES AFTER PAYING WINTER HEATING BILLS: BY COUNTY			
County	**Monthly Winter Heating Bill (including non-heat energy)**	**Monthly Winter Incomes of HHs Below 125% of Poverty**	**Weekly Income Left for All Other HH Expenses**
Adams	$147	$593	$111
Asotin	$118	$586	$117
Benton	$145	$611	$117
Chelan	$108	$606	$125
Clallam	$139	$617	$120
Clark	$138	$609	$118
Columbia	$119	$575	$114
Cowlitz	$105	$598	$123
Douglas	$111	$620	$127
Ferry	$128	$571	$111
Franklin	$145	$561	$104
Garfield	$128	$577	$112
Grant	$109	$593	$121
Grays Harbor	$122	$606	$121
Island	$154	$623	$117
Jefferson	$130	$633	$126
King	$155	$600	$111

TABLE 2-10. WEEKLY INCOME LEFT FOR ALL OTHER HOUSEHOLD EXPENSES AFTER PAYING WINTER HEATING BILLS: BY COUNTY			
County	**Monthly Winter Heating Bill (including non-heat energy)**	**Monthly Winter Incomes of HHs Below 125% of Poverty**	**Weekly Income Left for All Other HH Expenses**
Kitsap	$142	$581	$110
Kittitas	$148	$569	$105
Klickitat	$137	$615	$119
Lewis	$116	$605	$122
Lincoln	$137	$626	$122
Mason	$138	$615	$119
Okanogan	$109	$587	$119
Pacific	$124	$622	$125
Pend Oreille	$111	$593	$120
Pierce	$150	$603	$113
San Juan	$121	$646	$131
Skagit	$137	$599	$115
Skamania	$133	$630	$124
Snohomish	$145	$623	$120
Spokane	$136	$596	$115
Stevens	$126	$585	$115
Thurston	$150	$611	$115

TABLE 2-10. WEEKLY INCOME LEFT FOR ALL OTHER HOUSEHOLD EXPENSES AFTER PAYING WINTER HEATING BILLS: BY COUNTY			
County	**Monthly Winter Heating Bill (including non-heat energy)**	**Monthly Winter Incomes of HHs Below 125% of Poverty**	**Weekly Income Left for All Other HH Expenses**
Wahkiakum	$129	$526	$99
Walla Walla	$128	$609	$120
Whatcom	$141	$602	$115
Whitman	$151	$562	$103
Yakima	$137	$581	$111
Source: Census, STF 3A, Tables P-1 and P-5; Appendix F.			

CHAPTER 3: ENERGY USE OF THE POOR

Energy is a necessary ingredient in running a modern household. We use it for our lights, for refrigerators and other appliances, for hot water, and for space conditioning (including both heating and air conditioning). Providing the energy to run a household represents a significant expense in Washington State. This expense increasingly becomes a burden as the household income decreases.

The purpose of this Chapter is two-fold. The Chapter will determine the energy consumption and expenditure patterns of low-income households within the state of Washington. It will then identify the number of households in each county of the state that potentially qualify for the state's energy assistance programs.

This Chapter is divided into two section. It first describes the methodology used in conducting the study. The second section of this Chapter presents a picture of energy consumption and expenditure patterns in 1990. Finally, potential scenarios for the future are presented.

3.1 METHODOLOGY

Two sets of data were developed for this study. First, baseline data on energy consumption and expenditure patterns were identified in order to develop a picture of how the average qualifying household uses energy, and how their energy dollar is spent.[16] For all of the sets of data to be discussed in this section, estimates were established for the state as a whole and for each county in the state.

The second series of data utilized a number of economic and energy forecasts to develop a

16. This process facilitated the quantification of the savings potential from the WAP and a determination of the extent to which this program assists low-income households. This information was then used to evaluate the current status of the WAP.

picture of what the base year figures might appear in the year 2000. This section describes how both of these data sets were developed.

3.1.1 The Base-Year Model

The first step in determining the energy consumption and expenditure patterns of low-income households was to define the term "low-income households." According to documentation for Washington state energy assistance, crisis and weatherization programs, to qualify as a "low-income household" and receive assistance under these programs, households must receive income at or below 125 percent of the federal Poverty Level.[17] While other definitions exist,[18] for ease of analysis, the term "low-income household" used throughout this study is made consistent with the WAP and EAP/ECIP definition.[19]

The next step was to identify the energy consumption and expenditure patterns of these households. A literature review and series of phone interviews resulted in a finding that neither the CTED, the Washington State Energy Office (WSEO), the Bonneville Power Administration (BPA), the Northwest Power Planning Council (NWPPC), nor the U.S. Department of Energy's Energy Information Administration (EIA) had estimates of the energy consumption and expenditure patterns of households under 125 percent of the Poverty Level in Washington State.[20]

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17. ***Washington State Plan for the 1993 Low-Income Home Energy Assistance Program***, Washington State Department of Community Development, at 7 (September 1992); ***Washington State Low-Income Weatherization Assistance Plan***, Washington State Department of Community Development, at 8 (March 1993).

18. A discussion of the shortfalls of *any* use of the federal Poverty Level as a measure of whether a household is "poor" appears in Chapter 3. A definition of "low-income" that is more generally accepted as adequately representing "poverty" is 60 percent of median income. However, since no energy assistance programs in Washington use this definition, it is not used for purposes of this report either.

19. Indeed, LIHEAP and WAP definitions of "low-income" are often budget driven. Thus, as federal funds for fuel assistance were cutback, many states reduced their eligible population by lowering their definition of "low-income" rather than reducing benefits but leaving the total population the same.

20. The EIA does have consumption data for an average household below 125 percent of the Poverty Level in the Pacific Division of the Western Census Region. However, this includes Washington, Oregon, California, Hawaii and Alaska. *See* ***Household Energy Consumption and Expenditures, 1990***, Energy Information Administration, Washington D.C. (February 1993). For obvious reasons, this level of detail is not sufficient for a study that focuses on the state of Washington. EIA is unable to separate the Washington state data from the regional data.

BPA also published "low-income" consumption figures in 1988 as part of a study on savings from weatherization programs. However, they did not define "low-income," and their figures include Oregon, Idaho and Montana, as well as Washington. *See* ***Evaluation of the Bonneville Power Administration Low-***

Because of this lack of data, estimates of household energy consumption and expenditure patterns were constructed for a one-year period. As it was the latest year for which a relatively full set of data exists, the calculations were based on 1990 data.

The data was collected from a diverse set of sources. Information on population, household size, per-capita and household income, and space heating fuels were obtained from the 1990 Census. Additional data regarding income levels was obtained from CTED and the Washington State Office of Financial Management (OFM). Data on fuel prices was obtained from the EIA, from the Washington Utilities and Transportation Commission (WUTC), and from the WSEO. Consumption and expenditure estimates were provided by the EIA and the WSEO. Climatic data was obtained from the EIA, the National Oceanic and Atmospheric Administration (NOAA), and the CTED. Finally, the Community Action Agencies responsible for implementing the WAP in the counties were surveyed for information.

Based on sufficient variables common to regional and state data, a series of regression equations were developed to reasonably estimate the energy consumption for the average household and for a typical low-income household in the state.[21] Separate estimates were provided for space heating, air conditioning, and all other uses.

The estimates for the average household were compared to WSEO published data as a check on the validity of the model.[22] The ratio of consumption by a low-income household to that of an average household was compared to EIA regional data and other published figures.

Once the resulting consumption patterns reasonably matched published estimates, the methodology was applied to average and low-income households in each of Washington's 39 counties using county-specific data on energy prices, heating and cooling degree days, household incomes and household size.[23] Energy price data was then weighted according to Census data regarding household heating fuel types, and average expenditures were developed based on the average consumption figures discussed above.

As a final check on the validity of the model, the total consumption and expenditures for average and low-income households in each county were multiplied by the number of

(..continued)

Income Weatherization Program, Oak Ridge National Laboratory, Oak Ridge, Tennessee (July 1988).

21. For a complete description of the regression analysis and the resulting formulas, *see* Appendix C.

22. *See* Anderson, ***Washington State Energy Use Profile, 1960-1990***, at Table 14a, Washington State Energy Office (July 1992).

23. This data, and the sources from which it was obtained, are presented in Appendix D.

households per county and summed. As will be discussed below, the results were very close to published estimates of total residential energy consumption and expenditures for the state in 1990.

3.1.2 Projected Future Consumption and Expenditures

In order to provide some sense of the magnitude of the problem that lies ahead, a projection of what the present picture might look like at some point in the future was necessary as well. The year 2000 was selected as a reasonable timeframe within which to make projections. It was determined that projections beyond ten years would be too uncertain to be worthwhile.

This work was not based on forecasts generated specifically for this report. Instead, many of the agencies that collected the data used in the 1990 model have published forecasts which were reviewed and utilized. For instance, trends on growth of population and households were obtained from OFM. Trends on growth of income were obtained from OFM and the Department of Commerce, Bureau of Economic Analysis (BEA). Energy consumption and price forecasts were obtained from the EIA, the NWPPC, and the BPA.

Using this data, average annual growth rates could be developed for growth in population, number of households, size of households, household income, household energy consumption, consumption of energy used for heating, average energy prices, and household energy expenditures.[24] These growth rates were then applied to the figures developed in the 1990 model in order to provide projections for the year 2000.

Where possible, these projections were compared against 1993 data to validate the selection of growth rates. For example, the NWPPC published five possible electricity demand rates in 1991: a low estimate, medium low, medium, medium high, and high.[25] Since the NWPPC revealed in August, 1993, that demand in the region was running slightly ahead of the medium forecasts,[26] the NWPPC's medium forecast for energy consumption was adopted as a conservative estimate.

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24. The average annual growth rates adopted for use in this study, as well as the sources from which they were obtained, are presented in Appendix E.

25. NWPPC forecasts for electricity consumption and energy prices from 1990 to 2000 and to 2010 are contained in ***1991 Northwest Conservation and Electric Power Plan***, Vol. II, Part 1 (1991) (*see* especially Chapter 6).

26. "Electric Loads Slightly Outpace Power Council's Medium Forecast," ***Conservation Monitor***, at 1 (July/August 1993). This trend appears to be holding true on a per-household basis as well. Personal communication, Deborah Kitchin, NWPPC, August 11, 1993.

In order to generate results that could be compared to the 1990 figures, projected year 2000 energy consumption and expenditure figures were generated for both average and low-income households in each county and for the state as a whole. Total consumption and expenditures by county and for the state were also estimated.

3.2 ENERGY CONSUMPTION AND EXPENDITURE PATTERNS IN 1990

While the model discussed above provides a useful look at the relative scale of consumption and expenditures at the selected income levels, it does have some apparent weaknesses that must be recognized. The results of the model, for example, show energy consumption and expenditures for an "average household" that in reality does not exist. Moreover, due to the complexities of such undertakings and the unavailability of certain data, it is difficult to reflect all of the possible combinations. For example, the model does not account for differences in types of dwellings (single or multi-family). It does not consider ranges of income, but rather only median household and Poverty Level incomes. The use of such medians and averages, of course, masks the extremes. Finally, the model is based on weighted averages of fuel types adjusted for each county, and therefore probably understates the usage of an electrically-heated home but slightly overstates the usage of a gas-heated home.

Despite these shortcomings, however, particularly if acknowledged up-front, the model generates reasonably adequate data upon which to base an analysis.

3.2.1 Energy Use and Expenditures

Estimates of consumption and expenditures for an average household in the state, as well as for a low-income household are presented below. Each of these estimates is broken down by three major end-use categories: space heating, air-conditioning, and all other uses.

As it is difficult to compare a kilowatt-hour of electricity to a gallon of gasoline or to a cubic foot of natural gas, energy must first be converted into a common unit. Therefore, energy consumption is expressed in this report in units of one million British Thermal Units (mmBtu).[27] This puts all sources on a comparable basis. Energy expenditures are reported for the same three categories in 1990 dollars.

Energy consumption patterns for an average household and for a low-income household in the state are presented below in Table 3-1.

27. One million Btus is approximately equal to the energy contained in eight gallons of gasoline or 300 kilowatt-hours of electricity. It is also equivalent to 1,000 cubic feet of natural gas.

TABLE 3-1. ESTIMATED ENERGY CONSUMPTION PATTERNS, WASHINGTON STATE HOUSEHOLDS 1990 (MMBTU)

Consumption Category	Average Household	Low-Income Household
Heat	51.6	42.9
Air-Conditioning	4.2	1.8
All Other Uses	39.9	34.3
Total	95.7	79.0

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

These figures are based on a number of averages.[28] The average household size is estimated to be 2.60 persons.[29] Median household income is $31,183.[30] In addition, as described above, the heating figure is based on a weighted average of heating fuel types obtained from the Census.[31] Heating Degree Days (HDD) and Cooling Degree Days (CDD) are based on population-weighted averages obtained from CTED and NOAA.[32]

As can be seen, the average household uses just under 54 percent of its energy on space heating. Moreover, the average low-income household uses just over 54 percent of its energy on heating. In total, the low-income household uses about 83 percent of the energy

28. *See*, the row labelled "State" in Appendix D, Tables D-1 and D-2.

29. 4,866,692 persons in the state divided by 1,872,431 occupied housing units in the state. ***1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics***, 1990 CPH-5-49, at Tables 1 and 14, Bureau of the Census (May 1992).

30. *Id.*, Table 10.

31. Ibid, Table 14.

32. Additional information on how the results were derived, is presented in the methodology section above as well as in Appendix C. Additional information on the data used as input for these estimates is presented in Appendix D.

used by the average household.[33]

The ratio of consumption by a low-income household to that of an average household begins to look like a serious problem when expenditures and incomes are included in the picture. Although the low-income household consumes only about 83 percent of the energy of the average household, the low-income household *pays* about 88 percent of what the average household pays for that energy. This difference is due largely to the fact that the average price paid for heating fuel is higher for low-income households than it is for the average household in the state. Average and low-income household energy expenditures are estimated in Table 3-2.

33. The total consumption for a low-income home is in line with the findings of a study conducted for BPA in 1988 which reported average low-income household consumption to be about 75.4 mmBtu/year. ***Evaluation of the Bonneville Power Administration Low-Income Weatherization Program***, at ii, Oak Ridge National Laboratory (July 1988).

TABLE 3-2. ESTIMATED ENERGY EXPENDITURE PATTERNS, WASHINGTON STATE HOUSEHOLDS 1990 ($1990)

Expenditures	Average Household	Low-Income Household
Heat	$507	$451
Air-Conditioning	$ 54	$ 24
All Other Uses	$392	$361
Total	$953	$836

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

One reason for this difference is that low-income households tend to use more expensive heating fuels. As Table 3-3 shows, even though electricity is the most expensive fuel to heat a home on a dollars-per-mmBtu basis, more than 65 percent of the heating needs for low-income households are met by this fuel.[34] By contrast, only 55 percent of the heating needs in the state generally are met by electricity. In addition, a much smaller percentage of low-income households are heated by natural gas, the least expensive of the major heating fuels. Both of these trends tend to raise the average cost for all heating fuels paid by low-income households.

34. This figure represents the primary heating fuel, as reported in the 1990 Census. Secondary fuels are used in many instances. For instance, some gas heated homes also have woodstoves, and some wood heated homes use portable electric space heaters. However, there does not appear to be any reliable source for data on the amount of need that is met by these sources. Therefore, they are omitted from this calculation.

TABLE 3-3. PRIMARY HEATING FUEL SOURCES WASHINGTON STATE HOUSEHOLDS IN 1990 (RANKED MOST EXPENSIVE FIRST) (PERCENT)

Heating Fuel Source	All Households	Low-Income Households
Electricity	55.1%	65.2%
LPG	1.1%	1.6%
Fuel Oil	9.9%	6.6%
Wood	10.6%	9.1%
Natural Gas	22.4%	16.0%
Coal	0.1%	0.2%
Other/None	0.7%	1.3%

Source: U.S. Bureau of the Census

This difference is compounded when differences in income are considered. For instance, median household income for the average household of 2.60 persons is $31,183. By definition, the same household containing 2.60 persons living at 125 percent of the federal Poverty Level has an income of about $12,000.[35] As a percentage of its income, the low-income household thus spends more than twice what the average household spends on energy. A household living at 100 percent of the Poverty Level spends almost three-times what the average household spends as a percent of its income. Households living below the Poverty Level spend an even larger percentage of their income on energy.

3.2.2 Comparison to Previously Published Figures

To check on the validity of the data, and to provide a picture of what these figures mean at the state level, the total consumption and total expenditures for all households and for all low-income households were calculated for the entire state. These figures are presented below in Table 3-4.

35. ***1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, 1990*** CPH-5-49, at Appendix B, Table A, Bureau of the Census (May 1992).

TABLE 3-4. ESTIMATED TOTAL ENERGY CONSUMPTION AND EXPENDITURES WASHINGTON STATE HOUSEHOLDS 1990 (MMBTU, $1990)

	All Households	All Low-Income Households
Total Consumption(000s)	174,989	21,218
Total Expenditures (000s)	$1,858,714	$238,122

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

Comparisons to previously developed figures must be made only on the basis of total residential consumption. As noted above, no published data appear to exist regarding the energy consumption and expenditure patterns of low-income households at the state level. However, the WSEO has published estimated average household consumption and expenditure data for the year 1990.[36] The agency also published estimated total residential consumption[37] and expenditure[38] data for the state.[39] The WSEO figures are presented in Table 3-5.

36. Anderson, ***Washington State Energy Use Profile, 1960-1990***, at Table 14a, Washington State Energy Office (July 1992).

37. *Id.*, Table 3a.

38. *Id.*, Table 7a.

39. The WSEO figures appear to be the best data upon which to base this type of comparison. The EIA, NWPPC and BPA all publish regional data, but most of that data contains consumption and expenditures from households in other states. In addition, much of the data is based on samples rather than full data-sets. In these cases, Washington-specific data cannot be separated out of the regional figures with any reliability.

TABLE 3-5. WASHINGTON STATE ENERGY OFFICE ESTIMATES AVERAGE HOUSEHOLD CONSUMPTION AND EXPENDITURES, TOTAL STATE RESIDENTIAL CONSUMPTION AND EXPENDITURES 1990 (MMBTU, $1990)

Average Consumption	95.7
Average Expenditures	$885
Total Consumption (000s)	190,592
Total Expenditures (000s)	$1,762,700

Source: Washington State Energy Use Profile 1960-1990, Washington State Energy Office, Olympia, July 1992, Tables 3a, 7a, and 14a.

When comparing the data in Tables 3-1, 3-2, and 3-4 with that in Table 3-5, there at first appears to be some significant differences between the estimates in this Report and the WSEO estimates. However, a closer look reveals that these differences are well within the bounds of what might be expected given the different methodologies and starting assumptions used in developing the two sets of numbers.

The most significant difference in starting assumptions is in the estimated number of households. According to Census data, there were approximately 1,872,431 "occupied housing units" in the state of Washington in 1990.[40] The same source reports that about 275,731 of these were low-income households. These figures were used as a proxy for the number of households in this Chapter. In contrast, the WSEO figures are based on 1,991,544 households. This figure represents the number of residential electric customers in the state as determined by BPA.[41]

Using the Census population with the consumption and expenditure data from WSEO indicates how close the estimates are one to another. This is true both for aggregated state totals and for individual household averages. On an aggregate state-level basis, if the Census population figures are used with WSEO's average consumption, the estimated total state residential consumption is about 179,190,000 mmBtu, about 2.4 percent greater than the

40. ***1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics 1990***, CPH-5-49, at TAble 14, Bureau of the Census (May 1992).

41. ***Washington State Energy Use Profile, 1960-1990***, at Table A1, Washington State Energy Office (July 1992).

estimates presented below.[42] If the Census population figures are used with WSEO's average expenditures, the estimated total state residential expenditures are about $1,657,300,000. This figure is about 11 percent smaller than the estimates in this Chapter.

In contrast, on a per-household basis, the WSEO process begins with the total consumption and expenditures for the state and divides by the number of households to get estimates of average household consumption and expenditures. By substituting the Census data on households in this process, the average household consumption rises to 104.6 mmBtu. This is about 9.3 percent greater than the estimate in this report. If the same process is applied to the expenditures figures, the average household expenditures equal about $941. This is about 1.3 percent lower than the estimate in this report.

These differences, while not insubstantial, do not give rise for significant concern.[43] Because these figures are all based on estimates and averages, it is not possible to say which figures are the "right" figures. However, one could reasonably assume that the most likely values probably fall within the ranges created by these two processes. These ranges are presented in Table 6 below.

42. It is to be expected that the two figures would not match perfectly: the WSEO figure is based on averages at the state level, where the ERA estimate is based on the sum of estimates at the county level. The latter uses county-specific data, such as climate and household size, which vary from the state averages.

43. The difference between the Census consumption and expenditure figures and the consumption and expenditure figures used in this report can be attributed to two causes. First, the 1990 average prices for electricity and natural gas that were collected for this study tend to be higher than those utilized by the WSEO. This tends to produce higher aggregate expenditure figures.

The second cause for this difference can be found in the different methodologies used for this study. The WSEO total state consumption and expenditure figures were derived through estimates of total sales and revenues provided by BPA, utilities, and fuel vendors serving residences in the state. According to staff of the WSEO, while the consumption figures derived in this manner tend to be reasonably accurate, the revenues tend to be under-reported. Thus, the WSEO figures tend to slightly understate actual expenditures. Personal communication, Mark Anderson, Washington State Energy Office, August 11, 1993.

TABLE 3-6. RANGE OF ESTIMATES: AVERAGE HOUSEHOLD ENERGY CONSUMPTION AND EXPENDITURES, AND TOTAL STATE RESIDENTIAL CONSUMPTION AND EXPENDITURES
1990 (MMBTU, $1990)

	Low Estimate	High Estimate
Average Consumption	95.7	104.6
Average Expenditures	$885	$953
Total Consumption (000s)	174,989	190,592
Total Expenditures (000s)	$1,657,300	$1,858,714

Notes: These figures represent the range of values between the WSEO estimates and the ERA estimates.

When reviewing the estimates presented in the remainder of this report, the reader should keep in mind that the figures are not presented as definitive values. Rather, they should be viewed as providing approximate and relative pictures of the problems they describe.

3.2.3 What These Numbers Do Not Show

The above discussion is based on the traditional, if somewhat narrow, concept that a household's energy consumption and expenditures being based on the electricity, natural gas, wood, and other fuels used by members of a household within that home. In this view, space heating represents about 50 to 55 percent of a household's energy budget. Thus, for every two percent of heating energy saved through a weatherization program, approximately one percent of the *total* energy budget would be saved.

Weatherization programs thus appear to offer an opportunity for substantial savings for low-income households. While it is true that these programs can substantially cut costs for heating and cooling homes, they are less valuable for helping reduce total energy costs. Moreover, it becomes apparent that weatherization is most valuable for the worst low-income housing. These efforts will have the greatest impact when performed for households who do not fit into the average home heating consumption pattern of 50 - 55 percent, but whose heating consumption instead represents a greater burden.

3.2.4 How Washington Counties Compare

Once statewide results were produced that reasonably matched the WSEO figures for the

average household in the state, county-specific data was considered to produce consumption and expenditure averages for each county as well. The county-specific data included median household income, average household size, climactic data, primary heating fuel-type information and average fuel prices.[44]

Consumption and expenditure estimates were generated for heating, air-conditioning, and all other uses, for both average households and low-income households in each county. The results of this process are presented in tables in Appendix F.

Again it should be stressed that the figures in Appendix F are not presented here as absolute markers. Rather, they are meant as averages which will present a relative scale of the problems faced by low-income households in each county. For example, it is interesting to note that the percentage of energy used to heat low-income homes appears to move from a low of roughly 45 percent in Franklin County to a high of roughly 62 percent in Ferry County. This represents between 37 and 52 mmBtu per household per year for heating low-income households. Expenditures follow a similar pattern.

As might be expected, counties with colder climates,[45] such as those with populations in the Cascades or in the northeast part of the state, tend to have higher average heating consumption. Counties that have mostly rural populations tend to have larger household sizes. Many of these counties are served by municipal electric utilities, which tend to have lower rates than the larger private utilities. Both of these situations also tend to result in higher consumption.

These trends tend to be offset somewhat by other factors. For instance, the mostly rural counties rely to a larger extent on relatively expensive heating fuels, such as LPG, heating oil, and wood.[46] There is little natural gas, a relatively inexpensive fuel. Reliance on these relatively expensive fuels tends to lower consumption somewhat.

On the other hand, counties with larger urban populations tend to have smaller average household sizes. They also tend to be served by larger, private electric utilities, which on average have higher rates. These factors tend to keep consumption in these areas down.

These factors are offset as well. Urban areas tend to have a higher percentage of homes

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44. *See*, Appendix D for a listing of this data and its sources.

45. *See*, Appendix D, Table D-2, Part A, under the heading "HDD." This represents "heating degree days." The higher the number in this column, the colder the climate for that county, and thus the more heating necessary for households in that county. How this translates into heating energy consumption can be seen by referring to the "Heat" column on Table F-2, Part A, in Appendix F.

46. *See*, Appendix D, Table D-2, Part B.

heated by natural gas, which tends to greatly reduce average heating costs per household. In addition, when heating is less of a burden, households tend to use more energy for other needs. This tends to raise total energy consumption in warmer areas that have lower energy costs.

3.3 ENERGY CONSUMPTION AND EXPENDITURE PATTERNS IN 2000

This section sets forth projected energy and consumption patterns for the year 2000. It examines both residential data in general and low-income data in particular. The section is designed to provide some baseline estimates of what low-income energy needs will look like in the future to help assess the economic benefits of various levels of effort for various programs.

It should be stressed that the forecasts reported in this section were not independently developed for this report. Instead, the report utilizes reasonable forecasts provided by agencies that are in the business of making such forecasts.

Making projections about what current situations may look like in the future is always a tricky business. It is made all the more difficult in this case due to the large number of variables involved, and due to the difficulty in determining the exact status of all of these factors as of 1990. For instance, as discussed elsewhere, there are a variety of estimates of the total number of low-income households that were either built or have been weatherized to current standards. Differences in starting points of 10,000 or more out of a total of 275,000 can have a significant impact on projections that extend 10 years.

Moreover, when using forecasts generated by other parties, there is the very real possibility that the starting assumptions they used are not consistent with those of the study at hand. This can have a significant impact on the outcome. For this reason, every attempt was made to understand the basis for forecasts adopted for this study.

For these reasons, it must be stressed again that the figures presented below are not meant as a prediction of what will be in the future. Instead, they are meant to provide a reasonable picture of the scale of the problem as it might develop given the current understanding of present conditions.

3.3.1 Energy Use and Expenditures in 2000

Estimated consumption patterns for an average household and for a low-income household in the year 2000 for the state are presented below in Table 3-7.

TABLE 3-7. ESTIMATED ENERGY CONSUMPTION PATTERNS WASHINGTON STATE HOUSEHOLDS 2000 (MMBTU)

Consumption	Average Households	Low-Income Households
Heat	49.2	40.9
Total	91.2	75.4

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

These figures are based on a number of assumptions about the future. For instance, the NWPPC, whose projections these estimates are based on, has forecast that the average home will use about 0.5 percent less energy per year for heating between now and the year 2000.[47] This assumes that all current conservation and efficiency programs will continue at their current rates, and that all new homes added to the pool will be built to current efficiency standards. By adding these more efficient homes to the pool, the average efficiency will thus increase, resulting in a decreased average demand.

It is also assumed that demand for all non-heating uses per household will decrease at a slightly greater rate. This is in part due to the assumption that the number of persons per household will decrease over time.[48] It is also in part due to the assumption that as older, less efficient appliances wear out, they will gradually be replaced with more efficient models available today.[49]

Thus, although the demand for energy is expected to increase in the region as a whole, largely due to population increases, the demand on a per-household basis is expected to decrease slightly.

47. ***1991 Northwest Conservation and Electric Power Plan***, Volume II, Part 1, Table 6-5 (1991). Based on the "Medium" forecast.

48. Low-income and non-low-income household sizes are reasonably expected to follow the same trend.

49. While it is reasonable to note that low-income households will continue to live in the older, less energy efficient homes, and will continue to use the older less energy efficient appliances, as compared to the non-low-income population, the turn-over in appliance and housing stock from older to newer in absolute terms will nonetheless improve the overall efficiency of low-income housing and appliances.

The results differ for household expenditures. Average and low-income household energy expenditures for the year 2000 are estimated in Table 3-8.

TABLE 3-8. ESTIMATED ENERGY EXPENDITURE PATTERNS WASHINGTON STATE HOUSEHOLDS 2000 ($1990)

Expenditures	Average Households	Low-Income Households
Heat	$566	$504
Total	$1,064	$933

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

These figures are based on weighted averages of fuel prices. For simplicity, it was assumed that the current ratios of heating fuel types would remain constant at the rates presented above in Table 3-3.[50] The average annual increase in the real cost of energy – given these assumptions – was 1.6 percent above the inflation rate.[51]
Assuming households decrease overall consumption by 0.5 percent each year, the net annual increase for total energy expenditures is 1.09 percent.[52] To provide a meaningful comparison, the annual increase in household income should be estimated to determine whether energy expenditures rise faster or slower than incomes.

The Department of Commerce, Bureau of Economic Affairs, has projected that *per capita* incomes will increase by an average annual rate of about 1.3 percent between 1990 and 2000.[53] According to the NWPPC, average household size will decrease by about 0.55

50. In reality, it is estimated that natural gas will play a larger role in the future, and that electricity will lose part of its current share of the market if regional demand rates meet low or medium forecasts. *See*, ***1991 Northwest Conservation and Electric Power Plan***, Volume II, Part I, Northwest Power Planning Council, 1991, p. 220.

51. Based on weighted averages of the NWPPC "Medium Forecast" for energy prices. Ibid, p. 132.

52. The calculation is $(1 + 0.016_{price}) * (1 - 0.005_{energy\ price}) - 1.0 = 0.0109$, or 1.09 percent annual increase in overall household energy expenditures.

53. ***BEA Regional Projections to 2040***, *Volume I: The States*, U.S. Department of Commerce, Bureau of Economic Analysis (October 1990).

percent annually. Thus total household incomes will increase by only 0.75 percent annually,[54] Thus, since the rise in total energy expenditures appear to outpace increases in household incomes (based upon current forecasts), low-income households will face an increasing burden from energy consumption.

To provide a picture of what these figures mean at the state level, the total estimated consumption and expenditures for all households and for all low-income households were calculated for the state. These figures are presented below in Table 3-9.

54. This calculation is $(1 + 0.013_{income}) * (1 - 0.0055_{householdsize}) - 1 = 0.0075$, or a 0.75 percent increase in average annual household income.

TABLE 3-9. ESTIMATED 2000 TOTAL ENERGY CONSUMPTION AND EXPENDITURES FOR WASHINGTON STATE HOUSEHOLDS (MMBTU, $1990)

	All Households	All Low-Income Households
Total Consumption (000s)	220,480	26,828
Total Expenditures (000s)	$2,572,254	$332,134

Source: Calculated by Economic Research Associates using data from US Bureau of the Census, Washington State Office of Financial Management, US Department of Energy's Energy Information Administration, Washington State Energy Office, and others.

These figures assume that the number of households in each county will continue to grow at the same rate that they did between 1970 and 1990.[55]

These figures show some disturbing trends. Although the average low-income household is expected to use less energy in the year 2000 than it did in 1990 (five percent less according to these figures), it will most likely pay more for that energy (nearly 12 percent more in real terms). Thus, energy costs are expected to consume a higher percentage of the income available to each household, increasing the burden on low-income households.

Overall within the state, low-income households in the aggregate are expected to consume more energy in total in the year 2000 than they did in 1990. This is due to the fact that there will be more of these households. Although these figures show a consumption increase of nearly 27 percent for all low-income households, they also indicate that the total energy bill paid by all low-income households will increase by as much as 40 percent.

These figures are based on the assumption that all weatherization programs will continue at present rates and that all new buildings added to the housing stock will be built to current efficiency standards. They also offer a persuasive argument that current efforts will need to be increased in order to avoid losing ground.

55. ***1991 Population Trends For Washington State***, at 36, Washington Office of Financial Management (August 1991).

3.3.2 How Washington Counties Compare

As was done with the 1990 model, this analysis was applied to county-specific data to produce averages for each county. The county-specific data included median household income, average household size, and other information.[56]

Total and heating consumption and expenditure estimates were generated for both average households and low-income households in each county. The results of this process are presented in tables in Appendix G.

Again it should be stressed that the figures in Appendix G are not presented here as absolute markers. Rather, they are meant as averages which will present the relative scale of the problem as it might appear in the year 2000 given the assumptions discussed above.

3.4 SUMMARY AND CONCLUSIONS

Washington's low-income households use noticeably less energy than the state's residential customers as a whole. Despite this fact, the energy *bills* of the poor do not reflect this lower consumption. This seeming anomaly arises because of the disproportionate reliance of the poor on the most expensive heating sources, particularly electricity.

The unaffordability of energy to the poor will worsen in the next decade. While consumption is expected to *decrease* somewhat on a per household basis, energy bills will *increase* in real terms. Low-income households will spend more as a percentage of their income on home energy bills in the year 2000 than they do today.

56. For a discussion of the annual rates of increase adopted and the sources of those forecasts, *see* Appendix E.

CHAPTER 4: ENERGY NEEDS OF THE POOR

This Chapter examines different ways of measuring the "energy needs" of low-income households given the consumption and expenditure data presented in Chapter 3 above. While much research and policy analysis has been devoted to ways in which to *meet* the energy needs of the poor, through either public or private programs, the definition and measurement of the *extent* of the need has been largely ignored. Even when differences in definition and measurement approaches are explicitly acknowledged, the significance of adopting one approach over another has not been explored.

Despite the universally agreed upon proposition that the poor are "in need" when it comes to the affordability of their home energy bills, there is no generally accepted definition of what that "need" is. Having failed to define the "energy needs" of the poor, it has thus not been possible to quantify such needs. Consequently, public and private efforts to redress those needs fall short as well.

In sum, low-income households have an absolute mismatch between their resources and expenses. Some households do not pay their home energy bills because they cannot afford to pay. Other households pay, but devote an inordinate amount of household resources to so doing. As a result, many households lose their service entirely. In contrast, other low-income households are forced to rely upon expensive, and dangerous, alternative heating sources. Other households pay, but sacrifice food, medical attention and other family necessities to do so. Each of these results is unacceptable.

The purpose of this Chapter, therefore, is three-fold: (1) to review the two basic models commonly used to define and measure energy needs, either implicitly or explicitly; (2) to quantify the number of low-income households "in need" given the different definitions; and (3) to determine the dollar needs of Washington's low-income population on a geographically disaggregated basis using these models.

4.1 THE ALTERNATIVE MODELS

There is little agreement in the literature about the means to measure the "energy needs" of low-income households. There are at least two different commonly accepted methods. Each is briefly discussed below. The premise of this research, however, is that without clearly defining the "need" sought to be alleviated, public policy aimed at redressing that need will be confused and confusing. Public policy cannot alleviate a need that has not been defined.

Some researchers, but few indeed, recognize the various alternative components in defining energy need. Consider the introductory paragraphs of the section titled "paying for energy with incomes below poverty" in the *Final Report of the Blue Ribbon Commission on Energy Policy for Maine's Low-Income Citizens*:[57]

> In recent years when energy prices were relatively low, many low-income families still could not afford to pay for energy, simply because their incomes were insufficient to cover all of their basic needs. For households below the poverty level, paying 12% or more of annual income for heat is a heavy or even impossible burden on top of other basic expenses. In some areas of the State, housing costs, excluding energy, often amount to more than 50% of the poverty level --or, in other words, more than 100% of a typical AFDC family's income. These households are simply unable to pay for heat without assistance.
>
> Even when annual energy costs are less than 12% of income, these low-income families face constant crises from lack of money. Large energy bills during periods of cold weather are likely to be unaffordable, but even smaller energy bills may be unmanageable when medical needs, car problems or housing costs become pressing.[58]

Moreover, the Blue Ribbon Commission found:

> Basic energy services are necessary for health, comfort and safety. Maine winters can cause serious consequences (including death) for those who cannot afford adequate heat. Households who do not have enough money to pay their basic needs* * *will often sacrifice adequate heat to pay for food, housing and medicine. Living with the threat of running out of fuel or having electric or gas service shutoff takes a severe toll on low-income households.[59]

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57. Ward, ***Ready for Winter?: Final Report of the Blue Ribbon Commission on Energy Policy for Maine's Low-Income Citizens***, State of Maine Executive Department (1990).

58. *Id.*, at 16.

59. *Id.*, at 32.

The Commission concluded:

> Other Maine households and businesses also suffer from the effects of unmet energy needs of low-income citizens. Electric utilities carry large uncollectible expenses* * *which are paid for by all ratepayers as a cost of business.* * *Collection costs and working capital on unpaid bills impose costs on energy vendors, utilities, and all consumers."[60]

This Maine report thus recognizes each of the components of "need": (1) the inability to maintain home energy service;[61] (2) the burden of energy bills as a percentage of income;[62] and (3) the inability-to-pay for utility service after considering other household expenses.[63] These three approaches incorporate the different models used in defining and assessing low-income energy needs. The first two of these models are discussed individually in greater detail below.[64]

4.1.1 Bill as Percent of Income

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60. *Id.*

61. "Living with the threat of running out of fuel or having electric or gas service shutoff takes a severe toll on low-income households."

62. "For households below the poverty level, paying 12% or more of annual income for heat is a heavy or even impossible burden on top of other basic expenses."

63. "* * *even smaller energy bills may be unmanageable when medical needs, car problems or housing costs become pressing."

64. The "crisis" needs of low-income consumers are discussed in Chapter 5. The extent to which disconnections of households in arrears occur on a utility system is not a good measure of low-income energy needs. *See generally*, Colton, ***Defining and Measuring Low-Income Energy Needs in Selected U.S. Cities***, at 98 - 111 (1993).

> "The disconnection of service does not represent a direct measure of "need." Instead, the disconnection of service represents an operational decision by a utility, a choice among competing alternatives on how best to collect dollars from a consumer.
>
> * * *
>
> "The issue is instead whether measuring the rate at which a utility disconnects service provides any meaningful assistance to measuring low-income energy needs. Because the choice of whether or not to disconnect service reflects specific utility policy decisions that may be entirely unrelated to the "needs" of consumers, this factor is found to be an inappropriate measure of `need.'"

Id., at 109 - 110.

The first primary means to define low-income energy "needs" involves an examination of the extent to which energy bills exceed a designated percentage of a household's income. This is the definition implicit in the promotion of Percentage of Income Payment Plans (PIPPs) throughout the country.[65] While most analysts and utilities involved with PIPPs agree that little, if any, work has been done to determine what percentage of income is "affordable" to the poor, implicit in programs ranging from the Electric Lifeline Rate adopted by Central Maine Power Company, to the Customer Assistance Program adopted by Columbia Gas Company, to the PIPP adopted by Public Service Company of Colorado, is the assumption that a household's "need" is that portion of the home energy bill that exceeds a designated percentage of income.

Arguments against use of this definition of need include the definition's failure to account for household-specific expenses (such as high medical expenses), to a failure to *justify* what percentage is to be deemed "affordable," to a failure to account for the large number of low-income households who pay their bills notwithstanding the fact that the bills exceed the affordable percentage.

One of the first places the percentage of income model appeared is in a 1980 report by the Fuel Oil Marketing Advisory Committee (FOMAC) of the U.S. Department of Energy.[66] FOMAC identified several "flaws" in the 1980 "Federal energy assistance program," including the fact that energy assistance was not "proportional to household energy needs and ability to pay."[67]

FOMAC then defined low-income energy needs in terms of percentage of income expenditures on home energy. Home energy expenditures of low-income households[68] was projected to reach nearly 22 percent in 1980.[69] In contrast, FOMAC said, median-income households would spend only 5.1 percent of their income on home energy.[70] Thus, FOMAC reported:

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65. *See generally*, Colton ***Percentage of Income Payment Plans as an Alternative Distribution of LIHEAP Benefits: Good Business, Good Government, Good Social Policy*** (1991); Colton ***The Percentage of Income Payment Plan in Jefferson County Kentucky*** (1991).

66. Buckley and Maggiore ***Low-Income Energy Assistance Programs: A Profile of Need and Policy Options*** (1980).

67. *Id.*, at 4.

68. "Low-income" was defined to be at or below 125 percent of poverty for all households except the elderly. Low-income for the elderly was defined to be households living at or below 150 percent of poverty.

69. *Id.*, at 8.

70. *Id.*, at 11.

> In brief, the percentage of income that low-income households will spend on home energy, on the average, will be *four times* that of median-income households. Energy costs of the poor will exceed $800 per household on an annual basis and the poor will utilize *21.8%* of their income directly on household energy.[71]

(emphasis in original). FOMAC concluded as to evidence of low-income energy needs, "it is apparent that the low-income households in America pay a far higher proportion of their total annual income for energy than do median-income households."[72]

More recently, a study by Barua, *et al.*, also concentrated on the percentage of income attributes of "energy needs."[73] Barua found that "on average, heating costs were equivalent to nearly 25 percent of LIHEAP household income and ranged as high as 71 percent and as low as 8 percent."[74] Barua identified two "areas of concern," both of which were based on the percentage of income approach to defining energy needs: "(1) the low level of relative assistance provided to households with very low incomes but high energy costs; and (2) the high energy cost burdens borne generally by low-income households even after the fuel assistance benefits provided by the state program are taken into account."[75] Barua cites as evidence for his "concerns" that: "* * *nearly 25 percent of LIHEAP household income is needed, unless full assistance is received, to pay heating costs. For those with less than $4,000 in annual income, heating costs equal nearly 40 percent of their income." He concluded: "clearly, a substantial burden is being borne by many Delaware households with low incomes in trying to cover their heating costs."[76]

Finally, one research effort sought to apply a merged percentage of income/available resource test of sorts. According to Auch, "an individual's `need' for assistance was defined as the ratio of the household's heat cost to annual income adjusted for family size. It represents the percentage of the household's adjusted income that goes to pay for heat."[77]

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71. *Id.*, at 11.

72. *Id.*, at 14.

73. Barua *at al.*, ***Energy Needs and Costs of Low-Income Households: A Preliminary Profile of Delaware LIHEAP Clients*** (1987).

74. *Id.*, at 4.

75. *Id.*, at 5.

76. *Id.*, at 20.

77. Auch *et al.*, ***A Policy Study for the Washington State Low-Income Home Energy Assistance Program: Final Report***, at 9 (1992).

The incorporation of the "available resource" model discussed below occurs through the adjustment in gross income for household size.[78] Annual income is adjusted downward to take into account the additional expenses associated with increased family size.

4.1.2 Net Available Resources to Pay Bill

At least two jurisdictions look not at energy bills as a percentage of income as their definition of need, but rather at a calculation of available resources left after paying "necessary" household expenses with which to pay a household's energy bill. This is the principle underlying Iowa's Affordable Budget Payment Plan as well as behind the Customer Assistance Program (CAP) adopted by Philadelphia Electric Company.[79] This definition of need states that it matters not so much what portion of a household's income is devoted to home energy bills, but rather simply whether there is enough household income to pay those bills, be they above or below a designated percentage of income level. To study energy needs using this determinant requires the construction of a household budget and a determination of the extent to which low-income households have little or no income left after paying other essential household expenses.

Arguments against using this mechanism include criticism of the "Big Brotherism" inherent in evaluating what are "essential" household expenses, the administrative costs of making individualized determinations, and the inherent possibility of having different individuals or offices apply different standards to similarly situated households.

Some researchers explicitly set forth this model of defining energy needs. Research by Heiserman is one example. Heiserman sought to evaluate the effectiveness of the Iowa Affordable Heating Payment Program (AHPP).[80] Heiserman posited that the purpose of the AHPP was to "reduce heating cost liability to a payment level* * *sustainable from household resources."[81] He set forth that the "income available to pay heating costs" includes "only the amount remaining after gross income has been reduced by monthly out of pocket expenses for housing (rent, or mortgage, insurance, and taxes), recurring medical costs, child support or alimony payments, and nonheating electricity usage."[82] Iowa requires

78. *Id.*, at 8 - 9.

79. This should not be confused with the Energy Assurance Program adopted by the Philadelphia Gas Works or the Customer Assistance Program adopted in Pennsylvania by Columbia Gas Company, both of which are percentage-of-income-based.

80. Heiserman, ***Iowa Affordable Heating Payment Program: Pilot Project Evaluation*** (1990).

81. *Id.*, at 4.

82. *Id.*, at 33.

25 percent of this "available income" to be paid toward heating costs.[83] This Iowa approach is the prototypical "disposable income" or "net available resource" model.

Philadelphia Electric Company (PECO) is another institution that has adopted the "available resource" model to define low-income energy needs. According to this company's program evaluation for its low-income program (called CAP: the Customer Assistance Program), the utility was "burdened with a cumbersome and lengthy collections process, which claimed the financial resources of the Company (and its ratepayers) and drained the emotional resources of its service representatives."[84] According to PECO's evaluation:

> The latter were frequently frustrated by their inability to effectively assist a growing number of their clients: customers who were consistently delinquent, who had accumulated large arrearages, and who appeared to have severe financial difficulty in keeping up with current bills. Many appeared to be unable to handle even the easiest repayment terms* * *."[85]

Philadelphia Electric thus created a low-income program that measured "need" based on available resources. "CAP works with each participant through detailed interviewing to arrive at an amount deemed to be affordable for electric service. That fixed monthly amount may be as low as $2."[86] This income and expense statement process is directed at "customers who are payment-troubled --who have fallen seriously behind in paying their bills and/or have broken one or more payment agreements-- and who claim that they are more or less chronically unable to pay* * *."[87]

Finally, Hoffman approaches his available resource test differently in his model for defining low-income energy needs.[88] One approach to defining need, Hoffman states, "would focus on the energy costs of lower-income households relative to available resources."[89]

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83. *Id.*

84. The Conservation Company, ***Evaluation of Philadelphia Electric Company's Customer Assistance Program: November 1 1985 to October 31, 1986*** (1987).

85. *Id.*, at I-1.

86. *Id.* at I-1 and III-1.

87. *Id.*, at III-1.

88. Hoffman, ***Providing Energy Assistance to the Poor: Choices Relevant to Design of Future Programs*** (1979).

89. *Id.*, at 14.

Hoffman's "available resource" test, however, assumes that it is the *non*-energy expenses that represent the marginal payments. His concern is not that insufficient household dollars are left to pay energy bills after other household necessities are purchased. Rather, Hoffman states "energy costs vary sharply by circumstance and location, and* * *some households must persistently devote large shares of income to energy, thereby limiting the purchase of *other essential items* such as food and clothing" (emphasis added).[90]

90. *Id.*

4.1.3 Summary

Researchers commonly use two different models by which to measure the "energy needs" of low-income households. The first model looks at the percentage of income represented by the home energy bills of the poor. This percentage of income concept does not reflect the actual expenses of the household on other life necessities, or even the actual payments (as opposed to bills) represented by home energy usage. It posits that if the burden of energy bills is too high, as represented by the bill as a percentage of income, the household is in need. The second model looks at the household resources available to pay home energy bills. This model seeks to determine whether sufficient income exists from which to pay all necessary household expenses, including home energy. It most often assumes that energy bills are the marginal payments and that if a mismatch arises between income and expenses, an "energy need" exists, irrespective of the energy burden as a percentage of income.

4.2 PERCENTAGE OF INCOME AS A MEASURE OF "NEED"

This Section quantifies the energy needs of low-income households in Washington State using the burden of energy bills, as measured by the percentage of income devoted to such bills, as the indicator of "need." The Section posits that, irrespective of either the actual size of the bill or the net household income after expenses, households who devote in excess of a predetermined portion of their total annual cash income to their energy bills are "in need."

To look at home energy bills as a percentage of income, rather than simply at the size of those bills, is necessary to gain an appreciation of the needs faced by low-income households. Despite their payment-troubled status, contrary to what is perhaps popular perception, it is not the case that the payment troubles of low-income households are caused by substantially greater energy consumption. Indeed, in Washington state, low-income households have ***less*** consumption than their higher income counterparts.[91]

91. *See*, Chapter 3, *supra*.

This observation may seem counterintuitive to some. The image of low-income households living in old and dilapidated housing is strong. Rounding out that picture are images of inefficient heating systems as well as dwelling units with little or no insulation or other energy savings features. While this picture of the low-income dwelling may be accurate,[92] it does not *a priori* follow that the low-income population has higher than average consumption. Indeed, as discussed in Chapter 3, the opposite is true.

In sum, the percentage of income model of defining and measuring need posits that it is not the size of the low-income bill in dollars that is important to low-income households so much as it is the *burden* which those bills place on the household. A smaller bill in total dollars can represent a larger burden in terms of percentage of income. It is this percentage of income burden which this Section examines in more detail.

92. A recent National Consumer Law Center study in North Carolina, for example, found that households on specific public assistance programs (AFDC and SSI) in that state were overwhelmingly likely *not* to live in homes with weatherization measures installed. Ranging from 50 percent of all AFDC households who lack *any* attic insulation (let alone *adequate* attic insulation), to 60 percent who lack caulking and weatherstripping, to 80 - 90 percent who lack storm doors and storm windows, these households lack the ability to control their unaffordable bills through the installation of energy savings equipment. Colton and Levison ***Energy and Poverty in North Carolina***, at 56 - 58 (1991).

Moreover, one in five (19%) North Carolina households with incomes less than $15,000 live in homes built before 1940. More than three of ten (32%) live in homes built before 1950 and nearly one-half (48%) live in homes built before 1960. Low-income households certainly occupy a disproportionate number of the older homes. Less than 15 percent of *all* North Carolina homes, for example, were built before 1940 and only 20 percent of all homes were built before 1949. *Id.*, at 52 - 53.

Similarly, the poor live in homes with older heating units as well. Of all North Carolina heating units more than 15 years old, nearly 60 percent are in homes occupied by households with annual incomes less than $15,000. Of all heating units aged 10 - 14 years, roughly half are in homes occupied by households with incomes less than $15,000. *Id.*, at 54 - 55.

4.2.1 Methodology

This Section begins with the energy bills presented in Chapter 3 above. Those bills present average total household energy consumption for all types of primary heating fuels on a county-by-county basis. The bills evaluated in this Chapter are low-income bills, not total residential bills.

Percentage of income burdens are computed by comparing these low-income energy bills to income ranges used in evaluating the state's Low Income Home Energy Assistance Program (LIHEAP) components.[93] Households within each range are assigned the mid-point of the range as their assumed income.[94] "Income" is defined consistent with the EAP/ECIP criteria.

A county-by-county distribution of EAP/ECIP recipients within the various income ranges was obtained from the Department of Community, Trade and Economic Development (CTED).[95] This EAP/ECIP distribution was then applied to the *total* number of low-income households in each county to obtain a distribution of *all* low-income households by income range.[96] That total number of low-income households was provided by the U.S. Bureau of the Census in a special run performed at the request of CTED. This methodology assumes, of course, that the EAP/ECIP population mirrors the total county low-income population.

The distribution of total low-income households by income range for each county is set forth in Table 4-1 below.

The analysis of energy burdens assumes a flat percentage setting forth an affordable burden applicable to all low-income households.[97] Under this model, for example, *all* low-income

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93. The two LIHEAP components at issue in this Chapter are the Energy Assistance Program (EAP) and the Energy Crisis Intervention Program (ECIP).

94. Hence, for example, a household in the range of $2-3999 is assumed to have an income of $3,000. A household in the range of $8-9,999 is assumed to have an income of $9,000. Households with incomes in the $15,000+ range are the exception. These households are assigned a $15,000 income. No households are assigned a $0 income.

95. Since CTED did maintain accessible data for 1991, the 1992 distribution data was used.

96. "Low-income" is defined to include all households at or below 125 percent of the federal Poverty Level. This is the EAP/ECIP eligibility income criteria in Washington State.

97. *Contrast*, the Bureau of Consumer Services of the Pennsylvania Public Utilities Commission recently included a tiered percentage of income payment within the Customer Assistance Programs (CAPs) required of public utilities by that agency. BCS recommended payments differentiated on the basis of households living at 0 - 50 percent of the federal Poverty Level, 51 - 100 percent of Poverty, and 100 - 150 percent of Poverty. BCS, ***Final Report on the Control of Uncollectible Accounts in Pennsylvania*** (Feb. 1992). Moreover, the National Consumer Law Center, in a report for Massachusetts Electric Company, recommended a payment

households might be deemed capable of paying 15 percent of their annual income toward their total home energy bill irrespective of the level of Poverty at which they live.[98]

There is no assertion here that 15 percent is the "correct" percentage to assume. Indeed, since it is difficult to establish precisely *what* percentage of income *is* appropriate, three payment obligation scenarios were examined for this Report. The flat rate model alternatively assumed ten percent (10%), twelve percent (12%) and fifteen percent (15%) payment obligations for total energy bills.

Finally, separate percentage of income burden analyses were performed for heating energy bills standing alone. The flat rate model alternatively assumed six percent (6%), eight percent (8%) and ten percent (10%) payment obligations for home heating bills standing alone.

(..continued)

"matrix," taking into account household income and household size. ***Percentage of Income Payment Plans as an Alternative Distribution of LIHEAP Benefits: Good Business, Good Government, Good Social Policy***, at 7, 62 (March 1991). "Households with smaller incomes or larger family sizes, in other words, pay a correspondingly smaller portion of their income toward their home energy bills." *Id.*, at 7.

98. The analysis does not involve splitting the flat percentage between heating and non-heating, although this would be possible with the data presented. Thus, within the 15 percent flat rate, for example, no evaluation of ~~devoting 10 percent (10%) of the household payment for heating and five percent (5%) for non-heating, or~~ nine percent (9%) and six percent (6%) and the like was performed.

TABLE 4-1. COUNTY-BY-COUNTY DISTRIBUTION OF NUMBER OF LOW-INCOME HOUSEHOLDS BY INCOME RANGE								
COUNTIES	**EAP/ECIP INCOME RANGES**							
	$0-1999	**$2-3999**	**$4-5999**	**$6-7999**	**$8-9999**	**$10-11,999**	**$12-14,999**	**$15,000+**
ADAMS	4	10	78	64	53	32	24	9
ASOTIN	16	7	144	153	53	40	17	8
BENTON	41	36	321	299	171	98	66	45
CHELAN	24	33	290	247	113	60	45	17
CLALLAM	33	26	226	211	124	81	64	33
CLARK	85	113	953	1,049	597	395	350	237
COLUMBIA	3	5	41	42	24	12	3	2
COWLITZ	13	17	457	465	191	109	62	25
DOUGLAS	17	19	103	106	52	32	20	12
FERRY	4	4	37	39	19	22	10	4
FRANKLIN	60	48	214	161	113	63	60	18
GARFIELD	1	2	19	14	9	10	2	0
GRANT	20	57	401	357	169	108	65	43
GRAYS HARBOR	60	49	410	500	187	140	60	38
ISLAND	39	35	202	186	77	62	30	26
JEFFERSON	47	31	114	113	51	21	26	10
KING	10,181	650	2,362	2,415	1,191	750	646	402
KITSAP	84	89	667	584	253	160	93	55
KITTITAS	40	56	228	230	103	71	59	31

TABLE 4-1. COUNTY-BY-COUNTY DISTRIBUTION OF NUMBER OF LOW-INCOME HOUSEHOLDS BY INCOME RANGE								
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	$0-1999	**$2-3999**	**$4-5999**	**$6-7999**	**$8-9999**	**$10-11,999**	**$12-14,999**	**$15,000+**
KLICKITAT	3	6	114	132	57	24	17	7
LEWIS	52	42	438	445	216	106	96	47
LINCOLN	8	9	41	58	28	21	17	8
MASON	42	29	181	196	81	55	27	22
OKANOGAN	37	51	302	232	141	73	42	21
PACIFIC	17	18	132	153	73	42	19	28
PEND OREILLE	4	10	92	117	48	25	10	10
PIERCE	569	534	2,356	2,216	987	590	489	324
SAN JUAN	20	18	50	58	19	15	13	3
SKAGIT	56	74	461	403	187	109	66	47
SKAMANIA	4	5	51	38	16	12	5	5
SNOHOMISH	142	164	1,331	1,384	763	450	385	288
SPOKANE	228	289	2,695	2,410	1,206	682	520	300
STEVENS	23	34	219	199	114	62	45	22
THURSTON	37	43	458	477	248	123	116	63
WAHKIAKUM	3	2	14	18	15	3	1	1

WALLA WALLA	14	22	166	159	79	36	29	13
WHATCOM	133	100	648	606	314	226	156	119
WHITMAN	71	76	197	198	130	84	58	31
YAKIMA	151	256	1,573	1,447	838	476	308	198
Source: Annual reports to CTED by US HHS sub-grantees.								

No empirical basis for any of the burdens used in the analysis is presented. The purpose of this study is not to determine what percentage of income burden in fact is affordable. The lack of a generally accepted determination of what burden is affordable is why several different percentage of income levels are included in the analysis. The various levels of assumed burdens tested fall within generally accepted ranges around the country.

The dollars obtained by setting a bill equal to an "affordable" burden was then subtracted from the actual energy bill to obtain the various "shortfalls."[99] This shortfall is the annual energy need of the low-income households. It represents the difference between the affordable energy burden and the actual energy burden. The results of this analysis are set forth in Appendix H. The burden of actual total energy bills, before considering affordable percentage of income levels, as disaggregated by income stream and county, is set forth in Table H-1. The burden of heating energy bills, before considering affordable percentage of income levels, as disaggregated by income stream and county, is also set forth in Table H-2.

Data for this study was not obtained on a household-by-household basis. As a result, some care must be taken with the results. Averages are often used, albeit averages on a highly disaggregated basis. Nonetheless, for example, average incomes within each income range on a county-by-county basis were used. Average energy bills on a county-by-county basis were used. Averages tend to mask the extremes and the extremes are often where the substantial needs arise. Note, for example, that within the higher income ranges, on average there is no need found by this analysis. However, if a household within these income ranges has a higher than average bill, a need may well exist in fact. This analysis thus tends to understate the statewide aggregate need.[100]

Three results flow from this methodology. First, a determination of the number of low-income households "in need," using the different percentage of income burdens as the determinant of need, is obtained. Second, an average level of per household "need" is obtained within each income range. This per household need is the shortfall between the actual energy bill and the percentage of income burden defined to be affordable. Finally, an aggregate county-by-county need is established in total dollar terms. Again, this aggregate need is the shortfall between the percentage of income burden defined to be affordable and the actual energy bills in that county.

4.2.2 Low-Income Total Energy Bills

The extent of low-income energy needs in Washington State --both in terms of dollars of

99. The calculation is: actual bill - (income x affordable percentage of income burden) = shortfall.

100. The philosophy behind the "net available resource test" is not entirely without merit. A low-income household paying a designated percentage of income for its energy bill may still find the bill unaffordable if the household is faced with other extraordinary bills.

aggregate shortfall and in terms of number of households in need-- varies dramatically depending upon the percentage of income burden deemed to be "affordable" in defining the need. For purposes here, comparisons were made between defining energy burdens of 15 percent, 12 percent, and 10 percent as "affordable."

TABLE 4-2. AGGREGATE ANNUAL STATEWIDE TOTAL ENERGY NEEDS BASED ON DIFFERENT LEVELS OF "AFFORDABLE" ENERGY BURDENS

	Percentage of Income Energy Burden		
	15%	**12%**	**10%**
NO. LOW-INCOME HOUSEHOLDS WHOSE TOTAL ENERGY COSTS EXCEED INDICATED INCOME PERCENT	31,257	45,964	53,868
AGGREGATE STATEWIDE LOW-INCOME TOTAL ENERGY COSTS EXCEEDING INDICATED PERCENT OF INCOME	$12,860,501	$16,871,656	$21,325,464

A percentage of income burden of 15 percent of annual income, for example, reveals an aggregated statewide dollar need of nearly $13 million ($12,860,501). The 15 percent burden leaves 31,257 Washington State households --this is 11.3 percent of all low-income households in the state-- unable to pay their home energy bills without paying "too much" in terms of percentage of income. Of the $13 million shortfall, $8.7 million (13,193 households) is in King County and $1.2 million (3,459 households) is in Pierce County. The average statewide per household shortfall is $411. However, excluding the highest shortfall ($663 in King County) and the lowest shortfall ($81 in Garfield County) yields a statewide average of $228, perhaps a better indication of the typical conditions statewide.

Lowering the burden defined to be "affordable" by low-income households to 12 percent increases total statewide energy needs to nearly $17 million ($16,871,656). Given this 12 percent affordable percentage of income burden, 45,964 (16.7 percent) of all low-income households in Washington would be "in need." Again, this "need" is defined as being billed in excess of an affordable percentage of the household's income.

Importantly, while both the aggregate shortfall and the number of households in need increase by lowering the affordable percentage of income burden to 12 percent for total home energy, the *per household* shortfall does not reflect that increase. Indeed, the total statewide average per household shortfall using the 12 percent percentage of income burden *falls* to only $367. Excluding the highest (King County: $621) and lowest (Cowlitz: $65) from the calculus, the average per household shortfall is still only $239.

As is thus apparent, as the definition of an affordable percentage of income energy burden decreases, mean per household shortfalls will *not* necessarily increase. Shortfalls would

increase all other things being equal. However, as the line at which bills become unaffordable moves down, additional households will be added to the population facing unaffordable bills. The extent of the shortfall for these new households may be less than the total population average at that point. Accordingly, the mean per-household shortfall may well decrease as the percentage of income burden goes down.[101]

Finally, lowering the burden defined to be "affordable" by low-income households to 10 percent increases total statewide energy needs to more than $21 million ($21,325,464). Given this 10 percent affordable percentage of income burden, 53,868 (19.5 percent) of all low-income households in Washington would be "in need." Again, the average per household shortfall does not reflect the increased need. The statewide average shortfall given a 10 percent affordable burden is $396. Excluding the highest county (King: $628) -- there is no particular "low" county to be excluded-- yields an average per household shortfall statewide of $291.

In calculating the impacts of lowering the percentage of income burden defined to be affordable, also, it is important to note the geographic distribution of low-income households. In King County, for example, the move from a 15 percent to a 10 percent affordable energy burden increases the number of households in need by only 3,600 households (from 13,193 to 16,799), or about 27 percent. In contrast, the same decrease in the energy burden (from 15 to 10 percent) substantially increases the number of households in need in other counties (*e.g.*, Clark nearly doubles from 1,151 to 2,200; Thurston more than doubles from 538 to 1,263). All this difference means is that the greater number of households in King County are *extremely* low-income, thus facing unaffordable bills even at the higher energy burden levels. In contrast, Clark and Thurston Counties --these are illustrative counties only-- have some of the more marginally low-income households, whose bills become unaffordable only when the definition of "affordable" is made stricter. This explanation is confirmed by Table 4-1 above, setting forth the distribution of EAP/ECIP clients by income range for each county.[102]

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101. To illustrate, consider a population of one household with an income of $6,000, an affordable energy burden of 15 percent, and an actual energy bill of $1,500. The shortfall for this household would be $600 ($1500 - (6000 x .15) = 600). Since the population has only one person, the mean shortfall is $600 as well. Now assume that the affordable energy burden is decreased to 10 percent. This adds a second household (Household 2) facing unaffordable energy bills. Household 2 has an income of $4,000, and an actual energy bill of $600. Household 2 faces a shortfall of $200 (600 - (4000 x .10) = 200). The total number of households with a shortfall goes up from one to two. The prior household's shortfall becomes $900 (1500 - (6000 x .10) = 900). The total aggregate shortfall increases from $600 to $1,100 (200 + 900 = 1100). However, the mean per household shortfall decreases from $600 to $550. The mean falls because the per household shortfall of the "new" household facing unaffordable bills has a shortfall less than the "old" population average.

102. Note, for example, the difference between King County (with its heavy concentration of EAP/ECIP recipients in the $0 to $1,999 income range) and Pierce County (with its heavier concentration of EAP/ECIP recipients in the $4 - $9,999 income ranges).

A county-by-county presentation of low-income total energy needs is presented in Appendix I, Tables I-1 (15%), I-2 (12%) and I-3 (10%).

4.2.3 Low-Income Heating Burdens

As would be expected, limiting affordable energy burdens simply to a household's heating bills (as opposed to total energy) significantly limits the "needs" found to exist for low-income households. For purposes here, comparisons were made between defining energy burdens of 10 percent, eight percent, and six percent as "affordable."

TABLE 4-3. AGGREGATE ANNUAL STATEWIDE HEATING ENERGY NEEDS BASED ON DIFFERENT LEVELS OF "AFFORDABLE" ENERGY BURDENS

	Percentage of Income Energy Burden		
	10%	**8%**	**6%**
NO. LOW-INCOME HOUSEHOLDS WHOSE HEATING COSTS EXCEED INDICATED INCOME PERCENT	18,700	31,563	49,388
AGGREGATE STATEWIDE LOW-INCOME HEATING COSTS EXCEEDING INDICATED PERCENT OF INCOME	$5,621,731	$7,183,575	$10,252,847

A ten percent (10%) heating energy burden yields a statewide aggregate heating need of $5.6 million ($5,621,731), with 18,700 households unable to afford their heating burdens. Lowering the affordable burden to eight percent (8%) increases the statewide low-income need to $7.2 million ($7,183,575), while lowering the heating burden to six percent increases the statewide low-income need to $10.3 million ($10,252,847).

Changing defined affordable energy burdens affects heating bills differently than it affects total energy bills. Lowering the burden defined to be "affordable" for heating increases the number of households found to be "in need" dramatically more for heating bills than for total energy bills. Note, for example, that the move from an affordable total energy bill of 15 percent to one of 10 percent increases the number of households in need from 31,257 to 53,868, an increase of 72 percent. In contrast, lowering the affordable heating burden from 10 percent to six percent (a smaller delta in affordability) increases the number of households in need from 18,700 to 49,388, an increase of 164 percent.

It can thus be concluded that in assessing low-income energy needs as defined by percentage of income burdens, not only does the geographic distribution matter as discussed above, but the precise percentages being evaluated matter as well. A four percent delta in affordability will have different impacts --both in the number of households found to be in need and in

terms of the aggregate dollars of need-- depending upon where the delta occurs (from 6-10 percent vs. 10-14 percent).

A county-by-county presentation of low-income total energy needs is presented in Appendix J, Tables J-1 (10%), J-2 (8%) and J-3 (6%).

4.3 NET AVAILABLE RESOURCES AS A MEASURE OF "NEED"

This Section quantifies the energy needs of low-income households in Washington State using the net resources available to such households as the indicator of "need." The Section posits that, irrespective of the percentage of income burden placed upon the household by an annual energy bill, the household is "in need" only if household expenses exceed available household income.

Proponents of the use of an available resources test argue that households whose energy bills are at an "affordable" percentage of income may, because of other household expenses, *still* not be able to afford to pay their home energy bills. Moreover, these proponents urge, some categories of households routinely have higher than average expenses.[103] To create a single percentage of income that is deemed to be "affordable" is thus inequitable to households which diverge from the norm. These households might include households with elderly residents or households with children.

The purpose of this Section is two-fold. First, the analysis will examine the types of households who face net negative resources when considering household income and expenses. The Section will engage in the simplifying assumption that a household's energy bill is the marginal bill paid. It will then quantify the extent of the shortfall between what is affordable to the household and what is not. Energy bills in excess of available household income are deemed unaffordable.

Second, this Section will seek to determine whether a determination of "need" using the net available resource test results in the identification of a need greater than, less than, or about the same as, a need determination made using a percentage of income model. If arguments are correct that the percentage of income model "misses" households who lack the resources to pay home energy bills, even though those bills should present only an "affordable" percentage of income, the need identified in this Section should be somewhat *greater* than the need identified above, which examines percentage of income.

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103. *See e.g.*, Betson, ***Alternative Estimates of the Cost of Children from the 1980 - 1986 Consumer Expenditure Survey*** (1990) (a best guess estimate of the percentage of total household resources spent on children is 25%, 35% and 40% for one, two, and three children in a two-parent household and 40%, 55% and 60% for one, two, and three children in a one-parent household); Jensen, ***Elderly Out-of-Pocket Health Care Expenses*** (1993) (elderly spent 17.1 percent of their after-tax income on out-of-pocket health care expenses).

4.3.1 Methodology

The key to this Section is matching household income with total household expenses. Data was obtained from CTED as to income ranges disaggregated by household size.[104] As in the Section above, "income" was defined consistent with state EAP/ECIP criteria. Household expenses were disaggregated into household energy expenses and household non-energy expenses. Energy expenses were obtained on a county-by-county basis from Chapter 3 of this report. Non-energy expenses were obtained from the 1991 Washington State standard of need study for purposes of establishing Aid to Families with Dependent Children (AFDC) program benefits.[105] Within that study, non-energy household costs were calculated for a three person household living in each county.[106] The non-energy costs for each county were then assigned to all households in each respective county. Using the same standard equivalence scales used in the 1991 Washington State standard of need study,[107] the non-

104. Since 1991 data was not available from CTED, 1992 CTED data was used where available. Four counties did not have data broken down by county for 1992 either. For those four counties --Adams, Clallam, Jefferson and Lincoln-- 1993 data was used instead.

105. Mayfield and Lowin, ***Cost of Living in 1991 for Low-Income Families in Washington State***, at 45 - 50 (December 1991).

106. *Id.*, at 3. The "model" low-income family used in the AFDC needs determination study was a single parent with two children. The family was female-headed. The woman is 35 years old, the children are a toddler and a nine-year old. The AFDC study assumed a non-working family, which has particular significance in calculating clothing and transportation costs.

107. This report does not purport to explain or justify the use of equivalence scales. Their use is common and generally accepted. The best recent description in Washington states:

> "After estimating the cost of living for the project's model family of three, equivalent costs for other sized families can be calculated using an equivalence scale. Using the scale saves considerable effort. Without it, a separate market basket would have to be estimated for every family size. Ideally, an equivalence scale will accurately reflect the differences in the cots faced by a three-person family as compared to a family of one, two, four, five, and so on. Most states* * *use equivalence scales to determine need standards for families of different sizes.
>
> "Larger families do need more income than smaller families to maintain the same standard of living. How much more is not as obvious. It is generally accepted that per-person costs decline as family size increases. There are a number of ways per-person costs may decrease as family size increases. Many household goods are purchased regardless of family size, and these do not become more expensive as family size increases. For instance, a two-person family need not purchase a larger ironing board if they become a three-person family. The same ironing board will suffice, and its cost is now divided amongst three people instead of two. An additional family member doesn't mean buy another pot, it means put more food in the pot you have.
>
> "Larger families are also able to purchase greater quantities of items at lower per-unit costs, and they have more opportunities for waste-saving measures such as handing down clothing. Families that reduce per-person costs as family size increases are said to benefit from economies of scale (also

energy expenses were then adjusted for households with other than three persons in them.[108] The distribution of households within each income range among household sizes was obtained from CTED data for the EAP/ECIP program.[109]

Total household expenses are then subtracted from household income. If the household income is sufficient to cover the entire range of expenses, the household is deemed not to have an "energy need," irrespective of the burden which the household's energy bill creates as a percentage of income. In contrast, if household expenses *do* exceed income, two additional calculations are made. If the amount of the excess is equal to or greater than the household's home energy bill, the household's *entire* home energy bill (or home heating bill) is deemed to constitute the extent of the household's "energy need."[110] If, in contrast, the excess is less than the home energy/home heating bill, the "energy need" is limited by the amount of the excess.[111]

(..continued)

> called economies of size). Equivalence scales indicate different costs for various family sizes because, to varying degrees, they account for these economies of size.
>
> "The various items households use or consume may be subject to higher or lower economies of size depending on the item. Because an extra ironing board does not need to be purchased with the addition of each new family member, the cost savings for this item are large. Therefore, the use of an ironing board is subject to high economies of size. And so it is with many housewares. Food, on the other hand, must be purchased in ever larger quantities as family size increases. Though there are some savings in purchasing groceries in bulk, food is subject to relatively low economies of size. The overall economies of size that families experience depend on the economies of size in all the items they consume."

Mayfield and Lowin, ***Cost of Living in 1991 for Low-Income Families in Washington State***, at 45 - 50 (December 1991).

108. In calculating the energy consumption and expenditures for Chapter 3, Economic Research Associates found an average household size of 2.6 persons, implying a three person household. Moreover, average household sizes in the Consumer Expenditures Survey implied three person households. Finally, three person households are assumed to be the "model" household for purposes of setting AFDC standards of need.

109. There is some understatement of household expenses. EAP/ECIP reports household size only on the basis of 1, 2, 3 and 4+ person households. Hence, the equivalence scale used for this report did not use any multiplier greater than for a four person household. The understatement caused by this imprecision was considered acceptable. In 1992, 22,861 of the 73,339 EAP/ECIP households had four or more members.

110. Hence, for example, if the household expenses exceed income by $1,000 and the household has an $800 home energy bill, the household's energy need is deemed to be the entire $800.

111. Hence, for example, if the household expenses exceed income by $1,000 and the household has an $1,200 home energy bill, the household's energy need is deemed to be only $1,000. The household is deemed to be able to pay $200 of the energy bill. This assumption sets aside the debate over whether the household *will* pay this amount, if it can only pay a small part of the total bill. The issue here is only what the household is *capable* of paying.

Household expenses using this methodology will be somewhat overstated across the board. The AFDC needs determination study seeks to establish what level of expenditure is necessary to provide a minimum but adequate standard of living. It does not examine actual low-income expenditures. Accordingly, many low-income households may have expenditures below --perhaps substantially below-- those necessary to have an "adequate" standard of living.

4.3.2 Discussion

This Washington analysis finds that the net resources test is not a good means of establishing low-income "energy needs." It tends to prove too much. All one person households in all counties with incomes of less than $8,000, for example, were found to have an "energy need" as measured by this test. Clearly, not all counties were equal. Several counties had relatively smaller needs in the income range of $6,000 to $8,000. Six counties, for example, had shortfalls of less than $350 in that income range (Adams, Ferry, Grant, Lincoln, Pend Oreille and Stevens). In contrast, even within this same income range, most counties had "shortfalls" equal to the entire energy bill of the household.[112]

Similar results are found for other household sizes. Amongst households with two persons, all counties but one had shortfalls equal to the entire energy bill through the income range of $8,000. Some counties had substantially smaller shortfalls for households with incomes of $8,000 to $10,000. Benton ($60), Clark ($51) and Franklin ($70) counties had shortfalls of less than $100, while Cowlitz County had no shortfall at all for households at this income range. Kittitas had a shortfall of only $138 for this income range.

Amongst households with three persons, only Cowlitz County had no shortfall for households with incomes less than $12,000. Kittitas ($32) and Okanogan ($44) also had relatively small shortfalls for households in this income range. Amongst households with four or more persons, all counties had shortfalls for households with incomes of less than $12,000. Only seven counties (Adams, Cowlitz, Ferry, Grant, Pend Oreille, and Stevens) had no shortfall for households with incomes of less than $15,000. Two others (Chelan and Douglas) had shortfalls of less than $10 for 4-person households in this income range.

Given the fact that the net resources test finds nearly every household with incomes of less than $10,000 "in need," and finds further that that need is equal to the entire energy bill of the household, the cumulative statewide need is enormous. The net resources test finds a statewide "energy need" of $234,153,496. A disaggregation of that need by county and household size is set forth in Appendix K. Table K-1 sets forth per-household averages on a county-by-county basis. Table K-2 sets forth aggregate county totals.

Several conclusions can be drawn from this net available resource data. First, a net available resource test does *not*, in fact, identify those households who, because of extraordinary or higher than normal expenses, cannot afford to pay their home energy bills even though those bills are less than a designated percentage of income. When the test identifies nearly 100 percent of the population as being "in need," it becomes clear that the test simply confirms

112. Remember that the maximum shortfall would equal the entire energy bill. If, in other words, the household had a shortfall of $2000 in net resources, and had an energy bill of $800, the "energy need" would be deemed to be the $800.

that low-income households have an absolute mismatch between income and expenses rather than confirming any relationship between extraordinary expenses and unaffordable energy bills. The net available resource measure of energy needs, in other words, is not effective at targeting assistance to those households who might otherwise be denied assistance because their energy burden (as a percentage of income) does not exceed a designated amount.

4.3.3 Summary

The net available resource test has some attractiveness on its face. The evidence is clear that not all low-income households are equal. A two person elderly household is likely to cost more to operate than a two person non-elderly household. Moreover, expenditures on children are disproportionate to the size of the family. A household with two children, in other words, devotes a higher percentage of their income toward expenses associated with the children than does a household with one child. The percentage of income model does not consider these differences.

Nonetheless, the net available resources has failings that make it not the most ideal means of determining annual energy needs for the poor. The test proves too much. Nearly *all* households at or below incomes of $10,000 have "energy needs" under the test, since nearly all such households have expenses that exceed income. The net resources test thus does not do what it purports to do--to identify those households who have "affordable" energy bills when tested by a percentage of income test, but whose higher than average expenses make their bills *un*affordable nonetheless. Moreover, since the test reveals that virtually *every*one at or below incomes of $10,000 is in need, it does not help target solutions. While the net available resources test may well assist general poverty research in that it indicates the extent to which low-income households are losing their fight against substandard living conditions, it does not appear to be an appropriate means by which to measure energy needs.

4.4 LOW-INCOME BURDENS AT AVERAGE COUNTY BURDEN

A final way to examine the energy needs of low-income households is to compare the *actual* percentage of income currently paid by the total county population toward their total energy bills as comapared to the actual percentage of income currently paid by households living at or below 125 percent of Poverty. The "energy need" of the low-income population, therefore, is calculated by examining the extent to which their bills, as a percentage of income, exceed this county average.

Calculated in this fashion, the level of low-income energy needs are driven by three major factors: (1) the level of the local energy bills; (2) the weighted average income of households living at or below 125 percent of Poverty in each particular county; and (3) the median county income for the population as a whole. As bills increase, or weighted incomes for households at or below 125 percent of Poverty decrease, the shortfall between the low-

income bill as a percentage of income and the total population bill as a percentage of income becomes greater.

The calculation of annual energy needs in Washington State using this methodology is set forth in Tables 4-4 through 4-6 below. Table 4-4 compares the energy burden as a percentage of income for each county's total population generally to the energy burden as a percentage of income for the county's low-income in particular. While, for example, all households in Grant County pay, on average, 3.6 percent of their income for their total energy bill, low-income households in Grant County pay 9.5 percent. While all households in Island County pay 3.8 percent on average, low-income households in Island County pay 12.7 percent.

Table 4-5 next calculates the excess bill which low-income households pay in each county. The "excess" represents the difference between the annual bill which low-income households *actually* pay and the bill that those households would pay if their energy burden was equal to the total county average. In the Island County example mentioned above, for example, the bill actually paid by low-income households (12.7%) is $951; the bill that would be paid by these low-income households if they paid the same average county burden as a percentage of income (3.8%) would be $284. The excess bill, therefore, or the low-income "need" is the difference between these two figures ($951 - $284 = $667).

Table 4-6 then calculates the cumulative shortfall on a county-by-county basis. This cumulative shortfall is simply the per household shortfall for low-income households times the number of households in each county living at or below 125 percent of Poverty.

Given these calculations, the total statewide energy need in Washington State reaches more than $204 *million* dollars.

TABLE 4-4. Bill as Percent of Income: All Households vs. Households Below 125% of Poverty						
	Total Households in County			Households Below 125% of Poverty Level in County		
	Median Household Income	Total Energy Bill	Bill as Income Pct	Weighted Incomes	Total Energy Bill	Bill as Income Pct
Adams	$24,604	$1,029	4.2%	$7,110	$921	13.0%
Asotin	$22,897	$822	3.6%	$7,031	$725	10.3%
Benton	$32,593	$1,103	3.4%	$7,328	$918	12.5%
Chelan	$24,312	$792	3.3%	$7,276	$655	9.0%
Clallam	$25,434	$1,036	4.1%	$7,406	$846	11.4%
Clark	$31,800	$1,045	3.3%	$7,307	$862	11.8%
Columbia	$22,418	$935	4.2%	$6,898	$735	10.7%
Cowlitz	$27,866	$786	2.8%	$7,177	$644	9.0%
Douglas	$27,054	$810	3.0%	$7,437	$678	9.1%
Ferry	$25,170	$887	3.5%	$6,849	$740	10.8%
Franklin	$24,604	$1,094	4.5%	$6,726	$960	14.3%
Garfield	$25,156	$942	3.7%	$6,923	$776	11.2%
Grant	$22,372	$802	3.6%	$7,110	$675	9.5%
Grays Harbor	$23,042	$895	3.9%	$7,267	$748	10.3%
Island	$29,161	$1,113	3.8%	$7,480	$951	12.7%
Jefferson	$25,197	$990	3.9%	$7,597	$795	10.5%
King	$36,179	$994	2.8%	$7,202	$935	13.0%
Kitsap	$32,043	$1,059	3.3%	$6,972	$874	12.5%
Kittitas	$20,489	$998	4.9%	$6,824	$870	12.8%

TABLE 4-4. Bill as Percent of Income: All Households vs. Households Below 125% of Poverty						
	Total Households in County			Households Below 125% of Poverty Level in County		
	Median Household Income	Total Energy Bill	Bill as Income Pct	Weighted Incomes	Total Energy Bill	Bill as Income Pct
Klickitat	$23,012	$966	4.2%	$7,383	$839	11.4%
Lewis	$24,410	$860	3.5%	$7,262	$716	9.9%
Lincoln	$24,617	$957	3.9%	$7,508	$809	10.8%
Mason	$26,304	$1,037	3.9%	$7,377	$863	11.7%
Okanogan	$20,303	$794	3.9%	$7,045	$661	9.4%
Pacific	$20,029	$916	4.6%	$7,465	$767	10.3%
Pend Oreille	$20,808	$789	3.8%	$7,115	$655	9.2%
Pierce	$30,412	$1,090	3.6%	$7,232	$939	13.0%
San Juan	$31,278	$986	3.2%	$7,753	$722	9.3%
Skagit	$28,389	$939	3.3%	$7,184	$832	11.6%
Skamania	$28,778	$930	3.2%	$7,556	$811	10.7%
Snohomish	$36,847	$1,028	2.8%	$7,480	$885	11.8%
Spokane	$25,769	$890	3.5%	$7,151	$797	11.2%
Stevens	$24,440	$889	3.6%	$7,016	$739	10.5%
Thurston	$30,976	$1,024	3.3%	$7,326	$907	12.4%
Wahkiakum	$26,969	$912	3.4%	$6,317	$775	12.3%
Walla Walla	$24,414	$928	3.8%	$7,305	$810	11.1%
Whatcom	$28,367	$957	3.4%	$7,229	$849	11.7%
Whitman	$21,674	$976	4.5%	$6,741	$912	13.5%
Yakima	$23,612	$980	4.2%	$6,970	$862	12.4%

TABLE 4-5. Annual Shortfall Between Low-Income Bill at Average Income Burden and Low-Income Burden					
	Average Income HHs Below 125%	**Total Energy Bill as Income Pct All Households**	**Low-Income Total Energy Bill If at Avg. County Income Pct**	**Actual Energy Bill HHs Below 125%**	**Difference: HHs Below 125%**
Adams	$7,110	4.2%	$299	$921	$622
Asotin	$7,031	3.6%	$253	$725	$472
Benton	$7,328	3.4%	$249	$918	$669
Chelan	$7,276	3.3%	$240	$655	$415
Clallam	$7,406	4.1%	$304	$846	$542
Clark	$7,307	3.3%	$241	$862	$621
Columbia	$6,898	4.2%	$290	$735	$445
Cowlitz	$7,177	2.8%	$201	$644	$443
Douglas	$7,437	3.0%	$223	$678	$455
Ferry	$6,849	3.5%	$240	$740	$500
Franklin	$6,726	4.5%	$303	$960	$657
Garfield	$6,923	3.7%	$256	$776	$520
Grant	$7,110	3.6%	$256	$675	$419
Grays Harbor	$7,267	3.9%	$283	$748	$465
Island	$7,480	3.8%	$284	$951	$667
Jefferson	$7,597	3.9%	$296	$795	$499
King	$7,202	2.8%	$202	$935	$733
Kitsap	$6,972	3.3%	$230	$874	$644
Kittitas	$6,824	4.9%	$334	$870	$536
Klickitat	$7,383	4.2%	$310	$839	$529

TABLE 4-5. Annual Shortfall Between Low-Income Bill at Average Income Burden and Low-Income Burden					
	Average Income HHs Below 125%	**Total Energy Bill as Income Pct All Households**	**Low-Income Total Energy Bill If at Avg. County Income Pct**	**Actual Energy Bill HHs Below 125%**	**Difference: HHs Below 125%**
Lewis	$7,262	3.5%	$254	$716	$462
Lincoln	$7,508	3.9%	$293	$809	$516
Mason	$7,377	3.9%	$288	$863	$575
Okanogan	$7,045	3.9%	$275	$661	$386
Pacific	$7,465	4.6%	$343	$767	$424
Pend Oreille	$7,115	3.8%	$270	$655	$385
Pierce	$7,232	3.6%	$260	$939	$679
San Juan	$7,753	3.2%	$248	$722	$474
Skagit	$7,184	3.3%	$237	$832	$595
Skamania	$7,556	3.2%	$242	$811	$569
Snohomish	$7,480	2.8%	$209	$885	$676
Spokane	$7,151	3.5%	$250	$797	$547
Stevens	$7,016	3.6%	$253	$739	$486
Thurston	$7,326	3.3%	$242	$907	$665
Wahkiakum	$6,317	3.4%	$215	$775	$560
Walla Walla	$7,305	3.8%	$278	$810	$532
Whatcom	$7,229	3.4%	$246	$849	$603
Whitman	$6,741	4.5%	$303	$912	$609
Yakima	$6,970	4.2%	$293	$862	$569

TABLE 4-6. Cumulative Annual Low-Income Energy Needs Using Average County Energy Burden as Benchmark of Affordability			
	No. HHs Household Below 125%	**Per Household Below 125% Shortfall**	**Cumulative County Shortfall for Below 125%**
Adams	1,106	$622	$687,932
Asotin	2,016	$472	$951,552
Benton	7,250	$669	$4,850,250
Chelan	5,104	$415	$2,118,160
Clallam	5,260	$542	$2,850,920
Clark	14,275	$621	$8,864,775
Columbia	441	$445	$196,245
Cowlitz	7,026	$443	$3,112,518
Douglas	1,914	$455	$870,870
Ferry	605	$500	$302,500
Franklin	3,134	$657	$2,059,038
Garfield	201	$520	$104,520
Grant	5,218	$419	$2,186,342
Grays Harbor	6,941	$465	$3,227,565
Island	2,960	$667	$1,974,320
Jefferson	1,970	$499	$983,030
King	83,222	$733	$61,001,726
Kitsap	10,268	$644	$6,612,592
Kittitas	3,504	$536	$1,878,144
Klickitat	1,729	$529	$914,641
Lewis	5,779	$462	$2,669,898

TABLE 4-6. Cumulative Annual Low-Income Energy Needs Using Average County Energy Burden as Benchmark of Affordability			
	No. HHs Household Below 125%	**Per Household Below 125% Shortfall**	**Cumulative County Shortfall for Below 125%**
Lincoln	907	$516	$468,012
Mason	3,221	$575	$1,852,075
Okanogan	3,910	$386	$1,509,260
Pacific	2,568	$424	$1,088,832
Pend Oreille	1,010	$385	$388,850
Pierce	38,058	$679	$25,841,382
San Juan	595	$474	$282,030
Skagit	5,807	$595	$3,455,165
Skamania	661	$569	$376,109
Snohomish	19,905	$676	$13,455,780
Spokane	33,821	$547	$18,500,087
Stevens	3,039	$486	$1,476,954
Thurston	10,019	$665	$6,662,635
Wahkiakum	271	$560	$151,760
Walla Walla	4,385	$532	$2,332,820
Whatcom	9,397	$603	$5,666,391
Whitman	4,216	$609	$2,567,544
Yakima	17,161	$569	$9,764,609
State	328,874	xxx	$204,257,958

4.5 NON-TRADITIONAL POPULATIONS IN NEED

Not all low-income persons live in "traditional" housing units. To limit a discussion of low-income energy needs to those traditional households, therefore, would substantially misstate the impacts of inability-to-pay. To explore the needs of low-income persons living in alternative housing arrangements, contacts were made with agencies providing homeless shelters, domestic violence/sexual abuse shelters (DV/SA), and transitional housing for developmentally challenged individuals. To the extent that energy costs impose unreasonably upon such shelters, there is a low-income "energy need."

Surveys were provided to 59 DV/SA programs, 133 homeless programs, 50 transitional housing programs, and eight (8) refugee housing programs. Not all such programs provided "shelters." Many programs, in other words, provide shelter through mechanisms such as hotel/motel vouchers. Other programs provide "services," but not "shelters."[113] The responses discussed below are from programs providing information on shelters. Responses were received from 63 shelters, while receiving 33 responses from programs indicating that no shelter was provided.

Shelters for victims of domestic abuse, the homeless, refugees and developmentally disabled provide an important source of low-income housing in Washington State. The 63 shelters providing responses to the request for information provided housing to 17,178 persons in their most recently completed Fiscal Year. The shelters assisted an average of 327 persons per year.[114] Moreover, some shelters maintained records in terms of person nights, but not in terms of persons, and thus did not report comparable data to be included in this calculus. Program directors indicated that the residents of such shelters tended to have little or no income.

The relative energy efficiency of the survey respondents was very similar. Several conclusions follow. The shelters tend to be older buildings, with older furnaces and water heaters.[115] Excluding those shelters new in 1993 (3) and the one shelter reporting its age as 140 years, the average age of the building for these shelters was 44 years. Most shelters, however, were on the upper end of that spectrum.

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113. Moreover, transitional housing programs tend not to be "shelters," but rather longer term, albeit temporary, housing.

114. The largest number (2065) was excluded from this average. Moreover, transitional housing shelters, which serve from 3 to 10 persons each, were excluded.

115. Some shelters reported having baseboard heat rather than furnaces, and thus did not respond to the question concerning the age of the heating system.

TABLE 4-7. RANGE OF AGE OF SHELTERS IN WASHINGTON STATE	
0 - 10 YEARS	7
11 - 20 YEARS	8
20 - 40 YEARS	13
40+ YEARS	24

From an energy perspective, even more of a problem than the age of the shelter, itself, is the age of the appliances serving the shelters. The average age of the furnaces, for example, was 16 years. Some shelters had relatively new heating systems, with 23 having systems less than 10 years old. Others (11), however, had heating systems older than 20 years. As might be expected, the newer heating systems were present in the newer shelters. Hence, the energy problems faced by older and less efficient buildings were compounded by older and less efficient systems used to heat those buildings. Most of the furnaces were natural gas (32 natural gas; 12 electric; 5 fuel oil).

TABLE 4-8. RANGE OF AGE OF FURNACES IN WASHINGTON STATE SHELTERS	
0 - 10 YEARS	23
11 - 20 YEARS	11
20 - 40 YEARS	8
40+ YEARS	3

The other energy intensive appliance present in these shelters, domestic hot water heaters, also tended to be older and thus, presumably, less efficient. While not as old as the heating systems, one-third of the water heaters reported to serve these shelters were older than 10 years. The average water heat age was nine years. Most of the water heaters were electric (31 electric; 25 natural gas).

TABLE 4-9. RANGE OF AGE OF WATER HEATERS IN WASHINGTON STATE SHELTERS	
0 - 10 YEARS	28
11 - 20 YEARS	12
20 - 40 YEARS	2
40+ YEARS	0

While most respondents reported having rudimentary weatherization measures in their shelters, few had received weatherization services through either local government or local utility programs. Roughly half of the respondents, for example, reported having storm windows (30), with more reporting ceiling insulation (undesignated R Factor) (40) or wall insulation (undesignated R Factor) (39). Fewer reported having floor insulation (22) and virtually none had storm doors (19). Only 13 shelters had received weatherization services through the state or local governments, and only six reported having received weatherization services from their local utility. Two said they had weatherized their shelters using their own funds.[116]

Without assistance, the survey respondents were unlikely to be able to afford to provide weatherization services. *None* of the shelters provided for possible weatherization measures in their routine maintenance budgets, and none maintained an operating reserve for future energy efficiency improvements.

Not surprisingly, given all of the above, many shelters viewed their energy bills as serious threats to their financial viability. Respondents were asked to rate their energy bill burden on a scale of 1 - 7, with 7 being "not burdensome at all," 5 being "moderately burdensome," and 1 being "severely burdensome."

Of the four respondents indicating that their energy bills were "not burdensome at all," three had received weatherization services, or had been rehabilitated recently. One shelter declined to assign a value, indicating that its energy bills were paid by a specific HUD grant.

In contrast to these shelters who had taken specific actions to control their energy bills, and thus their costs, most shelters reported their energy bills to be moderately (35) (response 4 or 5) to severely (17) (response 1 or 2) burdensome. Of the nine shelters who reported their

116. Three shelters were new in 1992 or later.

bills to be on the lower end of the "moderately burdensome" (response 4), six had received weatherization or rehabilitation services.

TABLE 4-10. BURDEN ENERGY BILLS PRESENT TO SPECIAL POPULATION SERVICE PROVIDERS

LEVEL OF BURDEN	NO. RESPONDENTS	RECEIVED WX
1: severely burdensome	10	4
2	5	1
3	3	3
4	9	5[117]
5: moderately burdensome	26	12[118]
6	1	1
7: not burdensome at all	3	2[119]

Just as telling of the energy burdens as the data itself are the comments that were provided in response to an open-ended invitation to comment on the energy burdens placed upon the respective shelters. Fourteen responses took the opportunity to comment. None of the fifteen commenters had received government or utility-sponsored weatherization. Only four of the commenters rated their energy bills as good as "moderately" burdensome; the remainder were rated as "severely" (either response 1 or 2) burdensome.

One respondent said, for example, "this is our largest operating expense on an ongoing basis. We are current with energy conservation, but bills are still high and climbing." At the other end of the spectrum is the respondent who said: "The shelter is 82 years old and would require measures beyond our capacity as a program to impact the consumption of energy." This shelter had gas and electric bills of $3,600 ($1,180 gas; $2,410 electric) from an annual operating budget of $29,000. Similarly, one commenter stated that the shelter faces the same choices often faced by low-income households. Noting that "last year, snow was on the ground for five full months, with an average temperature of 28 degrees," the shelter stated,

117. A sixth had recently been rehabbed.

118. Another had been rehabbed in 1992.

119. Of these, ten were transitional housing shelters, small housing programs serving few people in the closest to "traditional" housing situations.

"(we) can feed people, or keep them warm." This shelter had a total energy bill of $2,500 and an operating budget of $29,000.

The shelters responding to the survey evidenced many of the same market barriers to energy efficiency improvements as do low-income households. One respondent reported, for example, that they could not improve their shelter since it was rented. Another echoed this sentiment, noting that "out shelter building is extremely inefficient, however, we do not own the building." This shelter paid an electric bill of $1,700 from an operating budget of $10,000. This shelter had an energy bill of $1,530 from an operating budget of $50,000.

One survey respondent expressed dismay about the impact the shelter's energy bills had on the ongoing ability to deliver service. The respondent said simply: "Help! It would be a real plus to be able to use energy moneys to enhance services for the homeless* * *." This shelter had an energy bill of $6,119 ($1,281 gas; $4,837 electric) from an annual operating budget of $105,000.

Another shelter, while not indicating that utility bills represented a threat to the ongoing efficacy of the program, indicated that "we could provide more client services with the monies that are currently being used to pay utilities." This shelter has an energy bill of $7,541 ($2,641 gas; $4,900 electricity, water and sewer) from an operating budget of $190,000. Two different shelters indicated the need for additional funds to do weatherization. They had energy bills of $7,600 and $10,300 respectively. One shelter indicated that "the heating bill is our major expense," with an electric bill of $2,900 from an operating budget of $42,000.

4.6 SUMMARY

Two alternative methods of measuring the energy "needs" of the poor exist. The first method posits that a household is in need if the home energy bill exceeds a designated "affordable" percentage of income. The second method posits that a household is in need if total household expenses exceed total household income irrespective of the percentage of income burden the energy bill represents.

The percentage of income model, under reasonable assumptions of affordable energy burdens, finds an energy need of more than $21 million in Washington state. The net resources model finds virtually 100 percent of households at or below 100 percent of the federal Poverty Level are in need as defined by that model.

An alternative way to examine the percentage of income model looks not at some derived percentage of income, but rather at the *actual* percentage of income currently paid by the total county population toward their total energy bills. The "energy needs" of the low-income population, therefore, would be the extent to which their bills, as a percentage of income, exceed this county average. Calculated in this fashion, total statewide energy needs

in Washington State reach more than $204 *million* dollars.

In addition to looking at the needs of individual low-income households, low-income needs exist at a level not traditionally examined as well. Households served by institutional shelters --these include homeless shelters, domestic violence/sexual abuse shelters, transitional housing (which are not "shelters" in the true sense of the word)-- also represent low-income households with energy needs. The energy needs of these households living in non-traditional housing are substantial.

CHAPTER 5: ENERGY PRICE TRENDS

This Chapter examines energy price trends over the past 20 years. The purpose of the Chapter is to establish a context within which to view much of the rest of this report. Energy prices, of course, represent an important component of each part of the analysis presented above.[120] The energy needs of low-income households are driven in large part by energy prices. The adequacy of public and private fuel assistance is contingent upon energy prices. The cost-effectiveness of energy efficiency investments, from the perspective of the consumer, the government *and* the utility, depends upon energy prices. The adequacy of home energy allowances for subsidized housing is affected by energy prices.

The evaluation presented below concentrates primarily, but not exclusively, on electric prices. Electricity is the primary fuel used in residential end-use energy consumption in Washington.[121] In addition, residential electrical energy prices have been the most volatile of all fuel types in Washington during the 1980-1992 period. Thus, electricity price trends are the most likely to affect the amount of disposable income of low-income residential energy consumers.

5.1 RESIDENTIAL CONSUMPTION BY FUEL SOURCE

Electricity is, by far, the primary fuel used by residential consumers in Washington state. The percentage of electricity consumed by residential consumers is more than two and a half times greater than its nearest competitor, natural gas, and more than five times fuel oil consumption. Residential electric consumption has seen a modest drop in market share from 1980 to 1990, with corresponding increases in natural gas. Fuel oil market share has

120. Other important components include household income, heating and cooling degree days and the like. The factors going into the calculation of a low-income energy bill in Washington state for this report are set forth in Appendices A and B, *infra*.

121. ***Washington State Energy Use Profile, 1960-1990***, at 27, Table 10b (July 1992).

dropped as well. Nonetheless, more than half of all residential energy consumption is electric consumption. Table 5-1 shows residential end-use energy consumption by fuel type in Washington since 1980.

TABLE 5-1. RESIDENTIAL ENERGY CONSUMPTION BY FUEL TYPE (PERCENTAGE OF TOTAL), WASHINGTON STATE, 1980 - 1990[122]

YEAR	NATURAL GAS	PETROLEUM[123]	ELECTRICITY	WOOD
1980	18.7%	13.5%	55.5%	11.6%
1981	17.2%	14.0%	54.7%	13.6%
1982	17.7%	12.6%	53.5%	15.5%
1983	16.3%	11.4%	52.2%	19.0%
1984	17.3%	11.4%	51.5%	18.8%
1985	18.5%	11.2%	51.0%	18.3%
1986	17.6%	11.3%	51.1%	19.7%
1987	17.6%	11.7%	50.5%	19.9%
1988	19.4%	10.9%	50.4%	18.8%
1989	20.7%	9.8%	51.0%	18.2%
1990	21.8%	9.9%	51.2%	16.7%

SOURCE: Washington State Energy Office

5.2 ENERGY PRICE TRENDS

5.2.1 Residential Fuels Generally

Unlike all other residential energy sources in Washington, electricity prices have risen steadily since the mid-1970s. Average residential electrical rates have more than doubled in Washington since 1980, from $5.32/million Btu in 1980 to $12.25/million Btu in 1990.

Natural gas and petroleum both saw a substantial fly-up in prices in the late 1970s and early 1980s. By 1981, residential petroleum cost $9.05 per million Btu, roughly 150 percent of electricity on a per mmBtu basis. By 1983, however, electricity had become more expensive and, while oil prices moderated (with the exception of the 1990 oil price increase associated

122. Coal was excluded due to percentages less than 1.0.

123. Includes LPG and home heating oil.

with the Gulf War), electricity experienced a continuing climb. Similarly, although natural gas prices never exceeded electricity on a per million Btu basis, gas prices increased and remained in the mid-$6 range throughout the early and middle 1980s before moderating through 1990. Wood has seen a constant increase in price, though not at all approaching electricity.

Energy prices, by fuel type, for the period 1980 through 1990 are set forth in Table 5-2.

TABLE 5-2. AVERAGE RESIDENTIAL ENERGY PRICES BY FUEL TYPE, NOMINAL DOLLARS PER MILLION BTU WASHINGTON STATE, 1980 - 1990

	NATURAL GAS	PETROLEUM	ELECTRICITY	WOOD	COAL
1980	$5.05	$7.40	$5.32	$4.29	$4.26
1981	$5.73	$9.05	$6.45	$4.68	$4.56
1982	$6.52	$8.66	$7.71	$4.95	$4.81
1983	$6.59	$8.70	$9.20	$5.15	$3.75
1984	$6.55	$8.20	$11.12	$5.34	$3.76
1985	$6.35	$7.89	$11.61	$5.52	$3.67
1986	$5.76	$6.33	$12.04	$5.66	$3.779
1987	$5.25	$6.66	$12.27	$5.92	$3.76
1988	$5.36	$6.51	$12.54	$6.15	$3.61
1989	$5.32	$6.83	$12.90	$6.43	$3.59
1990	$4.86	$7.75	$12.25	$6.75	$3.73

SOURCE: Washington State Energy Office

Perhaps as important as the price of fuels relative to each other is the price of each fuel relative to the statewide average residential energy prices. Electricity became more expensive than the statewide average fuel price in 1981 (in nominal dollars) and the spread between the average and electricity prices continues to grow bigger. The rate of growth in the spread is another indication of how electric prices are increasing faster than the prices of other fuels. Table 5-3 sets out average total residential energy prices in Washington, both in nominal dollars and in 1990 dollars. Average annual growth rates for the 20-year period 1970 - 1990, as well as for the 10-year period 1980 - 1990, are set forth in Table 5-4.

Given this overview of residential prices generally, the discussion below takes a more

specific look at electric, natural gas and fuel oil prices in particular.

TABLE 5-3. AVERAGE TOTAL RESIDENTIAL ENERGY PRICES, NOMINAL DOLLARS PER MILLION BTU WASHINGTON STATE, 1980 - 1990

	Nominal Dollars	1990 Dollars
1980	$5.42	$8.54
1981	$6.44	$9.28
1982	$7.17	$9.78
1983	$7.59	$10.34
1984	$8.84	$11.17
1985	$9.03	$11.04
1986	$9.01	$10.74
1987	$9.09	$10.37
1988	$9.25	$10.15
1989	$9.52	$10.00
1990	$9.25	$9.25

SOURCE: Washington State Energy Office

TABLE 5-4. AVERAGE ANNUAL GROWTH RATES (AAGR) OF VARIOUS ENERGY PRICES NOMINAL DOLLARS, WASHINGTON STATE		
MEASURE	**AAGR 1970 - 1990**	**AAGR 1980 - 1990**
Residential Electric Prices, PUDs	7.46%	8.58%
Residential Electric Prices, IOUs	7.57%	8.71%
All Residential Electricity	7.60%	8.71%
Residential Natural Gas Prices	6.71%	-0.37%
Residential Petroleum (home htg oil & LPG)	8.52%	0.46%
Residential Wood Fuel	5.95%	4.65%
State Avg of All Residential Energy Sources	7.91%	5.49%
Energy Expenditures per Household	6.45%	4.66%
SOURCE: Washington State Energy Office		

5.2.2 Electric Prices

5.2.2.1 Overview of Price Surveys

All electric utility suppliers in Washington State were surveyed for this report during the summer of 1993. Seven of the state's largest electric utilities were again surveyed in October 1993 to determine residential electrical rates around the state. The October 1993 surveys were conducted shortly after many utilities had just had residential rate increases approved. These increases were largely in response to the increase in wholesale prices of electricity purchased from the Bonneville Power Administration (BPA).

Appendix M shows October 1993 electrical rates among a variety of different electric companies. The companies surveyed included three investor-owned utilities (IOUs) (Pacific Power, Puget Sound Power and Light, Washington Water Power); three Public Utility Districts (PUD's) (Clark Public Utilities, Cowlitz County PUD, Lewis County PUD); and one Rural Electric Cooperative (Tanner Electric Cooperative).[124]
All of the utilities surveyed have a Basic Service Charge of from three to twelve dollars per month. The three IOU's have tiered rate structures, while the PUDs each have flat rates. The rates --flat for the PUDs and for the first 600 kWh for the IOU's-- ranged from $.0281/kWh (Cowlitz Co. PUD) to $.055/kWh (Tanner Electric Cooperative).

124. The rates are as of October 12, 1993.

Using an average household consumption estimate of 17,640 kWh per year (or 1,470 kWh per month), the flat and tiered rates translate into average household monthly electric bills ranging from $48 (Cowlitz PUD) to $93 (Tanner Electric Cooperative). Table 5-5 compares the estimated electric bills for the utilities in Appendix M. Appendix M also presents the complete results of the 1993 summer utility survey.

TABLE 5-5. OCTOBER 1993 AVERAGE MONTHLY BILLS FOR 1470 KWH/MONTH RESIDENTIAL CONSUMPTION	
Pacific Power	$71.54
Puget Power and Light	$96.46
Washington Water Power	$67.51
Clark PUD	$68.14
Cowlitz County PUD	$47.66
Lewis County PUD	$62.79
Tanner Electric Cooperative	$92.85
SOURCE: Utility companies	

As is apparent from this Table, a wide variation exists in residential electricity costs, both by geographic region and by utility supplier. This variation underscores the importance of geographically disaggregated data in Washington State.

Geographic variation in electric rates is true not only for current electric bills, but for electric bills over time as well. From 1980 through 1990, for example, Washington Water Power Company had a growth rate in its residential electric rates (in nominal dollars) of nearly 1.5x the rate of Pacific Power and Light. The growth rate for Puget Power during this ten year period was roughly 8.5 percent, while the growth rate for Seattle City Light and Tacoma Public was roughly 9.5 percent.

Table 5-6 shows the calculated annual average growth rates of electricity prices for these utilities.

TABLE 5-6. AVERAGE ANNUAL GROWTH RATES IN RESIDENTIAL ELECTRIC PRICES (NOMINAL DOLLARS) BY UTILITY FIVE MAJOR UTILITIES WASHINGTON (1980 - 1990)				
PUGET SOUND POWER & LIGHT	**WASHINGTON WATER POWER**	**PACIFIC POWER/LIGHT**	**SEATTLE CITY LIGHT**	**TACOMA PUBLIC**
8.47%	10.26%	7.59%	9.40%	9.65%

As can be seen, in assessing the impact of electricity price trends, caution must be exercised in interpreting data which consist of averages --even geographically disaggregated averages-- as they do not represent real situations in any given household. For example, Table 5-7 shows the average residential electricity rates for the period 1980-1990 for five of the major Washington utilities.[125] This Table shows that statewide, public utilities had systematically lower residential rates during the 1980s. Yet the 1993 survey presented in Appendix M reveals patterns with higher resolution. For example, the data for Pierce County presents an actual annual bill of $906 for customers of the City of Fircrest (public utility). In contrast, the same consumption costs customers of Tacoma City Light $680, a differential of about 33 percent. If energy costs are taken to be fixed costs within a household budget, then it would appear that geographic analysis of need patterns should also account for utility-specific pricing within such areas.

5.2.2.2 Potential Consequences of BPA Policies

The Bonneville Power Administration (BPA) belongs to a larger financial unit known as the Federal Columbia River Power System (FCRPS). FCRPS also includes the accounts of the Pacific Northwest generating facilities of the Army Corps of Engineers and the Bureau of Reclamation, for whom BPA is the power marketing entity. Each entity is separately administered and financed, but they are together operated as an integrated power system, with system-level financing combined under the FCRPS umbrella.

FCRPS accounts are maintained under uniform rules established by the Federal Energy Regulatory Commission (FERC). These rules also embody specific legislation and executive orders issued by the Cabinet-level Departments.[126] FCRPS power rates are reviewed and approved by FERC. BPA's rates are reviewed upon three

125. ***Washington State 1991 Data Book***, at 166, Table YT07, Washington State Office of Financial Management, (1991).

126. BPA is in the Department of Energy, the Bureau of Reclamation is in the Department of the Interior, and the Corps of Engineers is in the Department of Defense.

TABLE 5-7. AVERAGE RESIDENTIAL ELECTRIC RATES BY SELECTED UTILITY, NOMINAL DOLLARS PER MILLION BTU WASHINGTON (1980 - 1990)

YEAR	PUGET SOUND POWER & LIGHT	WASHINGTON WATER POWER	PACIFIC POWER/LIGHT	SEATTLE CITY LIGHT	TACOMA PUBLIC
1980	$7.0326	$5.3501	$6.4743	$3.9273	$4.3761
1981	$7.9509	$6.4102	$8.0187	$4.6893	$4.9149
1982	$8.5854	$7.6202	$8.3265	$5.7737	$5.7415
1983	$11.0988	$9.1616	$10.6917	$7.1219	$6.0500
1984	$13.8627	$11.3252	$12.0632	$7.8546	$6.6869
1985	$14.6582	$12.0619	$12.9515	$8.8218	$7.5315
1986	$15.3056	$12.5892	$13.3821	$9.0856	$8.6317
1987	$15.0794	$13.8355	$13.7732	$9.4975	$8.6852
1988	$15.2403	$14.1280	$13.4818	$9.7766	$9.3649
1989	$15.7386	$14.1266	$13.3060	$9.9349	$10.3847
1990	$15.8558	$14.2145	$13.4525	$9.6418	$10.9897

SOURCE: Washington State Energy Office

standards set out in the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), such that the rates be sufficient to repay the federal investment in FCRPS over a 50 year period, after first meeting BPA's other costs.[127] Upon FERC approval, BPA's rates may be reviewed by the United States Ninth Circuit Court of Appeals, if an action is filed within 90 days of FERC approval. This process may result in approval or rejection of BPA's rate proposal.[128] Sale of power under present contracts cannot be revised without at least nine month's notice, and cannot be raised more than once in any 12 month period.

BPA raised its wholesale power rates an average of 1.7 percent at the beginning of the FY 1992-93 budget period.[129] The last prior rate increase was in 1988. Several factors combined during this period to depress BPA revenues, including closure of the Trojan nuclear generating facility, which provided about five percent of FCRPS capacity, low stream flows due to dry weather, fish protection activities required by the Endangered Species Act, and depressed aluminum prices. Thus, for FY 1994-95, BPA was granted a rate increase of 15.7 percent for preferred customers such as PUDs, 13.4 percent for utilities participating in the residential exchange program, and 14 percent for Direct Service Industry customers.[130]

BPA's debt financing motif has resulted in a significant depletion of the reserves it had built up during prior years. As a result, BPA's ten year Financial Plan calls for risk mitigation devices that can be used to insure a 95 percent probability that BPA can make its Treasury payments in full and on time in every two year rate cycle. BPA would set rates at whatever level was sufficient to maintain $500-600 million in reserves. One device to be used in implementing this Plan is the Interim Rate Adjustment (IRA). The IRA would result in a one-year interim increase of not more than 10 percent. If BPA's financial reserves fall below the specified level, the IRA would be triggered in the second year of the rate cycle. A second device consists of program cost deferrals totaling $25 million, $10 million of which would come from program operating expenses, with the remainder of reductions occurring in capital expenses.[131] Another part of the BPA ten year Plan seeks alternative sources of capital funding, most notably third-party sources. The FCRPS projected capital funding plan

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127. Public Law 96-501. Section 7: Rates.

128. BPA's General Counsel is of the opinion that if a rate were rejected, it would be sent back to BPA for reformulation. Apparently this has never occurred.

129. *Id.*, at 20.

130. BPA press release.

131. ***Bonneville Power Administration 10-Year Financial Plan***, at 3, 19 (January, 1993).

calls for a FY 1994 BPA third-party capital funding proportion of 35 percent.[132]

If the legal and economic environment does not change significantly for BPA prior to the FY 1996-97 rate cycle, a worst-case scenario would see a ten percent wholesale rate increase in FY 1995,[133] and a double-digit rate increase in FY 1996. The effect upon low-income ratepayers could be significant.

5.2.3 Natural Gas Prices

Like electricity, natural gas winter heating rates (and bills) vary widely depending upon the geographic region of the state being studied. During the 1990 - 1991 winter heating season,[134] customers of Washington Water Power Company experienced the lowest bills of the state's four major investor-owned natural gas utilities. The average three month bill of $125 was only 62 percent of the bill of the highest priced company, Northwest Natural Gas. Indeed, Water Power's three month residential winter heating bill was only 73 percent of the next cheapest company, Washington Natural Gas Company. The lower bills by Water Power customers are *not* simply caused by lower consumption. In fact, the company with the highest average residential winter heating consumption --these bill comparisons are for space heating usage-- was the lowest total dollar bill. Similarly, the company with the lowest consumption had the highest bill in total dollars.

During the 1991 - 1992 winter heating season, customers of Northwest Natural Gas Company experienced the lowest bills of the state's four major investor-owned natural gas utilities.[135] The average three month bill of $108 was only 57 percent of the bill of the highest priced company, Washington Natural Gas. Indeed, the Northwest Gas three month residential winter heating bill was only 87 percent of the next cheapest company, Washington Water Power Company.

"Typical" bills and consumption for natural gas residential space heating consumers of

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132. *Id.*, at 30, Table 3, Footnote 2.

133. This is the contractual IRA cap.

134. Since research for this report was contracted for too late to survey natural gas heating bills for the 1992 - 1993 winter heating season, the best available surrogates are used. The National Association of Regulatory Utility Commissioners (NARUC) publishes annual surveys of natural gas winter heating bills. The most recent survey available as of November 1993 is for the 1991 - 1992 winter heating season. The "winter heating season" is defined by NARUC as constituting the December-January-February period. Similar NARUC surveys are published separately for both electric winter and electric summer bills.

135. The consumption data reported by Northwest for the more recent year (1991-1992) may be suspect. It is substantially different than the preceding year. Moreover, the company reported equal consumption of 68 therms per month in each winter month, a highly unlikely consumption scenario.

Washington's four major investor-owned natural gas companies are set forth in Table 5-8 for the two most recent winter heating seasons for which data is available.

In addition to taking a snapshot look at natural gas rates at one particular point in time, it is beneficial to examine rates over time as well. Rates for each of the four major natural gas companies in Washington have moderated since 1982.[136] In 1982, the price per MCF[137] for the four companies ranged from $6.45 to $6.674. By 1991, those rates had fallen roughly 30 percent to a range of $3.257 to $5.295 in nominal dollars. Table 5-9 sets out the price per MCF for the 1982 - 1991 period in nominal dollars while Table 5-10 sets out the average growth rate for each of these companies during that time period.

136. The Washington Utilities and Transportation Commission annually publishes a publication titled ***Annual Statistics of Gas Companies*** (January). The ***Annual Statistics*** presents data for each of the four major companies on a rolling ten year period. The January 1993 publication presented data for 1982 - 1991. A similar ***Annual Statistics*** is published for the state's electric companies.

137. An MCF is equal to one million Btu. An MCF is one thousand cubic feet.

TABLE 5-8. WINTER 1990-1991 AND 1991-1992 AVERAGE MONTHLY BILLS FOR RESIDENTIAL CONSUMPTION		
	TYPICAL WINTER BILL[138]	**TYPICAL WINTER USAGE**
Winter 1990 - 1991		
Cascade Natural Gas Corp.	$180.83	376
Washington Natural Gas Co.	$172.07	406
Washington Water Power Co.	$125.88	471
Northwest Natural Gas Co.	$201.71	343
Winter 1991 - 1992		
Cascade Natural Gas Corp.	$132.78	288
Washington Natural Gas Co.	$190.85	431
Washington Water Power Co.	$124.54	399
Northwest Natural Gas Co.	$108.24	204
SOURCE: NARUC annual residential winter natural gas survey comparisons (1990-1991 and 1991-1992).		

138. This is for the three months of December 1991, January 1992, and February 1992.

TABLE 5-9. AVERAGE RESIDENTIAL NATURAL GAS RATES BY SELECTED UTILITY, NOMINAL DOLLARS PER MCF WASHINGTON (1982 - 1991)

YEAR	CASCADE NATURAL GAS	NORTHWEST NATURAL GAS	WASHINGTON NATURAL GAS	WASHINGTON WATER POWER
1982	$6.450	$6.320	$6.674	$5.952
1983	$6.489	$6.450	$6.739	$6.062
1984	$6.556	$6.484	$6.708	$5.834
1985	$6.351	$6.417	$6.510	$5.542
1986	$5.631	$5.925	$5.950	$4.976
1987	$5.430	$5.8322	$5.384	$4.326
1988	$5.723	$5.984	$5.468	$4.438
1989	$5.617	$5.369	$5.432	$4.362
1990	$4.951	$5.415	$5.058	$3.431
1991	$4.948	$5.295	$4.669	$3.257

SOURCE: WUTC Annual Statistics of Natural Gas Companies

TABLE 5-10. AVERAGE ANNUAL GROWTH RATES IN RESIDENTIAL NATURAL GAS PRICES (NOMINAL DOLLARS) BY UTILITY FOUR MAJOR UTILITIES WASHINGTON (1982 - 1991)

CASCADE NATURAL GAS	NORTHWEST NATURAL GAS	WASHINGTON NATURAL GAS	WASHINGTON WATER POWER
-23%	-16%	-30%	-45%

5.2.4 Fuel Oil Prices

The most striking aspect of fuel oil prices is the lack of data from which to calculate home heating bills of households who use fuel oil as their primary heating source. No state or federal source publishes state specific data on average fuel oil consumption by Washington fuel oil heaters. While WSEO publishes *aggregate* residential fuel oil consumption (in

mmBtu and in gallons) and expenditures, unlike natural gas and electricity,[139] WSEO does *not* publish the number of fuel oil heating customers, either low-income or residential generally. As a result, average per household consumption figures cannot be obtained. Nor does WSEO publish the proportion of all customers who use any particular type of fuel as their primary heating source. If it did, it would be possible to calculate the total number of residential heating customers in the state and to multiply the proportion times the total in order to calculate the total number of fuel oil heating customers. Finally, unlike natural gas and electricity, there is no statewide regulatory body to compile and publish company-specific data on fuel oil prices and consumption.

The aggregate data that is available is set forth in Table 5-11 below. This Table presents total residential fuel oil consumption and expenditures, as well as per unit prices in Washington state, for the years 1980 - 1990.

To assess somehow[140] the potential bill impact on fuel oil customers of fuel oil price changes, Table 5-12 presents national per household consumption for residential consumers generally, for low-income ratepayers specifically, and for EAP/ECIP recipients specifically. This consumption is set forth every three years in the U.S. Department of Energy's Residential Energy Consumption Survey (RECS). The most recent RECS data available was published in 1990.[141]

This number is not set forth as a projection of Washington fuel oil bills. It is, instead, exactly what it purports to be, with all of the limitations of the data source. Table 5-12, in other words, presents national usage multiplied by Washington-specific prices. *If* consumption in Washington were equal to the national average, in other words, the Washington bills would be as set forth in this Table. It is not possible to know, however, how close the national average comes to accurately portraying Washington consumption levels. To speculate as to that accuracy provides no useful function.[142]

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139. WSEO, ***Washington State Energy Use Profile, 1960 - 1990*** (July 1992) Appendix A ("economic and demographic data") presents the total electric customers by sector (Table A1) and total natural gas customers by sector (Table A2). No similar data is presented for fuel oil.

140. This effort may involve the "any-number-is-better-than-no-number" syndrome. The discussion should be discounted to the extent that it appears to fall victim to that perspective.

141. The data was reported in the FY 1991 LIHEAP Report to Congress, submitted by the U.S. Department of Health and Human Services (at page 17).

142. If, however, the electricity and natural gas data discussed above is any guide, fuel oil consumption will vary widely, even within the state of Washington itself.

TABLE 5-11. FUEL OIL AGGREGATE RESIDENTIAL CONSUMPTION (BARRELS), CONSUMPTION (BILLION BTU), EXPENDITURES AND PRICE, 1980 - 1990 WASHINGTON STATE

	Consumption (000 Barrels)	Consumption (Billion Btu)	Expenditures (million dollars)	Price (mmBtu)
1980	3,422	19,933	$144.9	$7.27
1981	3,000	17,475	$146.8	$8.40
1982	3,247	18,914	$160.4	$8.48
1983	2,693	15,687	$131.3	$8.37
1984	3,044	17,731	$139.7	$7.88
1985	3,095	18,028	$139.9	$7.76
1986	3,071	17,889	$106.4	$5.95
1987	3,029	17,644	$107.6	$6.10
1988	3,025	17,621	$106.3	$6.03
1989	2,744	15,984	$100.7	$6.30
1990	2,714	15,811	$114.2	$7.22

SOURCE: Washington State Energy Office

TABLE 5-12. AVERAGE FUEL OIL BILLS FOR RESIDENTIAL CONSUMERS, LOW-INCOME CONSUMERS, EAP/ECIP RECIPIENTS WASHINGTON STATE (1980 - 1990)[143]

	ALL RESIDENTIAL RATEPAYERS			LOW-INCOME HOUSEHOLDS			EAP/ECIP RECIPIENTS		
	USAGE (mmBtu)	PRICE (mmBtu)	BILL	USAGE (mmBtu)	PRICE (mmBtu)	BILL	USAGE (mmBtu)	PRICE (mmBtu)	BILL
1980	123.6	$7.27	$898.57	105.8	$7.27	$769.17	88.4	$7.27	$642.67
1981	123.6	$8.40	$1,038.24	105.8	$8.40	$888.72	88.4	$8.40	$742.56
1982	123.6	$8.48	$1,048.13	105.8	$8.48	$897.18	88.4	$8.48	$749.63
1983	123.6	$8.37	$1,034.53	105.8	$8.37	$885.55	88.4	$8.37	$739.91
1984	123.6	$7.88	$973.97	105.8	$7.88	$833.70	88.4	$7.88	$696.59
1985	123.6	$7.76	$959.14	105.8	$7.76	$821.01	88.4	$7.76	$685.98
1986	123.6	$5.95	$735.42	105.8	$5.95	$629.51	88.4	$5.95	$525.98
1987	123.6	$6.10	$753.96	105.8	$6.10	$645.38	88.4	$6.10	$539.24
1988	123.6	$6.03	$745.31	105.8	$6.03	$637.97	88.4	$6.03	$533.05
1989	123.6	$6.30	$778.68	105.8	$6.30	$666.54	88.4	$6.30	$556.92
1990	123.6	$7.22	$892.39	105.8	$7.22	$763.88	88.4	$7.22	$638.25

143. The RECS data was reported to Congress by the U.S. Department of Health and Human Services. ***Low-Income Home Energy Assistance Program, Report to Congress for Fiscal Year 1991***, at Table 5, p. 17 (October 1992).

5.3 SUMMARY AND CONCLUSIONS

While electricity is the most commonly used residential space heating fuel in Washington state, it is also the most expensive. It is far more expensive than even the next closest alternative, natural gas. Simply knowing the current price of electricity does not tell the entire story, however. Unlike natural gas and fuel oil, which have both seen moderating prices in the last ten years, electricity has seen steady, and steep, price increases since the early 1980s.

Care must be taken when looking at statewide average prices. Electricity and natural gas, both, see highly divergent prices, usage, and bills on a geographically disaggregated basis. Inadequate data exists to calculate household-specific fuel bills, either on a statewide average basis or on any type of geographically disaggregated basis.

CHAPTER 6: CRISIS NEEDS OF THE POOR

This Chapter examines the needs of low-income households who faced crisis situation with their home heating within the past twelve months. That twelve month period included the 1992 - 1993 winter heating season. For purposes of this discussion, a "crisis" is defined to include the actual or threatened loss of home utility service or home heating fuel.

The purpose of the Chapter is two-fold. First, it will look at the crisis situation itself. The first section, for example, looks at those households who actually lost their home heating service. It considers why the home heating was lost, what the household did while it went without heating service, how the heating crisis was resolved, and similar questions.

The second section of the Chapter examines the demographics of households facing crisis situations. Income and Poverty Level, fuel type, age and similar characteristics are examined.

The Chapter differs from previous studies of service disconnections in Washington state. Other studies, such as *Utility Collection Customers: Understanding Why They Don't Pay On Time*, have examined characteristics of investor-owned utility customers who receive shutoff notices or who have been disconnected. Unlike previous studies, however, the focus of this study is specifically on low-income households. Moreover, this study examines not only those households who rely on investor-owned utilities, but those who rely on non-investor utilities as well as those households who rely on non-utility fuels such as fuel oil, wood and propane.

6.1 METHODOLOGY

This study relied upon a survey tool to gather information on low-income households who have lost home heat or have received a shutoff notice within the last year. The shutoff survey was administered during the month of June by nine Community Action Agencies and Legal Services Offices throughout Washington state. Five hundred and ninety-two surveys

were completed.

The survey results were used to develop a profile of low-income people who have lost home heat or have been in danger of losing home heat during 1992 - 1993. It was not the aim of this survey to ascertain what percentage of low-income people receive shutoff notices or lose home heat. Rather, the intent was to study the universe of low-income households who have lost home heat or were in danger of losing home heat and ascertain the reasons for the loss of home heat and what was done in response to loss of home heat or an impending shutoff.

6.1.1 The Population Surveyed

The survey involved direct contact with the target populations. This survey sought information on why low-income people lost heat in their homes; how long low-income households which had lost home heat went without heat; what, if anything, low-income households used as an alternative heat source after losing their primary source of heat; and general demographic information on low-income people who lost their source of home heating.

Particular populations were identified to permit this study to obtain a comprehensive overview of the perceptions of a wide range of low-income households. Populations considered for the survey included, but were not limited to: households visiting local Community Action Agency offices for particular services, congregate meal sites, commodity distribution sites, senior citizen centers and Department of Social Service offices. Moreover, assistance was sought from local Legal Services Corporation offices to determine whether low-income individuals seeking legal assistance faced particular utility crisis problems.

The population selection was intended to serve two purposes. First, there is obviously a desire to obtain a sample of households from a broad spectrum of low-income households. Care must be taken to consider what factors might prevent certain households from participating in particular public benefit programs and what biases might be introduced into the sample selection if, for example, only certain benefit programs were used in the survey process.

A second important purpose was ease in administration of the survey process. Given the short timeframe provided for the study to be undertaken and completed, it was not possible to provide for in-house interviews of a random sample of Washington's entire low-income population. Conducting interviews at the offices of particular social services providers, however, had many advantages. For example, interviews that occur in the confines of particular service providers will lead to the ability to schedule the provision of survey resources to anticipate demands for interviewers. Moreover, experience has been that agency staff are anxious to cooperate since they are familiar with the problems relating to their clients' energy crisis situations. Finally, since particular social service agencies often serve particular constituencies, it was possible to seek to reach a broad sample of the

Washington low-income population through the selection of organizations and interview sites.

In order to specifically target low-income people, the survey was administered through community groups which serve low-income households. The clients receiving services at either a CAP or Legal Services office met the same income criteria which the household would be required to meet to receive federal fuel assistance and weatherization funds. This income ceiling is 125% of the federal Poverty Level. A more random sample of low-income people conducted either by telephone or door-to-door would have been cost prohibitive.

There was the additional barrier of obtaining a statewide list of low-income households who lost home heat within the last year which includes households who rely on wood, propane or fuel oil for heat.

While the sample group is not entirely representative of all low-income people in Washington state because it represents people who have sought out assistance from Legal Services office or a Community Action Agency, the demographic information gathered on the survey respondents corresponds strongly with U.S. Census data demographics of all Washington state's low-income households.

Moreover, while there is no question but that this survey will represent a nonrandom sample, drawn almost exclusively from households which use social services, the survey will provide the type of information upon which state policymakers can rely in making determinations regarding future energy assistance programs.

6.1.2 The Survey Process

A copy of the survey instrument, along with a description of the survey administration, and the like, is contained in Appendix L to this report.

6.2 HOUSEHOLDS WHO LOST HEATING IN 1992 - 1993

This section examines the reasons low-income households in Washington lost heat, when and for how long they lost heat, and what they did in the absence of their primary source of heat. Unless otherwise noted, this study examines persons who actually lost their service.

The survey found that 29% (N=171) of all respondents either ran out of fuel or were shutoff during 1992 - 1993, while 71% (N=411) of the respondents said they received a shutoff notice, but did not actually lose their source of home heat. Thus, nearly one-third of the survey respondents were shutoff or ran out of fuel while approximately two thirds of survey respondents were able to avert the shutoff.

6.2.1 Reasons for Losing Heat

The overwhelming majority of households who lost their home heating service in Washington state lost their service because they could not afford to pay for it. More than eight of ten households who lost service listed "couldn't afford" as the reason.

It is important to note that the survey underlying this research directly asked survey respondents why they "lost their home heating service." The purpose behind this phrasing was two-fold. First, the question was worded so that people whose heating system had failed could be differentiated from other groups. Moreover, the survey was designed so as to include users of fuel oil, wood and propane who would not have been "shutoff".

Other studies examining utility customers who have received utility shutoff notices have asked the question less directly: "Were there any unusual conditions that prevented the timely payment of your bill?" It is possible that responses of low-income people were skewed toward indicating that there were "no unusual conditions," since chronic poverty or inability to pay bills is not an unusual condition for many low-income households.[144]

144. Market Trend Inc., ***Investor Owned Utility Group Collection Customer Study, Executive Summary***, at Q-41 (1989).

TABLE 6-1. WHAT WAS THE REASON YOU LOST HEAT?	
BROKEN FURNACE	2% N=4
COULDN'T AFFORD	84% N=143
FORGOT TO PAY BILL	2% N=3
TEMPORARY EMERGENCY	2% N=4
OTHER	10% N=17

6.2.2 Time of Year for Loss of Home Heat

Sixty-five percent of the shutoffs or losses of home heating occurred during the coldest months of the year November through April. Winter shutoffs were disproportionately households who rely on non-utility fuels. Thirty-nine out of the forty (98%) fuel oil households responding to the survey lost heat in the winter. All of the wood and propane households who lost heat, lost it between November and April. The percentage of electric and gas shutoffs occurring during the winter were 49% and 57% respectively.

TABLE 6-2. MONTHS IN WHICH CRISIS HOUSEHOLDS LOST HOME HEATING SERVICE		
MONTH	**NO. OF RESPONDENTS LOSING HOME HEAT**	**PCT OF ALL LOSING HOME HEAT**
JANUARY	44	26%
FEBRUARY	20	12%
MARCH	10	6%
APRIL	17	10%
MAY	13	8%
JUNE	39	23%
JULY	2	1%
AUGUST	1	1%
SEPTEMBER	2	1%
OCTOBER	2	1%
NOVEMBER	4	2%
DECEMBER	15	9%

6.2.3 Duration of Home Heating Loss

The duration of time that people went without heat varied widely. Fifty-one percent of those who experienced a shutoff or ran out of home heating fuel went without heat for fewer than two days. However, forty-nine percent of those who lost home heat, lost it for three or more days. Nearly one-third, 31%, lost heat for a week or more.

The duration of time that a household went without heat did not vary significantly between winter and non-winter shutoffs. Fuel source, however was a variable in how long a household went without heat. The average number of days households went without heat is shown in Table 6-3 below by fuel type.

TABLE 6-3. DURATION OF LOSS OF HOME HEATING	
HOME HEATING FUEL SOURCE	**AVERAGE DAYS WITHOUT HEAT**
ELECTRICITY	9.5
GAS	9.2
FUEL OIL	23
PROPANE	4
WOOD	10.9

Because the number of survey respondents who rely on propane is only six, it is not possible to determine if the low average number of days without fuel is representative of all low-income households which lose home heat and rely on propane.

6.2.4 What Survey Respondents Did in the Absence of Their Primary Source of Heat

Sixty-two percent (N=95) of the respondents reported using nothing while their heat was off. Of those who lost their heat during the winter, 51% reported using nothing while their heat was off. The next most frequent response for all shutoffs (and specifically winter shutoffs) was "other," having been selected by 15% of the respondents. In most cases "extra blankets" and "stayed at a friend's or family's house" were the responses written in.[145] Therefore, seventy-seven percent of those who lost their heat had absolutely no heat in their homes for the duration of time that their heat was off.[146]

The remaining twenty-three percent generated heat by using another fuel source, whether it was a portable heater, the kitchen stove, or a fireplace. Households which experienced loss of home heat between April and November were more likely to respond that they used a

145. These dangerous tradeoffs between health and energy affect not only the vulnerable elderly, but young children as well. A study by Boston City Hospital of 7,367 children found that "the number of malnourished, low-weight children jumped dramatically following the coldest winter months." Diego Ribadeneira, "BCH Study Illustrates Poor's Painful Choice," The Boston Globe, at 1 (September 8, 1992).

146. Loss of a households primary heat source presents serious risks both in terms of the cold as well as the dangerous side effects such as fire and carbon monoxide poisoning resulting from using unsafe heating sources. According to the National Center for Heath Statistics approximately 60,000 lives are lost annually by problems associated with cold weather including fires, carbon monoxide poisoning, pneumonia, influenza and other infectious diseases and of course hypothermia." Select Committee on Aging, House of Representatives, ***Deadly Cold: Health Hazards Due to Cold Weather***, at 2 (1984).

fireplace or portable electric heater.[147]

TABLE 6-4. HEAT SOURCES USED WHEN PRIMARY HEAT SOURCE WAS OFF	
KITCHEN STOVE	5% N=8
PORTABLE ELECTRIC HEATER	10% N=15
PORTABLE PROPANE HEATER	3% N=4
FIREPLACE	6% N=9
OTHER	15% N=23
NOTHING	62% N=95

6.2.5 Resolution of the Problem Leading to the Actual or Potential Loss of Heat

Unlike the responses discussed immediately above, this section examines those households who either (1) *actually* lost their, or (2) faced the potential of losing their heat because of a shutoff notice or other inability to obtain energy services. Either of these situations poses an "energy crisis." In contrast, the discussions above examined only the actual loss of heating.

Twenty-three percent of survey respondents reported receiving assistance from more than one source to resolve either their shutoff or shutoff notice problem. Only 3% reported that the shutoff was not resolved. Table 6-5 below indicates from which sources survey respondents most frequently received help.

147. Home heating equipment is the leading cause of all residential fires, although space heaters account for only a small number of them. However, fires caused by electric space heaters are five times more likely to result in a fatality than the average house fire, and ten times more likely to result in a fatality than all fires. Half the deaths and one-third the injuries from electric space heaters occur when family members are asleep and the heater is unattended. *Efficient, Inexpensive Space Heaters Also Pose Deadly Danger*, ***Washington Post***, at p. C-01 (January 20, 1989).

TABLE 6-5. HOW WERE SHUTOFFS OR SHUTOFF NOTICES RESOLVED? (ALL SURVEY RESPONDENTS)		
	NO. OF RESPONDENTS	**PCT OF RESPONDENTS**
PAYMENT PLAN WITH UTILITY	40	7%
ECIP CRISIS ASSISTANCE	155	26%
FUEL FUND	353	60%
CHURCH	20	3%
MOVED	4	1%
BORROWED MONEY FROM FRIEND OR FAMILY	82	14%
PUT BILL IN SOMEONE ELSE'S NAME	2	0%
PAID IN FULL WITH YOUR OWN FUNDS	18	3%
SHUTOFF NOT RESOLVED	19	3%
NOT SURE WHICH PROGRAM RECEIVED FUNDS FROM	0	0%
OTHER	11	2%
DSHS[148]	9	2%

The reliance on fuel fund dollars to resolve shutoffs or shutoff notices is reflective of the delicate juggling of funding sources community programs must do in order to stretch funds to assist as many low-income households as possible with home heating needs.

It should be noted that this question asked how the shutoff was resolved and not from what sources did the respondent receive energy assistance at the time of the shutoff. Therefore, only *crisis assistance* (ECIP), which is designed to be used in crisis situations such as

148. One of the CAP's which administered the survey wrote in "DSHS" next to "other" when applicable. Because reliance on DSHS money to resolve home heating problems is discussed elsewhere in this report the results of this response are included herein.

shutoffs, and not EAP assistance, is listed as an option. The use of EAP money may require a verification process of several days. so that it is not an effective funding source to draw on in preventing shutoffs. Additionally, most fuel funds require that a customer receive a shutoff notice before fuel fund dollars can be used. Community Action Programs which administer Crisis, EAP, and fuel fund money, carefully select the pot of money used to help clients in need depending on the client's circumstances and the restrictions placed on different funding sources.

A comparison of sources used to resolve shutoff notices versus actual loss of heat bears this assertion out. Eighteen percent of those who had only received notices utilized ECIP, while 26% of those who lost home heat received ECIP.

As this survey clearly demonstrates, one source of funding --whether it is federal emergency assistance dollars or utility fuel fund dollars-- is insufficient to meet the needs of households who lose or are in danger of losing their home heating source. The fact that 14% of the survey respondents borrowed money, 1% moved and 3% were in a situation where the shutoff was unresolved, show that, minimally, 18% of the survey respondents were not able to meet their need through the available funding sources. The combination of funding sources is not even sufficient to meet all of the emergency needs for many low-income people who apply for assistance.

Only seven percent of the survey respondents said that they entered into a payment plan to resolve the shutoff or shutoff notice problem. As discussed above, these survey respondents are among Washington's poorest households. With an average income of $7,849 many of these households would not have sufficient funds to even enter into a payment plan.

With three exceptions, the survey respondents' reliance on the different methods for resolving the shutoff/shutoff notice crisis showed great similarities between the group that had been shutoff and the group which had not been shutoff. As mentioned above, those who had been shutoff received ECIP with greater frequency than: (1) those who had been able to prevent a shutoff, or (2) those who had only received shutoff notices. Secondly, the groups that had lost home heat borrowed money from friends and family with greater frequency than those who had been able to prevent a shutoff. Nine percent of those who received notices borrowed money, while fourteen percent of those who lost home heat borrowed money. Finally, four households that were shutoff moved, while none of the households who had only received notices moved.

6.3 DEMOGRAPHIC INFORMATION ON HOUSEHOLDS FACING CRISIS SITUATIONS

Survey respondents were asked four demographic questions for this study: their monthly household income; if they received benefits from certain entitlement programs; their age; and the number of people in their household.

6.3.1 Income and Poverty Level

The income data, which was converted from monthly to yearly income, shows that survey respondents are among Washington state's poorest residents. The average household income for survey respondents was $7,849 per year. Since the average household size for survey respondents was 3.21, most of these households fall far below the federal government's Poverty Level of $11,890 for a household of three people. Table 6-6 shows the income distribution of the survey respondents.

TABLE 6-6. ANNUAL HOUSEHOLD INCOME OF CRISIS HOUSEHOLDS

INCOME RANGES	NO. OF RESPONDENTS	PERCENT OF RESPONDENTS
0-$2000	55	9%
$2001-$5000	64	11%
$5001-$7500	201	34%
$7501-$10,000	135	23%
$10,001-$12,000	42	7%
$12,001-$15,000	48	8%
$15,001-$17,000	19	3%
$17,001-$20,000	13	2%
$20,001-$25,000	12	2%
$25,001-$30,000	4	1%
Over $30,000	0	0%

Survey respondents were asked about the number of people in their household so that it

could be determined at what level of the federal Poverty Level each household was, and to examine if household size was a variable affecting a household's likelihood to lose home heat.

The average household size of 3.21 for all survey respondents is larger than the statewide average of 2.53 for all households, which includes all family and non-family households. However, the statewide average family household, a household in which all members are related by blood or marriage is 3.06.[149] The survey's average household size corresponds with demographic information collected by Community Action Agencies for all the low-income clients which they serve. For example, the average household size for those who receive assistance through Project Need, administered by the Pierce County Community Action Agency, is 3.2.[150]

TABLE 6-7. CRISIS HOUSEHOLDS' HOUSEHOLD SIZE	
1	16%
2	21%
3	26%
4	19%
5	11%
over 5	8%

As mentioned above, household size was used in conjunction with the income data to determine in what range of the federal Poverty Level each household's income fell. The federal Poverty Level is a useful tool for comparing the incomes of households of different sizes. While the dollar amount of the households' incomes may vary widely, many of the households in this survey have equivalent incomes, when household size was figured in. As shown in Table 6-8, most of the households in the survey pool had incomes below 75% of the federal Poverty Level. Thus, the majority of households surveyed were well below the income ceiling for receipt of EAP/ECIP benefits in Washington state, which is set at 125% of the federal Poverty Level.

149. U.S. Bureau of the Census, ***General Population Characteristics Washington***, at Table 39 (1990).

150. ***1992 Tacoma Light Division Low-Income Assistance Programs Annual Report*** (February 1993).

TABLE 6-8. INCOMES OF CRISIS HOUSEHOLDS BY PERCENT OF THE FEDERAL POVERTY LEVEL	
0-25%	58
26%-50%	94
51%-75%	246
76%-100%	89
101%-125%	50
126%-150%	32

6.3.2 Receipt of Public Assistance

The survey found that more than half of the survey respondents derived their income from public entitlement programs, such as unemployment, Aid to Families with Dependent Children (AFDC), and Supplemental Security Income (SSI) for elderly and disabled persons. Respondents were asked to indicate as many public benefit programs as they received assistance from. Therefore, most respondents who indicated receipt of AFDC or SSI also stated that they received food stamps, since people who qualify for AFDC and SSI automatically qualify for food stamps.

TABLE 6-9. RECEIPT OF PUBLIC BENEFITS BY CRISIS HOUSEHOLDS		
	NUMBER OF ALL RESPONDENTS RECEIVING PUBLIC BENEFITS	**PERCENT OF ALL RESPONDENTS RECEIVING PUBLIC BENEFITS**
FOOD STAMPS	326	55%
AFDC	223	38%
SSI	41	7%
UNEMPLOYMENT	38	6%
CONSOLIDATED EMERGENCY ASSISTANCE PROGRAM (CEAP)	2	0%
GENERAL ASSISTANCE	9	2%

6.3.3 Age

The average age of survey respondents was 42 years old. This comports with the average age of heads of household statewide which also is 42 years.[151] The majority of survey respondents were under 40 years of age. Table 6-10 below shows the age distribution of survey respondents.

TABLE 6-10. AGE OF CRISIS HOUSEHOLDS	
UNDER 20	3%
20-25	15%
26-30	21%
31-40	34%
41-50	16%
51-60	4%
61-70	4%
71-80	2%
over 80	1%

The age distribution of survey respondents is similar to the U.S. Census distribution figures for all households in Washington state, although survey respondents are slightly younger than households statewide. The percentage of survey respondents over age 50 is less than the percentage of households statewide.

6.3.3 Home Heating Fuel

The distribution of home heating fuel sources among the survey respondents is similar to U.S. Census data on primary heat fuel for low-income people, though not exact. Comparison of the primary fuel type of survey respondents with that of all households below 125 percent of the federal Poverty Level reveals that in the pool of survey respondents, electric users are over-represented and gas and wood users are under-represented.

The distribution of fuel types within the survey pool closely parallels the distribution of fuel

151. Market Trends Research, ***Investor Owned Utility Group Collection Customer Study Executive Summary***, 10 (1989).

types of households in the pool of EAP/ECIP recipients, where, for example, electric users represent 74% of EAP/EECIP recipients and wood users represent 5% of all EAP/ECIP recipients.

TABLE 6-11. PRIMARY SOURCE OF HOME HEATING FUELS FOR LOW-INCOME HOUSEHOLDS IN WASHINGTON STATE		
FUEL SOURCE	**SURVEY RESPONDENTS**	**U.S. CENSUS DATA**
ELECTRIC	76% N=448	65%
GAS	12% N=69	16%
FUEL OIL	8% N=48	7%
PROPANE	1% N=6	2%
WOOD	3% N=17	9%

In determining if fuel type is a factor in increasing a household's likelihood to lose home heat, the subgroup of survey respondents who lost home heat during 1992 - 1993 were compared with survey respondents as a whole. Significant differences appeared between households relying on utility versus non-utility fuels. Those who actually lost home heat were much less likely to rely on a utility --electric *or* gas-- for home heating and were more likely to rely on fuel oil, propane or wood.

That is not to say, however, that households who rely on electricity or gas do not have problems with losing their source of home heat. Twenty-one percent of the survey respondents who rely on electricity for home heat and thirty percent of the survey respondents who relied on gas for home heat were shutoff at some point during 1992 - 1993.

TABLE 6-12. PERCENT OF CRISIS HOUSEHOLDS WHO LOST HEAT IN THEIR HOMES BY FUEL TYPE			
	NO. OF ALL SURVEY RESPONDENTS	**NO. OF SURVEY RESPONDENTS LOSING HEAT (SHUTOFF)**	**SHUTOFFS AS PERCENT OF ALL RESPONDENTS USING EACH FUEL TYPE**
ELECTRIC	448	95	21%
GAS	69	21	30%
FUEL OIL	48	40	83%
PROPANE	6	5	83%
WOOD	17	9	53%

Since electricity, followed by gas, are the first and second largest sources of home heating fuel in Washington state, larger numbers of low-income gas and electric customers get shutoff than those who rely on other sources of home heating fuel. Households that rely on fuel oil, propane and wood, though less numerous, are more likely than gas or electric users to lose their heat. There are a number of reasons for this. Electric and gas utilities usually use a long process of notices before service is shutoff allowing customers more time to get enough money together to maintain service.

In addition, customers do not have to pay the full amount of their arrears upon receipt of a notice to maintain service. One survey respondent who relies on fuel oil was told by fuel oil dealers that they would only fill the tank, they would *not* do a partial fill-up. Because she did not have sufficient funds to pay for a full tank, she was not able to heat her home.

Thirdly, the state's legislatively-mandated winter shutoff moratorium protects some households who rely on gas and electric from shutoffs for four months out of the year. A household whose monthly income is below 125% of the federal Poverty Level may apply for protection under the moratorium in order to keep their utility service on through the heating season (Nov. 15 through March 15). In order to utilize the moratorium, the customer must agree to a delayed payment plan "to pay all money owed by the following October 15th, paying at least 7% of the household's monthly income plus 1/12 of the total amount accumulated during the winter period.[152] If low-income fuel oil, propane, or wood users run out of fuel and have no money to buy more fuel, they are not protected by a winter moratorium.

Based on the comments of some survey respondents who use wood for home heating, some were able gather wood to keep their home heated. This would account for the lower percentage of wood users that went without heat than the other non-utility fuel users.

6.4 SUMMARY AND CONCLUSIONS

Two types of Washington households faced crisis situations in the 1992 - 1993 heating season. Some households received disconnect notices and thus faced the threat of losing their heating. Other households actually lost their heat.

The proportion of households facing the threat of shutoff who actually lost heat is small. Of those households, however, the overwhelming reason cited for the actually loss of heat was "could not afford."

152. Washington Utilities and Transportation Commission, ***Your Rights and Responsibilities As A Residential Gas Or Electric Customer***, 14 (undated).

The majority of persons who lost their heat in the 1992 - 1993 heating season went without heat during the duration of their service outage. The duration of service disconnections were substantially longer for fuel oil customers than for customers of natural gas or electric utilities.

Most households who resolved their crisis situation before losing their heat relied upon a fuel fund for assistance. A significant, but substantially smaller, proportion relied upon ECIP. Another significant, but again substantially smaller, proportion borrowed money from friends or family.

Households receiving shutoff notices or actually losing heat tended to be very poor. More than half lived with incomes of 50 - 75 percent of the federal Poverty Level. Less than half, however, received public assistance from AFDC or SSI.

Disproportionately represented in the households facing a crisis (notice or actual loss of heat) were households using electric heat. However, users of fuel oil who faced a "shutoff notice" were overwhelmingly more likely to actually lose their heat than users of other fuels.

CHAPTER 7: ENERGY ASSISTANCE PROGRAMS FOR THE POOR

Low-income households in Washington state have several places to turn for assistance in paying their home energy bills. Two general types of assistance are considered below. The first section below examines governmentally-funded programs. The Energy Assistance Program (EAP) and Energy Crisis Intervention Program (ECIP) funded through the federal Low-Income Home Energy Assistance Program (LIHEAP) are the primary, but by no means the exclusive, governmental energy assistance programs in Washington State.[153] The second section examines private supplemental assistance programs. These programs can range from cash benefits provided through the Salvation Army to similar benefits provided through a variety of utility-supported "fuel funds."

Identifying the energy assistance resources available in Washington State is critical. Energy assistance is an essential short-term solution for low-income energy needs. It provides assistance for immediate needs that programs such as weatherization cannot. Year-after-year, there will be a need for the state to be able to provide such immediate cash assistance.

The purpose of the discussions below is: (1) to inventory and describe available low-income energy assistance in Washington state; (2) to inventory available resources *vis a vis* the demands placed upon those resources; and (3) to describe the population which uses these resources. The sections below look at 1992 program year data (October 1991 - September 1992).

153. This sets aside for the moment any discussion of subsidized utility allowances, provided either to Section 8 tenants or to tenants of Public Housing with tenant-paid utilities.

7.1 GOVERNMENTALLY-FUNDED LOW-INCOME ENERGY ASSISTANCE PROGRAMS

7.1.1 Energy Assistance Program (EAP) and Emergency Crisis Intervention Program (ECIP)

The primary source of governmentally-funded fuel assistance benefits in the state of Washington is the Low-Income Home Energy Assistance Program (LIHEAP). The two energy assistance programs under LIHEAP, a federal program administered by the U.S. Department of Health and Human Services, are the Energy Assistance Program (EAP) and the Energy Crisis Intervention Program (ECIP). EAP provides financial assistance to low-income households for their home heating bills. ECIP provides assistance for weather-related and energy-related emergencies.[154] Federal HHS funds are also provided for weatherization, although weatherization is examined in another section of this report. Fuel assistance dollars other than WAP will be referred to as EAP/ECIP below.

While EAP/ECIP funds in Washington state are generally distributed through Community Action Agencies, in a few instances, city agencies distribute ECIP and EAP funds. Energy Assistance Program funds are allocated to agencies according to a formula which, for each county, takes into consideration: (1) the number of households below 125% of the federal Poverty Level; (2) the climate, as measured by the number of heating degree days; and (3) the average fuel cost within the county.[155] The amount of assistance, as well as the methodology for distributing assistance to individual households, are discussed below.

In assessing the extent to which EAP/ECIP benefits do or do not meet low-income Washington residents' energy needs, this section examines: (1) the number of eligible households served; (2) the dollar amount of the benefits received; and (3) demographic information pertaining to EAP/ECIP recipients, including race, receipt of public benefits, primary fuel source, housing type and income. To put the EAP/ECIP data in context, comparisons are drawn between the population of EAP/ECIP recipients and U.S. Census Bureau data on the Washington state low-income population as a whole.

154. Department of Community Development, ***Washington State Plan for the 1993 Low-Income Home Energy Assistance Program***, at 4 (1993).

155. *Id.*, at 9.

7.1.1.1 The Number of Eligible Households Served

In order to maximize the number of needy households that are served by EAP and ECIP, the Washington Department of Community, Trade and Economic Development (CTED) has designed a benefit matrix aimed at meeting 35 percent of energy costs for a low-income single family household.[156] Even though benefits meet just a portion of the energy costs of households served, however, EAP/ECIP dollars still serve fewer than one-third the eligible households statewide.

Comparison of CTED statistics on the number of households receiving EAP or ECIP benefits and the number of households in Washington that meet the income eligibility criteria reveals that statewide in 1992, 70 percent of households who were financially eligible for EAP or ECIP assistance received no benefits.[157] In some counties, such as Thurston and Chelan, as Table 7-1 below indicates, almost 80 percent of eligible households did not receive federal energy or emergency assistance dollars in 1992.

Although not all households who meet the eligibility requirements for EAP or ECIP apply for benefits, many *do* apply and are turned away due to a lack of funds. Indeed, some agencies turn away thousands of eligible applicants each year. For example, the Clark County Department of Community Services estimates that it will receive 7,485 applications for energy and emergency assistance in the 1992 - 1993 program year, while it will be able to provide funds to only 4,980 households. Another agency, the Lower Columbia Community Action Council, maintained a 22-page waiting list for energy assistance during the 1992 - 1993 program year.

It is difficult to quantify the number of eligible households who seek energy or emergency assistance in Washington state, but who are denied benefits due to insufficient funds. Many of the agencies distributing EAP/ECIP funds simply stop taking applications once funds run out. In other instances, agencies use a tape-recorded message saying there are no funds remaining. In these circumstances, it is not possible even to track telephone inquiries once the agency stops accepting applications.

Despite this inability to ascertain the precise number of households denied benefits due to insufficient funds, it is possible to conclude that the number is substantial. In generating data for this report, surveys were sent to each of the local agencies that administer EAP/ECIP funds. The EAP/ECIP agencies were asked if they ran out of funds during the 1992 - 1993 program year, and, if so, during which month.

156. Washington Department of Community Development, ***Washington State Plan for The 1993 Low-Income Home Energy Assistance Program***, at 44 (1993).

157. Only 86,000 of the 275,000 households eligible actually received benefits.

TABLE 7-1. NUMBER AND PERCENT OF LOW-INCOME HOUSEHOLDS BY COUNTY SERVED BY FUEL ASSISTANCE OR CRISIS ASSISTANCE

COUNTY	TOTAL HOUSEHOLDS SERVED BY EAP AND ECIP IN 1992 (unduplicated)	NUMBER OF INCOME ELIGIBLE HOUSEHOLDS IN COUNTY	PERCENT OF INCOME ELIGIBLE HOUSEHOLDS BEING SERVED
ADAMS*	317	1,040	30%
ASOTIN	447	1,678	27%
BENTON	1,507	6,304	24%
CHELAN	887	4,158	21%
CLALLAM*	1,090	4,200	26%
CLARK	3,974	11,722	34%
COLUMBIA	155	405	38%
COWLITZ	1,571	5,611	28%
DOUGLAS	382	1,615	24%
FERRY	150	570	26%
FRANKLIN	1,009	3,120	32%
GARFIELD	59	156	38%
GRANT*	1,029	4,896	21%
GRAYS HARBOR	1,516	5,800	26%
ISLAND	711	2,342	30%
JEFFERSON*	561	1,603	35%
KING	18,638	66,943	28%
KITSAP	2,447	8,874	28%
KITTITAS	820	3,035	27%
KLICKITAT	403	1,465	28%
LEWIS	1,440	4,633	31%
LINCOLN*	167	644	26%
MASON	656	2,534	26%
OKANOGAN	938	3,589	26%
PACIFIC	486	1,931	25%
PEND OREILLE	376	856	44%
PIERCE	8,771	32,604	27%

TABLE 7-1. NUMBER AND PERCENT OF LOW-INCOME HOUSEHOLDS BY COUNTY SERVED BY FUEL ASSISTANCE OR CRISIS ASSISTANCE

COUNTY	TOTAL HOUSEHOLDS SERVED BY EAP AND ECIP IN 1992 (unduplicated)	NUMBER OF INCOME ELIGIBLE HOUSEHOLDS IN COUNTY	PERCENT OF INCOME ELIGIBLE HOUSEHOLDS BEING SERVED
SAN JUAN	223	496	45%
SKAGIT	1,616	4,667	35%
SKAMANIA	153	548	28%
SNOHOMISH	5,010	16,085	31%
SPOKANE	9,308	27,792	33%
STEVENS	818	2,620	31%
THURSTON	1,780	8,579	21%
WAHKIAKUM	68	209	33%
WALLA WALLA	831	3,768	22%
WHATCOM	2,852	8,310	34%
WHITMAN	862	4,009	22%
YAKIMA	5,273	16,320	32%
TOTAL:	85,915	275,731	30%

NOTES:

* Total households served by these counties were estimated since computer programs of agencies serving these counties were not able to differentiate between counties in 1992.

Twenty-one of the twenty-two agencies responding to the survey reported running out of EAP/ECIP funds before the end of the program year. Two agencies ran out of EAP/ECIP funds, but were able to use utility fuel funds after EAP/ECIP funds were exhausted. All of the other agencies completely expended all funds. March was most frequently cited as the month during which funds ran out.[158] Four local agencies ran out of funding during February, two in April, two in May and one in January.

In sum, the federally-funded fuel assistance program --including both its cash supplement energy assistance program as well its corresponding crisis intervention program-- serve relatively small numbers of low-income households in the state of Washington. In addition to defining "low-income" in a manner to exclude large numbers of households so as to maintain a higher benefit level for those who remain eligible, many households are not served because they apply for assistance after available funds have been exhausted. In such instances, these income-eligible households, with recognized energy needs, are simply turned away.

7.1.1.2 Benefits Received by Eligible Households

Supplemental (*i.e.*, non-crisis, non-ECIP) fuel assistance benefit levels vary substantially throughout the state of Washington. The amount of the client benefit is determined by a matrix which takes into consideration household size, the dwelling type (*i.e.*, single family, multi-family, subsidized), and the climatic/energy cost zone.[159] Benefit levels are structured so that the lowest income households with the highest energy costs receive the highest benefits.[160]

Average benefits, as illustrated in Table 7-2 below, vary according to the climatic/energy cost zone of the county. For example, the county with the lowest average benefit in 1992 was Cowlitz which is in zone 1, the zone with the lowest annual heating costs and a lower number of heating degree days than other counties. Kittitas, which is in zone 7, the zone having the highest number of heating degree days and the highest fuel costs compared with the rest of the state, has the highest average benefit.

Because ECIP funds are to be utilized to alleviate energy or weather-related emergencies, there is more flexibility in the determination of the benefit amount, although very limited

158. March bills, of course, reflect February consumption levels.

159. ***Washington State Plan For the Low Income Home Energy Assistance Program 1992***, at 15 (1992). The State Plan creates seven zones by ranking areas according to the number of heating degree days and average fuel costs.

160. *Id.*, at 38.

funds do present limitations in and of themselves. Washington's EAP/ECIP agencies are given the flexibility to set a maximum crisis benefit of $200 to $300 for heating bills prior to the start of the heating season.[161] An additional $200 may be added to this maximum for other emergency needs such as space heaters.[162] If a low-income homeowner's furnace or heating system fails, ECIP funds, to a maximum of $1500, including other benefits, may be used to repair the system.[163]

As seen in Table 7-3 below, ECIP benefits tend to be lower than EAP benefits in Washington state.

161. *Id.*, at 21.

162. *Id.*

163. *Id.*

TABLE 7-2. AVERAGE ENERGY ASSISTANCE PROGRAM (EAP) BENEFIT BY COUNTY WASHINGTON STATE, 1992 - 1993 PROGRAM YEAR

COUNTY	AGENCY	TOTAL DOLLARS DISTRIBUTED IN 1992	NUMBER OF HOUSEHOLDS RECEIVING BENEFITS	AVERAGE BENEFITS RECEIVED
ADAMS*	Grant County CAC			$233
ASOTIN	CAA of Idaho	$76,964	438	$176
BENTON	Benton Franklin CAC	$202,757	1,077	$188
CHELAN	Chelan Douglas CAC	$126,014	829	$152
CLALLAM*	Jefferson/Clallam CAC			$200
CLARK	Clark County Comm. Serv. Dept.	$592,535	3,779	$157
COLUMBIA	Blue Mountain CAC	$24,483	132	$185
COWLITZ	Lower Columbia CAC	$168,230	1,339	$126
DOUGLAS	Chelan-Douglas CAC	$54,582	361	$151
FERRY	N.E. WA Rural Resources	$33,585	139	$242
FRANKLIN	Benton-Franklin CAC	$140,278	737	$190
GARFIELD	Blue Mountain CAC	$12,874	57	$226
GRANT*	Grant County CAC			$137
GRAYS HARBOR	Coastal CAP	$250,446	1,444	$173
ISLAND	The Opportunity Council	$136,081	657	$207
JEFFERSON*	Jefferson/Clallam CAC			$185
KING	Seattle DHS/NE King County Multi-Serv/So. King County Multi-Serv	$3,896,369	18,597	$210
KITSAP	Kitsap CAC	$350,771	1,985	$177
KITTITAS	Kittitas CAC	$201,408	818	$246

TABLE 7-2. AVERAGE ENERGY ASSISTANCE PROGRAM (EAP) BENEFIT BY COUNTY WASHINGTON STATE, 1992 - 1993 PROGRAM YEAR

COUNTY	AGENCY	TOTAL DOLLARS DISTRIBUTED IN 1992	NUMBER OF HOUSEHOLDS RECEIVING BENEFITS	AVERAGE BENEFITS RECEIVED
KLICKITAT	Klickitat Skamania CAC	$71,099	360	$197
LEWIS	Lewis Mason Thurston CAC	$236,944	1,442	$164
LINCOLN*	Grant County CAC			$246
MASON	Lewis Mason Thurston CAC	$114,151	633	$180
OKANOGAN	Okanogan CAC	$176,583	899	$196
PACIFIC	Coastal CAP	$79,615	482	$165
PEND OREILLE	NE WA Rural Resources	$61,123	316	$193
PIERCE	Pierce County CAC/ MDC	$1,307,760	8,065	$162
SAN JUAN	The Opportunity Council	$42,015	196	$214
SKAGIT	Skagit County CAC	$268,422	1,403	$191
SKAMANIA	Klickitat Skamania CAC	$20,670	136	$152
SNOHOMISH	Snohomish County CAC	$935,638	4,907	$191
SPOKANE	Spokane Neighborhd Action Program	$1,899,879	8,330	$228
STEVENS	NE WA Rural Resources	$165,707	718	$231
THURSTON	Lewis Mason Thurston CAC	$334,556	1,565	$214
WAHKIAKUM	Lower Columbia CAC	$10,931	57	$192

WALLA WALLA	Blue Mountain CAC	$88,698	518	$171
WHATCOM	The Opportunity Council	$415,892	2,302	$181
WHITMAN	Community Action Center	$194,914	845	$231
YAKIMA	Yakima Valley Farm Workers Clinic/ Yakima Valley OIC	$1,152,903	5,247	$220

NOTES:

* 1993 average benefit based on data submitted through June 1993.

TABLE 7-3. AVERAGE ENERGY CRISIS INTERVENTION BENEFITS BY COUNTY WASHINGTON STATE, 1992 - 1993 PROGRAM YEAR

COUNTY	AGENCY	TOTAL DOLLARS DISTRIBUTED IN 1992	NUMBER OF HOUSEHOLDS RECEIVING BENEFITS	AVERAGE BENEFITS RECEIVED
ADAMS*	**Grant County CAC**			$206
ASOTIN	**CAA of Idaho**	$6,266	42	$149
BENTON	**Benton Franklin CAC**	$74,927	449	$167
CHELAN	**Chelan Douglas CAC**	$8,003	64	$125
CLALLAM*	**Clallam/Jefferson CAC**			$183
CLARK	**Clark County Comm. Serv. Dept.**	$136,514	792	$172
COLUMBIA	**Blue Mountain Action Council**	$3,221	23	$140
COWLITZ	**Lower Columbia CAC**	$29,649	232	$128
DOUGLAS	**Chelan-Douglas CAC**	$3,399	26	$131
FERRY	**N.E. WA Rural Resources**	$1,834	12	$153
FRANKLIN	**Benton-Franklin CAC**	$43,677	285	$153
GARFIELD	**Blue Mountain Action Council**	$140	2	$70
GRANT*	**Grant County CAC**			$159
GRAYS HARBOR	**Coastal CAP**	$17,355	126	$138
ISLAND	**The Opportunity Council**	$12899	88	$147
JEFFERSON*	**Clallam/Jefferson CAC**			$151
KING	**Seattle DHS/NE King County Multi-Serv/So. King County Multi-Serv**	$37,990	78	$487
KITSAP	**Kitsap CAC**	$154,078	534	$289
KITTITAS	**Kittitas CAC**	$59,501	282	$211

TABLE 7-3. AVERAGE ENERGY CRISIS INTERVENTION BENEFITS BY COUNTY WASHINGTON STATE, 1992 - 1993 PROGRAM YEAR

COUNTY	AGENCY	TOTAL DOLLARS DISTRIBUTED IN 1992	NUMBER OF HOUSEHOLDS RECEIVING BENEFITS	AVERAGE BENEFITS RECEIVED
KLICKITAT	**Klickitat Skamania CAC**	$6,437	46	$140
LEWIS	**Lewis Mason Thurston CAC**	$83,776	560	$150
LINCOLN*	**Grant County CAC**			$363
MASON	**Lewis Mason Thurston CAC**	$50,664	276	$184
OKANOGAN	**Okanogan CAC**	$8,483	39	$218
PACIFIC	**Coastal CAP**	$2,432	13	$187
PEND OREILLE	**NE WA Rural Resources**	$10,663	62	$172
PIERCE	**Pierce County CAC/ MDC**	$476,356	2,933	$162
SAN JUAN	**The Opportunity Council**	$7,572	42	$180
SKAGIT	**Skagit County CAC**	$50,674	245	$207
SKAMANIA	**Klickitat Skamania CAC**	$3,046	18	$169
SNOHOMISH	**Snohomish County CAC**	$211,328	1,236	$171
SPOKANE	**Spokane Neighborhd Action Program**	$186,327	1,020	$183
STEVENS	**NE WA Rural Resources**	$18,648	102	$183
THURSTON	**Lewis Mason Thurston CAC**	$121,606	779	$156
WAHKIAKUM	**Lower Columbia CAC**	$1,985	11	$180

WALLA WALLA	**Blue Mountain Action Council**	$34,285	313	$110
WHATCOM	**The Opportunity Council**	$166,287	965	$172
WHITMAN	**Community Action Center**	$34,391	146	$236
YAKIMA	**Yakima Valley Farm Workers Clinic/ Yakima Valley OIC**	$52,468	99	$530

NOTES:

* 1993 average benefit based on data submitted through June 1993.

7.1.2 Demographics of Fuel Assistance Recipients

EAP/ECIP benefits assist some of the most vulnerable Washington residents: the elderly, children under the age of five, and the disabled. According to Department of Community, Trade and Economic Development statistics, for example, 57,584 (23%) of all people benefitted by energy assistance were children under five. Since statistical reports only identify households with dependent children "under age five," the *total* number of children (including those older than age five) benefitted is actually higher.

Moreover, when individual agencies distributing EAP/ECIP were surveyed as to specific demographic attributes of their client base, most EAP/ECIP agencies reported that:

- Over forty percent of EAP/ECIP households had dependent children, irrespective of age.
- Six percent of EAP/ECIP recipients (16,340) were elderly.
- Six percent of EAP/ECIP recipients included disabled individuals (14,803).

These percentages remained constant when examining EAP and ECIP separately.

7.1.2.1 Race of Fuel Assistance Recipients

The race of EAP/ECIP recipients largely reflects the racial diversity of the state of Washington. People of each race receive benefits in nearly the same proportions as the percentage of that particular race in Washington state's low-income population. The percentage of Whites and Asians among EAP/ECIP recipients is exactly the same as the percentage of each of these races among all households below 125 percent of the federal Poverty Level.

A higher percentage of African American (nine percent vs. five percent) and Latinos, (12 percent vs. 10 percent) are found in the EAP/ECIP population than in the low-income population as a whole. This indicates a slight over-representation of African Americans and Latinos among EAP/ECIP recipients, although, numerically, the vast majority of EAP/ECIP recipients are White.

With respect to the percentage of Native Americans among EAP/ECIP recipients in the data provided by CTED, the percentage of recipients does not represent the actual percentage of low-income Native Americans who receive EAP/ECIP. Many tribes receive EAP/ECIP allocations directly from the U.S. Department of Health and Human Services (HHS). These tribes directly report their statistics to HHS and *not* to CTED. Accordingly, the numbers below represent Native Americans who were assisted by funds distributed through CTED to

local Community Action Agencies.

TABLE 7-4 RACE OF EAP/ECIP RECIPIENTS COMPARED WITH THE PERCENT OF TOTAL HOUSEHOLDS UNDER 100% OF THE FEDERAL POVERTY LEVEL[164]		
	PERCENT BELOW 100% POVERTY	**PERCENT IN EAP/ECIP POPULATION**
ASIAN	6%	6%
BLACK	5%	9%
HISPANIC	10%	12%
NATIVE AMERICAN	4%	2%
WHITE	69%	68%
OTHER	6%	3%

7.1.2.2 Receipt of Public Benefits by Fuel Assistance Recipients

Table 7-5 below shows the percentage of EAP recipients and ECIP recipients who receive benefits from entitlement programs. There is overlap among the individuals served by these public benefits programs. For instance, people who receive AFDC and SSI are categorically eligible for food stamps and are, therefore, included in both the AFDC or SSI percentages *and* the food stamp percentage. Consequently, it is not possible to ascertain the total unduplicated number of EAP/ECIP recipients who receive other public benefits.

However, since people who receive money from entitlement programs usually also receive food stamps, the food stamps total is a reasonable relative measure of the total number of households who receive benefits from entitlement programs. One can surmise that since only twenty percent of the total EAP/ECIP households receive food stamps, approximately twenty percent of EAP/ECIP households receive money from entitlement programs.

164. ***LIHEAP Household Statistics Monthly Report: October 1992***.

TABLE 7-5. PERCENT OF EAP AND ECIP RECIPIENTS WHO RECEIVE FUNDS FROM OTHER PUBLIC BENEFIT PROGRAMS[165]		
	PERCENT IN EAP POPULATION	**PERCENT IN ECIP POPULATION**
SSI	7%	3%
AFDC	13%	12%
GENERAL ASSISTANCE	2%	1%
VETERAN'S ASSISTANCE	1%	0%
SOCIAL SECURITY	8%	3%
UNEMPLOYMENT	2%	3%
EARNED INCOME TAX CREDIT	9%	13%
FOOD STAMPS	20%	17%
FAMILY IMPROVEMENT PROJECT	4%	3%

7.1.2.3 Primary Fuel Source of Fuel Assistance Recipients

Differences exist between the proportions of EAP and ECIP recipients relying on the different fuel types as compared with the fuel types utilized by the entire population of households below 125 percent of the federal Poverty Level. Electric users receive benefits in a greater proportion than their percentage in the low-income population as a whole. Seventy-four percent of all EAP recipients and seventy-three percent of all ECIP recipients use electricity as their primary fuel source, while only sixty-five of all households under 125% of the federal Poverty Level rely on electricity as their primary fuel source.

Users of each of the other most common home heating fuels, aside from electricity, are slightly under-represented in the population of EAP/ECIP recipients. Natural gas users represent fourteen percent of EAP recipients and fifteen percent of ECIP recipients while comprising sixteen percent of the eligible population. Wood users are the most under-represented, comprising five percent of EAP recipients and four percent of ECIP recipients while comprising nine percent of all households under 125 percent of the federal Poverty Level.

165. ***Low-Income Home Energy Assistance Accumulated Client Characteristics Report*** (October 1992).

Similarly, fuel oil and kerosene users each represent five percent of EAP and ECIP households and comprise seven percent of the total eligible population.

TABLE 7-6. EAP AND ECIP HOUSEHOLDS BY FUEL TYPE COMPARED WITH ALL ELIGIBLE HOUSEHOLDS BY FUEL TYPE[166]

	PERCENT BELOW 125% POVERTY	PERCENT IN EAP POPULATION	PERCENT IN ECIP POPULATION
Oil/Kerosene	7%	5%	5%
Natural Gas	16%	14%	15%
Electricity	63%	74%	73%
LPG	7%	5%	5%
Wood	9%	5%	4%

7.1.2.4 Housing Type of Fuel Assistance Recipients

The housing status of EAP and ECIP recipients is tracked according to whether the recipient is a home owner, a renter in a subsidized unit, or a renter in an unsubsidized unit. In 1992, 50 percent of EAP recipients lived in unsubsidized rental units, 25 percent lived in subsidized rental units, and 25 percent were homeowners.

Sixty-one percent of ECIP households lived in unsubsidized rental units, 17 percent in subsidized rental units and 22 percent were homeowners. The combined totals for both EAP and ECIP are 75 percent renters, both subsidized and unsubsidized units, and 25 percent home owners.

Statewide, 67 percent of households under 125 percent of the federal Poverty Level are renters.[167] In contrast, 33 percent of households at this income level are homeowners.[168] Thus, as can be seen, renters are somewhat over-represented in the number of EAP/ECIP recipients in Washington.

166. ***Low-Income Home Energy Assistance Accumulated Client Characteristics Report*** (October 1992).

167. U.S. Census Bureau special run for the Washington Department of Community, Trade and Economic Development.

168. U.S. Census Bureau special run for the Washington Department of Community, Trade and Economic Development.

7.1.2.5 Income and Poverty Levels of Fuel Assistance Recipients

The income eligibility ceiling for EAP/ECIP in Washington state offers little insight into the *actual* incomes of EAP/ECIP participants. The household incomes of many EAP/ECIP recipients are well below the EAP/ECIP income eligibility ceiling. Indeed, according to 1992 EAP statistics, 12,384 households (of the total 86,000) had incomes below $2000 a year. A $2000 income represents:

- o 29% of the federal Poverty Level for a one person household;
- o 22% of the federal Poverty Level for a two person household; and
- o 14% of the federal Poverty Level for a family of four.

Indeed, a majority of households in each group fall well below 100% of the federal Poverty Level within each of the various income levels. Consider that in Washington state:

- o A majority of the single person EAP/ECIP households have incomes below $5,999, which is 88% of the federal Poverty Level.
- o A majority of two person EAP/ECIP households also fall below $5,999, which for a household of two people is 65% of the federal Poverty Level.
- o A majority of three person EAP/ECIP households fall below $7,999, which for a household of three people is 69% of the federal Poverty Level.

Because households of all remaining sizes are grouped together in the 4+ category, it is not possible to calculate the federal Poverty Level for the majority in this group.

TABLE 7-7. EAP/ECIP RECIPIENTS BY INCOME AND HOUSEHOLD SIZE (1992)					
Yearly Income	**HOUSEHOLD SIZE**				
	1 Person	**2 Person**	**3 Person**	**4+ Persons**	**Total**
Under $2000	6,233	2,773	1,899	2,462	13,367
$2000-$3,999	1,564	829	632	733	3,758
$4,000-$5,999	10,922	6,770	2,297	1,479	21,468
$6,000-$7,999	5,064	2,582	7,069	6,721	21,436
$8,000-$9,999	449	2,694	1,934	5,796	10,873
$10,000-$11,999	0	1,135	1,840	3,668	6,643
$12,000-$14,999	0	3	1,065	4,032	5,100
$15,000 & over	1	6	3	3,260	3,270
TOTAL	24,233	16,792	16,739	28,151	85,915

7.1.3 Summary

Although fewer than one third of Washington state's EAP/ECIP-eligible population receives ECIP or EAP benefits, to a large extent, EAP/ECIP recipients fit the demographic patterns of the universe of households below 125% of the federal Poverty Level. There are a few exceptions. By focusing on the largest percentage for each of the demographic characteristics, EAP/ECIP statistics provide a profile of who the "average" EAP/ECIP recipient is. The EAP/ECIP recipient is likely to be a renter whose income is below 100% of the federal Poverty Level, a person who does not derive his or her income from entitlement programs, is White and uses electricity for his or her primary heating source.

7.2 SUPPLEMENTAL FUEL ASSISTANCE PROVIDED BY GOVERNMENT

While EAP/ECIP is the primary means of providing energy assistance to low-income households in Washington state, it is by no means the exclusive means. The state Department of Social and Health Services (DSHS) also operates utility "crisis" programs. Other more limited government programs are available as well.

7.2.1 Washington State Department of Social and Health Services Emergency Grants

The emergency grants program of the state Department of Social and Health Services is one source from which some low-income people can draw in order to prevent loss of home heat or to restore heat. DSHS administers two programs which can be used for utility crisis grants: (1) the Additional Requirements Emergent Needs (AR-EN) program; and (2) the Consolidated Emergency Assistance Program (CEAP).

DSHS was asked to provide the number and amount of emergency grants by county which could be used by low-income people for utility emergencies. Although DSHS does not maintain its data on emergency grants in the requested format, it was able to provide the total dollar amount of Additional Requirements Emergent Needs grants used per year for utilities by DSHS region from 1990 to 1992. For CEAP grants, DSHS provided the *Consolidated Emergency Assistance Applications Needs Review* which examines on a statewide basis the number of CEAP applicants requesting money for utilities statewide, the average need by household size, and the maximum grant allowed.

The AR-EN data demonstrates the amount of DSHS dollars spent in different regions of the state to assist Aid to Families with Dependent Children (AFDC), Supplemental Security Income (SSI) and Refugee Assistance recipients with utility emergencies. The CEAP data is useful in showing the average need by household size and the average *unmet* need for low-income households who receive DSHS crisis grants, but who do not receive income from entitlement programs.

7.2.1.1 Description of Additional Requirements Emergent Needs and Consolidated Emergency Assistance Programs

Additional Requirements Emergent Needs: Additional Requirements Emergent Needs is a grant that is over and above the ongoing income assistance grant that an individual receives from programs such as Aid to Families with Dependent Children (AFDC), Supplemental Security Income (SSI) and Refugee Assistance. AR-EN is designed to help individuals overcome an immediate crisis, which may include an impending utility shutoff, insufficient money for fuel, or sudden loss of heat.[169] A shutoff notice is required to receive AR-EN funds.

The AR-EN grant may be provided to a client more than once a year. The determination of need is left to the discretion of the client's social worker.[170] The grant may be up to a

169. DSHS, ***Manual F***, Chapter 62, 7.

170. DSHS, ***Manual F***, Chapter 62, 7.

maximum of one month of the client's total monthly grant, which varies according to the household size. The standard payment ranges from $349 for a single person household to $1,075 for a family of eight.[171]

Consolidated Emergency Assistance Program: The Consolidated Emergency Assistance Program is "temporary assistance (one month out of twelve) for needy families not eligible for any other federal or state grant assistance program."[172] One example of a person who might qualify is a pregnant woman. Since CEAP recipients do not qualify for other federal or state assistance programs, a household can *not* receive both a grant from CEAP and a grant under the Additional Requirements Emergent Needs program.

The maximum amount of the CEAP grant is the one month grant amount a family of that size would qualify for under the AFDC program.[173] However, the entire grant may not be applied to an emergency utility need. The maximum grant includes money for a range of necessities, only a portion of which may be used for utilities. These necessities include food, shelter, clothing, medical care, and utilities. A shutoff notice is not required to receive funds for a utility emergency, although the family must be "without funds to pay for basic utilities."[174] DSHS stipulates the maximum amount which can be used for a particular need. According to the data in the *Consolidated Emergency Assistance Applications Needs Review with Authorization Comparison*, the maximum grant allowed by law is rarely, if ever, given out.

7.2.1.2 DSHS Statistics on Emergency Grant Money Spent on Utilities

Additional Requirements Emergent Needs: In 1992, DSHS spent $1,939,980 on emergency grants for client's emergent utility needs under the Additional Requirements Emergent Needs program. This represents 33 percent of all of the AR-EN money distributed in 1992. In 1991, the total dollars distributed for utility related emergencies under the Additional Requirements Emergent Needs program was $2,010,783; this represented 40 percent of all dollars distributed under Additional Requirements Emergent Needs. Table 7-8 below illustrates the dollars spent on utility-related crises by DSHS region.

Considering the range of emergency needs for which AN-ER can be used --to prevent an

171. DSHS, ***Manual F***, Chapter 61, 11.

172. DSHS, ***Income Assistance, Social Services, and Medical Assistance (Blue Book)***, at 68 (March 1993).

173. DSHS, ***Manual F***, Chapter 61, 16.

174. DSHS, ***Manual F***, Chapter 23, 25.

eviction; to move household members from an abusive situation; to provide emergency medical or dental needs-- the fact that, in three regions, utilities alone accounted for over forty percent of the dollars distributed shows that loss of home heat or impending loss of home heat is one of the most significant problems faced by households who obtain their income from entitlement programs. DSHS spent nearly $2 million dollars to address this need in 1992 and slightly over $2 million dollars in 1991.

Consolidated Emergency Assistance Program: The *Consolidated Emergency Assistance Applications Needs Review With Authorization Comparison* demonstrates the unmet energy needs of Washington's poorest working families. In order to be eligible for CEAP benefits, a household can earn no more than half of the AFDC need standard.[175] To meet these qualification standards, CEAP recipients are among Washington`s poorest residents.

For the first five months in 1993, the most recent statistics available, the average need was $123, while the maximum allowable benefit for a utility-related crisis ranged from $32 for a single person household to $98 for an eight person household. In 1992, the average need of a household receiving a CEAP grant for a utility related crisis was $110. According to the report, need varies by household size, particularly for households in the one to five person range.

175. DSHS, ***Manual F***, Chapter 23, 9.

TABLE 7-8. ADDITIONAL REQUIREMENTS GRANTS USED FOR UTILITY-RELATED CRISES BY DSHS REGION (1992)		
DSHS REGION	**DOLLARS USED FOR UTILITY-RELATED CRISES**	**DOLLARS SPENT ON UTILITY CRISIS AS PERCENT OF ALL AR-EN GRANTS IN REGION**
Region 1: **Adams** **Chelan** **Douglas** **Ferry** **Grant** **Lincoln** **Okanogan** **Pend Oreille** **Spokane** **Stevens** **Whitman**	$216,589	41%
Region 2: **Asotin** **Benton** **Columbia** **Franklin** **Garfield** **Kittitas** **Klickitat** **Walla Walla** **Yakima**	$181,258	42%
Region 3: **Island** **San Juan** **Skagit** **Snohomish** **Whatcom**	$147,858	32%
Region 4: **King**	$385,716	23%
Region 5:		

TABLE 7-8. ADDITIONAL REQUIREMENTS GRANTS USED FOR UTILITY-RELATED CRISES BY DSHS REGION (1992)		
DSHS REGION	**DOLLARS USED FOR UTILITY-RELATED CRISES**	**DOLLARS SPENT ON UTILITY CRISIS AS PERCENT OF ALL AR-EN GRANTS IN REGION**
Kitsap **Pierce**	$308,019	25%
Region 6: **Clallam** **Clark** **Cowlitz** **Grays Harbor** **Jefferson** **Lewis** **Mason** **Pacific** **Skamania** **Thurston** **Wahkiakum**	$700,540	47%

In 1992, DSHS distributed CEAP dollars to approximately 3,656 households for utility crises.[176] If each household was given the maximum grant, the amount of money distributed was approximately $212,183.[177] This leaves a minimum unmet need of $189,933 for these 3,656 low-income households. That is an average unmet utility related need of $52 for each household receiving CEAP utility assistance. The unmet need varies with household size, ranging from $33 for a one person household to $68 for a household of five.

As Table 7-9 indicates, households consisting of three to five members had the largest unmet needs, averaging nearly $70. The Table also reveals that, for reasons unknown, seven and eight person households had smaller needs and, therefore, had no unmet needs for utility crisis money. It should be noted, however, that these large households comprised fewer than 10% of all households receiving CEAP money for utility emergencies. Therefore, over 90% of the households in crisis who applied for a one-time CEAP grant received only a portion of the money they needed for utilities. Again, too, this analysis assumes that the *maximum* available grant was, in fact, provided in each case.

It should be emphasized that these clients also had large unmet needs for the other necessities for which they received CEAP money --food, clothing, shelter, and medical needs. For this one-time, one-month grant, families' total unmet needs ranged from $116 for a one person household to $387 for a family of eight.

Through the Consolidated Emergency Assistance Program and the Additional Requirements Emergent Needs grants, DSHS seeks to provide the basic necessities to families and individuals in crisis, though a very small percentage of Washington's poor qualify for these programs. Utility needs comprise a significant portion of these families' total needs. Despite the fact that the total expenditures for energy emergencies under these two programs was close to $2.5 million in 1992, the total emergency energy needs for these families was not met.

176. The number of CEAP clients served for January and February, 1992 was estimated, since DSHS could not provide statistics for those two months. The estimates were based on the average number of clients served in the succeeding ten months.

177. In the data received from DSHS, authorized grant amounts included funds for *all* needs, not just utilities.

TABLE 7-9. CONSOLIDATED EMERGENCY ASSISTANCE PROGRAM
UTILITY CRISIS ASSISTANCE[178]
(CLIENTS BY HOUSEHOLD SIZE\NEED\UNMET NEED)

	HOUSEHOLD SIZE								TOTALS
	1	2	3	4	5	6	7	8	
NUMBER OF HOUSEHOLDS RECEIVING UTILITY ASSISTANCE	143	653	959	763	524	270	167	178	3,656
TOTAL NEED	$9,300	$60,190	$112,104	$95,899	$71,150	$30,718	$12,695	$10,061	$402,116
MAXIMUM AUTHORIZED	$4,570	$26,112	$47,940	$45,029	$35,659	$20,790	$14,678	$17,405	$212,183
TOTAL UNMET NEED	$4,730	$34,078	$64,164	$50,870	$35,491	$9,928	$0	$0	$189,933
AVERAGE UNMET NEED	$33	$52	$67	$67	$68	$37	$0	$0	$52

178. Data compiled from DSHS report ***Consolidated Emergency Assistance Program***.

7.2.2 Community Services Block Grants

Community Service Block Grants (CSBG) are federal grants distributed through Community Action Agencies in Washington. A portion of Washington State's CSBG grant comes from the State's EAP/ECIP appropriation which by federal law may be transferred to the CSBG program.[179] Community Service Block Grants are intended to provide an array of anti-poverty programs to low-income people.[180] Some of these programs include Head Start, housing services for the homeless, and emergency assistance to people in economic crisis.[181]

Some Community Action Agencies utilize a portion of the CSBG emergency assistance funds for energy emergencies. As shown in Table 7-10, in 1992, twelve CAAs reported using $170,263 for energy emergencies.[182] This is a substantial increase from the prior two years.

TABLE 7-10. CSBG FUNDS UTILIZED FOR ENERGY EMERGENCIES 1990-1992[183]

YEAR	CSBG FUNDS USED FOR ENERGY EMERGENCIES	PEOPLE ASSISTED
1992	$170,263	45,939
1991	$102,471	57,000*
1990	$96,493	40,096*

NOTES:

* This number may not be an unduplicated number of individuals served

179. ***Washington State Plan for the Low-Income Home Energy Assistance Program 1992***, at 6 (1992).

180. National Association For State Community Services Programs, ***Community Services Block Grant Statistical Report 1990***, i.

181. *Id.*, at ii.

182. Personal communication, Paul Perz, Department of Community, Trade, and Economic Development.

183. Personal communication, Paul Perz, Department of Community, Trade and Economic Development.

7.2.3 Federal Emergency Management Act (FEMA)

Another federal crisis program which is used as a source for energy related crises is FEMA, though FEMA dollars account for a very small portion of supplemental fuel assistance dollars. Table 7-11 shows that the following agencies reported using FEMA funds for energy emergencies in 1992.

TABLE 7-11. WASHINGTON AGENCIES USING FEMA FUNDS FOR UTILITY EMERGENCIES (1992)

CITY	AGENCY	FEMA DOLLARS USED FOR ENERGY EMERGENCIES
Bremerton	Salvation Army	$2,500
Puyallap	Salvation Army	$9,000
Spokane	Spokane Neighborhood Action Program	$34,466

7.3 PRIVATE SUPPLEMENTAL FUEL ASSISTANCE FUNDS

Although EAP/ECIP is the primary source of fuel assistance for low-income Washington households -- providing over $17 million in assistance in 1993 -- several million additional dollars in fuel assistance are provided by other *private* programs, fuel funds and churches. Many of these funds are more restrictive than EAP/ECIP funds, being limited to recipients of certain social service programs, customers of particular utilities or members of specific churches. This research utilized surveys and telephone requests for information to gather information on these supplemental fuel assistance sources.

Each of the agencies which administers fuel assistance and/or weatherization funds were surveyed for this report. The agencies were asked what other funds they utilize for energy assistance, besides EAP/ECIP. Agencies were specifically asked if they administered any utility fuel fund dollars and if so, how much. Since each of the Community Action Agencies also administers Community Services Block Grant money, the agencies were also asked if any of this money was utilized for energy emergencies.

Although Community Action Agencies distribute the majority of fuel assistance dollars in Washington state, the Salvation Army also plays a significant role in the distribution of supplemental fuel assistance dollars. To a lesser extent, other local churches and church-based organizations provide supplemental fuel assistance to low-income households as well.

Surveys were sent to each of the Salvation Army Community Centers throughout Washington. In addition, an informal telephone survey was made of local churches and church-based organizations to assess the participation of each of these groups in the provision of supplemental fuel assistance.

7.3.1 Private Fuel Funds

7.3.1.1 Distribution and Source of Funds

Fuel funds in Washington represent one of the largest sources of private supplemental fuel assistance, providing more than one million dollars annually through at least seventeen utilities.[184] Though fuel funds are associated with, and administered in varying degrees by utilities, the funding comes primarily from the community and other utility customers. A 1990 study of fuel funds in Washington state found that 82 percent of all fuel fund dollars came from customer contributions, 11 percent from investor-owned utility company shareholders, three percent from utility company employees, and four percent from special events.[185]

In Washington state, EAP/ECIP agencies and Salvation Army Social Service Centers are the primary administrators of fuel fund dollars. Utilities generally disburse funds to these local agencies within their area or designate on agency which in turn disburse the fuel fund money to other local agencies.

Each of the EAP/ECIP agencies was surveyed and asked what fuel fund dollars they distribute. Twenty-two Community Action Agencies responded. Surveys were also provided to each of the twenty-seven Salvation Army Social Service Centers in Washington. Eleven responses were received from the Salvation Army Community Centers. Additional information was provided by the Salvation Army Northwest Divisional Headquarters, which disburses fuel fund dollars to each local community center.

Table 7-12 below presents the results of the Community Action Agency survey, the Salvation Army survey, and the information provided by the Salvation Army Divisional Headquarters. Blanks in the survey only indicate that no information was provided for that year, not that no fuel funds were administered by a particular agency during that year.

Funding from utility fuel funds is relatively stable. The difference in the 1992 and 1993 totals is largely attributable to having figures only through June 1993 and not having 1993

184. Department of Community Development, ***State of Washington Department of Community Development Fuel Fund Survey*** (1991).

185. Department of Community Development, ***State of Washington Department of Community Development Fuel Fund Survey*** (1991).

figures available yet for some large funding sources.

Each of the Salvation Army Community Centers was asked if their funding increased, decreased or remained stable over the past two years and over the past five years. Of the nine centers that responded to this question, four indicated that funding had remained stable over those two time periods. Three indicated a continual increase in funding. One community center said its funds had continually decreased and one community center wrote that it had had an increase in funds until this past year when its funding decreased.

7.3.1.2 Eligibility for Benefits from Fuel Funds

Fuel Funds are more restrictive than EAP/ECIP dollars in many respects. For example, most fuel fund dollars can only be given to customers of the utility that has collected the fuel fund dollars. Puget Sound Power and Light Company's fuel fund is one illustration. Fuel fund dollars contributed by customers of this company can only be used for energy assistance going to Puget Power customers. Two notable exceptions to this "customer only" restriction are the Washington Water Power and Pacific Power and Light fuel funds. These fuel funds are fuel blind, meaning that a household needing assistance and meeting the income eligibility criteria need not be a customer in order to receive assistance.

The availability of fuel blind sources is particularly crucial for low-income households that rely on fuels such as wood or fuel oil who would otherwise have fewer avenues for receiving energy assistance. Presently, however, electric and gas customers have more resources available to them than fuel oil, wood and propane users. In rare occasions, users of non-utility fuels have assistance available to them that is not available to utility customers. For example, two Community Action Agencies reported receiving wood donations valued at between $800 and $1000 last year.

In most cases households must have a shutoff notice in order to receive assistance from fuel funds. Additionally, households must have exhausted all other sources of federal fuel assistance, such as EAP/ECIP.[186] Though the wording of fuel fund eligibility requirements may lead one to believe that households must first receive

186. *See e.g.*, ***Washington Natural Gas Energy Assistance Funds***; *see also*, ***1993 Guidelines Puget Sound Power & Light Energy Assistance***.

TABLE 7-12 UTILITY FUEL FUND DOLLARS BY COUNTY				
COUNTY	**AGENCY**	**CITY**	**1992**	**1993***
Benton Franklin	Benton Franklin CAC	Pasco	$16,549	$7,266
Chelan Douglas	Chelan Douglas CAC		$14,751	
Clark	Clark County Department of Community Services	Vancouver	$83,978	$174,183
Cowlitz	Lower Columbia CAC	Longview	$201	$445
Ferry, Stevens, Pend Oreille	NEWRR	Colville	$22,717	$20,000
Grant	Grant County CAC	Moses Lake	$10,656	$22,129
Island	Salvation Army	Oak Harbor	$7,147	$5,550
Jefferson	Jefferson/Clallam CAC		$5,334	
King	Salvation Army	Vashon	$2,225	$1,350
	Salvation Army	Encumclaw	$3,915	$2,150
	Salvation Army	Seattle	$17,000	$37,700
	Salvation Army	Federal Way	$43,247	$40,300
	So. King Cty M.S.	Federal Way	$174,860	
	Salvation Army	White Center	$27,097	$32,850
	Salvation Army	Renton	$44,153	$56,750
	Salvation Army	No. Seattle	$10,600	$15,400
	Seattle DHHS	Seattle	$300,000	$275,000
	Salvation Army	Auburn	$18,531	$20,550
	Salvation Army	HFA	$1,400	$1,500
	Salvation Army	Kent	$21,665	$27,050
	Salvation Army		$17,078	$20,600
	Salvation Army	Bellvue	$46,869	$41,250
Kitsap	Kitsap CAP	Bremerton	$3,764	$12,482
	Salvation Army	Port Townsend	$5,431	$7,700
	Salvation Army	Bremerton	$20,125	$15,100

TABLE 7-12 UTILITY FUEL FUND DOLLARS BY COUNTY

COUNTY	AGENCY	CITY	1992	1993*
Kittitas	Salvation Army	Ellensburg		$600
Klickitat/Skamania	Klickitat Skamania	White Salmon	$50,173	$50,000
Lewis	Salvation Army	Winlock	$2,915	$2,150
	Salvation Army	Centralia	$11,000	$12,675
	CAC of Lewis, Mason & Thurston	Lacey	$11,631	$9990
Okanogan	Okanogan CAC	Okanogan	$977	$2,927
Pierce	Salvation Army	Puyallup	$39,125	$35,750
	Salvation Army	Tacoma	$52,252	$62,400
	Pierce Cty. CAC	Tacoma	$244,661	
Skagit	Salvation Army	Mt. Vernon	$12,062	$18,250
	Salvation Army	Anacortes	$3,665	$3,700
Snohomish	Salvation Army	Everett	$15,200	$27,780
Spokane	SNAP	Spokane	$174,774	$178,407
Thurston	Salvation Army	Olympia	$34,488	$29,050
	Salvation Army	Yelm	$6,915	$2,850
Walla Walla	Salvation Army	Walla Walla		$24,000
Whatcom	Salvation Army	Lynden	$5,715	$11,350
Whatcom	The Opportunity Council	Bellingham	$12,000	$10,000
	Salvation Army	Bellingham	$18,438	$13,700
Yakima	Salvation Army	Grandview		$1,255
TOTAL:			$1,642,674	$1,334,139*

NOTES:

* Funds expended as of June 1993.

EAP/ECIP and then receive fuel fund dollars, clients rarely receive assistance from both EAP/ECIP and a utility fuel fund. Generally, households receive assistance from fuel funds only after EAP/ECIP funds have been completely exhausted.

One instance where a household may receive fuel fund dollars *before* EAP/ECIP funds have run out, however, is when the household does not meet EAP/ECIP income eligibility standards, but does meet fuel fund eligibility standards. Several fuel funds, including Washington Natural Gas, Pacific Power and Light and Tacoma Public Utilities have set the income eligibility for receipt of fuel fund dollars at 150 percent of the federal Poverty Level, rather than 125 percent of the federal Poverty Level which is the income ceiling for receipt of EAP/ECIP funds in Washington state.

The maximum grant amounts for fuel funds range from $50 to $300, with the majority of fuel funds specifying $200 as the maximum.[187] According to the surveys, average grants are usually in the $100 range. The CTED fuel fund survey found that the statewide average grant in 1990 was $109.[188]

For households that qualify, fuel funds are a valuable source of supplemental fuel assistance. As Table 7-12 illustrates, approximately $1.5 million dollars has been distributed in each of the past two years. As with DSHS emergency grants, however, only certain low-income households have this avenue of relief available to them.

7.3.2 Churches and Other Private Sources

Various church groups across the Washington state were contacted to measure what type of assistance, if any, churches provide to people in need of energy assistance. The results of this sampling are not scientific, but indicate that churches and church-based organizations are a source of supplemental energy assistance, though the amount of funds available from these sources appears to be quite limited.

FISH Food Banks is affiliated with Associated Ministries in Pierce County. For the past several years, FISH has had a budget of $25,000 which has gone to helping families with utility or housing needs. In 1993, however, because of a dramatic rise in the number of families requesting food (10,500 people are fed a month), FISH was forced to discontinue its utility assistance in order to use the money in the utility/housing account to purchase food. Before utility/housing assistance was discontinued, in 1993, 33 households had been assisted with electric and gas bills for a total of $3,210. The maximum grant was $100.

187. Department of Community Development, ***HHS Leveraging Resource Report 1992***, at Table 1 (1992).

188. Department of Community Development, ***State of Washington Department of Community Development Fuel Fund Survey***, at 2 (1991).

The St. Vincent De Paul Center in Tacoma, a Catholic Social Service organization, has assisted 188 people with emergency energy needs through May 1993. A total of $89,199 was distributed for utilities and housing. This energy assistance is in addition to a several thousand dollar donation that the Tacoma St. Vincent De Paul Center gives to Project Need, Tacoma Public Utility's fuel fund. When asked if individual local Catholic Churches also assist people with energy needs, the St. Vincent De Paul Center representative stated that, because there is such a great need for food, most of the individual churches operate food banks. With all available resources being devoted to the provision of food, she explained, none remains for other needs.

One church group in Seattle contacted for this report confirmed that it *did* assist people with emergency energy needs. The organization's representative asked, however, that the church's name not be used since they have so many more requests for funding than funds available. This group worried that by having their name listed anywhere, phone calls might increase to such an extent that they would not even be able to handle the incoming phone calls.

A minister at a local church in Olympia, Westminster Presbyterian Church, said that their church makes substantial donations each year to Project Hand, a community group formerly sponsored by Associated Ministries of Thurston County. Project Hand, among other things, helps people with energy assistance. In addition to the donation to Project Hand, Westminster Presbyterian Church assists members and friends who need help with utilities or housing costs. Through June 1993, a total of $1500 was provided to members and friends for energy emergencies.

Some Salvation Army Churches, in addition to disbursing fuel fund dollars, helped families with energy needs through church donations. One Salvation Army that provided a figure for private donations reported that $900 was used for energy assistance through June 1993.

This informal survey indicates that churches seek to assist people in whatever way possible. However, the dollar amount of assistance provided is generally small, generally $50-$100. Frequently, assistance from individual churches is restricted to members of that church. However, the church-based coalition groups assist people irrespective of the needy household's religious affiliation.

7.3.3 Unmet Needs from Private Fuel Funds

Each of the agencies surveyed for this report was asked what their current energy assistance budget was and what they would need to meet all of the requests for assistance which they receive each year. The results set out in Table 7-13 show that a forty-eight percent increase in funding would be needed to meet all requests received by these private agencies.

7.4 SUMMARY AND CONCLUSIONS

EAP/ECIP is the most significant, but by no means the exclusive, energy assistance program in Washington state. In 1992, EAP/ECIP served 86,000 of the state's 275,000 income eligible households. The program was designed to cover 35 percent of the home energy bill for program participants. More households would have been served by EAP/ECIP, except income-eligible program applicants were turned away for lack of funds.

The income eligibility ceiling for EAP/ECIP offers little insight into the actual incomes of EAP/ECIP participants. In 1992, fourteen percent of all Washington EAP/ECIP participants had incomes of less than $2,000. Moreover, a *majority* of one and two person households receiving EAP/ECIP had incomes of less than $6,000.

The other major state funded public assistance programs providing energy assistance are the DSHS "Additional Requirements--Emergent Needs" (AR-EN) program and the Consolidated Emergency Assistance Program (CEAP). Despite the fact that total 1992 expenditures for energy emergencies was close to $2.5 million through these programs, the actual grants were less than half the identified needs for those households applying.

In addition to state-funded energy assistance, Washington state has substantial private fuel assistance as well. Fuel funds responding to information requests for this study reported assistance of more than $1.6 million in 1992. Moreover, churches and other private sources provide limited additional assistance. The need for these private supplemental assistance programs, however, is far bigger than the available resources. To adequately meet the demands that currently exist, the private fuel funds report, would require an increase in resources of nearly 50 percent.

TABLE 7-13. CURRENT PRIVATE FUEL FUND BUDGETS AND NECESSARY BUDGETS TO MEET DEMANDS FOR ASSISTANCE			
AGENCY	**CURRENT FUEL ASSISTANCE BUDGET**	**BUDGET NEEDED TO MEET ALL FUEL ASSISTANCE REQUESTS**	**PERCENT INCREASE NEEDED TO MEET ALL ELIGIBLE REQUESTS**
Salvation Army-Vancouver	$1,150	$7,500	85%
Salvation Army - Olympia	$29,550	$55,000	46%
Salvation Army - Grandview	$2,155	$4,200	49%
Klickitat Skamania Development Council	$124,966	$150,000	17%
Clallam Jefferson Community Action Agency	$353,000	$706,000	50%
Benton Franklin Community Action Agency	$459,896	$900,000	49%
Pierce County CAC	$966,405	$1,700,000	43%
So.King County Multi-Service Center	$1,051,232	$3,000,000	65%
Seattle DHHS	$2,442,000	$3,292,000	26%
Blue Mountain Action Council	$185,323	$350,000	47%
North East Washington Rural Resources	$231,652	$650,000	64%
Spokane Neighborhood Assistance Program	$1,811,987	$6,900,000	74%
Multi Service Center of North and East King County	$583,906	$650,000	10%
Kitsap CAA	$515,905	$650,000	21%
Clark Dept of Community Services	$673,057	$1,414,578	52%
The Opportunity Council	$482,526	$1,414,578	66%
Lower Columbia CAC	$155,304	$350,000	56%
AVERAGE INCREASE NEEDED TO SERVE ALL WHO APPLY:			48%

CHAPTER 8: WEATHERIZATION

Low-income weatherization assistance in Washington State is provided through several sources of funds. Federal and State dollars are combined with dollars provided through private utility programs to reach thousands of low-income households each year. Nonetheless, only a fraction of the total number of low-income units in Washington State have been weatherized[189] and a tremendous unmet need for energy efficiency improvements exists in the state.

8.1 SOURCES OF LOW-INCOME WEATHERIZATION DOLLARS

Low-income weatherization fund sources can be divided into two rough classifications. On the one hand, there are public funds provided through state and federal dollars. On the other hand there are private funds provided through a variety of utility programs. Public utilities such as the Bonneville Power Administration (BPA) and the various Public Utility Districts (PUDs) are defined as "private" sources of dollars for this purpose.

8.1.1 Public Funding

Public sources provided $72.8 million in low-income weatherization in Washington State from 1988 through 1993 and weatherized 30,799 homes. Sources of public funds include:

- Transfers from annual appropriations through the federal fuel assistance program administered by HHS;
- Direct appropriations through the federal Weatherization Assistance Program (WAP);
- Contributions to CTED from the Bonneville Power Administration;

189. Because of dramatic improvements in technology, homes weatherized in 1987 and before are not included in the "weatherized" total.

- o Direct appropriations through the State's "Energy Matchmakers" program;[190] and

- o Transfers from SLIAG, the State Legalized Immigrant Assistance Grant, some of which was used for weatherization in the late 1980s.

Annual CTED weatherization expenditures by fund source for the period 1988 - 1993 are set forth in Table 8-1.

8.1.2 Private Funding

Private funding for low-income weatherization in Washington State has come from two primary sources in recent years. First, there are funds from the Bonneville Power Administration (BPA), distributed through public power districts and municipal utilities.[191] In addition, there are the funds provided through the state's investor-owned utilities.

From 1988 through 1993, the Bonneville Power Administration provided from $1.8 to $4.8 million each year in low-income weatherization funds through the various PUDs and municipal utilities serving the State of Washington.[192] BPA's funds flowed through its low-income "Weatherwise Program." In total, as shown in Table 8-2 below, BPA provided $19.6 million in low-income weatherization during the six year period.

190. These "appropriations" include funds from the State's "oil overcharge" allocations and are thus not all general fund appropriations.

191. These funds are to be distinguished from the BPA dollars provided directly to the State of Washington. In addition, BPA reports that it contributed funds for the weatherization of 335 units through the U.S. Department of Housing and Urban Development (HUD) in 1988. These units are not further discussed.

192. These figures were obtained by taking the total BPA low-income budget and subtracting the funds BPA provided directly to the State of Washington.

Table 8-1
Washington State Weatherization Programs
Expenditure by Fund Source by Year (1992 - 1993)

CTED Program	1988	1989	1990	1991	1992	1993	Total
Wx Transfer from HHS	$4,081,283	$4,167,640	$4,159,163	$4,573,853	$4,070,787	$3,935,776	$24,988,502
DOE WAP	$1,842,183	$2,954,031	$2,997,960	$3,830,378	$3,401,547	$4,561,762	$18,587,861
BPA Wx	$721,610	$542,493	$415,487	$847,393	$1,244,686	$1,339,715	$5,111,384
SLIAG	$0	$127,305	$816,540	$294,000	$0	$0	$1,237,845
Energy Matchmakers							
Oil Overcharge	$4,324,923	$4,170,893	4,615,162	$2,477,508	$1,166,410	$2,040,294	$18,795,190
State Capital	$0	$0	$0	$0	$1,078,000	$3,050,000	$4,128,000
Totals	$10,969,999	$11,962,362	$13,004,312	$12,023,132	$10,961,430	$13,927,547	$72,848,782
Unduplicated Units Treated	4,664	5,246	5,346	4,779	5,115	5,649	30,799

Table 8-2 BPA Low-Income Weatherwise Program Expenditures (excluding State of Washington)						
1988	1989	1990	1991	1992	1993	Total
$2,867,787	$1,884,611	$2,384,535	$3,384,166	$4,262,234	$4,831,971	$19,615,304

According to the BPA, these dollars weatherized 15,252 homes from 1988 through 1993. The distribution of these homes by year is set forth in Table 8-3. BPA reports quite minimal duplication with units weatherized by Washington State.[193] According to CTED, there were 101 duplications from 1988 through 1993. BPA provided energy efficiency, therefore, to 15,151 unduplicated units.

Table 8-3 BPA Low-Income Weatherwise Program Units (excluding State of Washington)						
1988	1989	1990	1991	1992	1993	Total
2,737	2,094	2,172	2,985	3,622	1,642	15,252

In addition to these BPA dollars, the five investor-owned utilities serving Washington have operated low-income energy efficiency programs as well. These private utility energy efficiency programs, however, involve an almost complete duplication of units of homes weatherized by CTED. Three utilities --Washington Water Power, Cascade Gas and Washington Natural Gas-- report a complete duplication of units, while Pacific Power and Light reports a complete duplication except for the minimum number of units weatherized by non-Community Action Agency contractors delivering CTED weatherization services.[194] Puget Power reports that its "Housewarming" units for households at or below 125 percent of Poverty did not duplicate units served by CTED.[195] Efforts to obtain more data from Puget Power regarding its Housewarming units, however, were unsuccessful.

8.2 TOTAL NUMBER OF WASHINGTON WEATHERIZED HOMES

193. These funds are not necessarily "weatherization funds." They could go, for example, to fund lighting improvements, hot water improvements, and the like. Indeed, given the discussion below, it is safe to conclude that the utility programs funded non-weatherization improvements in units weatherized by CTED.

194. These non-CAA contractors include the Yakima Tribe and the Toppenish and Yakima Councils of Government.

195. The term "duplication," of course, means simply that the utility provided certain energy efficiency improvements to the unit while the State provided weatherization improvements.

There are roughly 275,000 households in Washington State who live at or below 125 percent of the federal Poverty Level. Of these households, roughly 46,000 (unduplicated) were weatherized through public and private funds from 1988 through 1993, as shown in Table 8-4. Washington State, therefore, has weatherized roughly 16.7 percent of its low-income homes, and, accordingly, has roughly 83.3 percent of its low-income homes yet to weatherize (275,131 - 45,950 = 229,181) (229,181/275,131 = 83.3 percent).

Table 8-4: Number of Households at or Below 125 Percent of Poverty Weatherized in Washington State (1988 - 1993)	
Total Households at or Below 125% of Poverty	275,131
Total Low-Income Households Weatherized	45,950
CTED units	30,799
BPA units (unduplicated)	15,151

One should hasten to note, however, that the unmet need for low-income energy efficiency is not *quite* this large. A portion of low-income households live in homes that have been constructed since 1986. According to the Northwest Power Planning Council (NWPPC), 1986 was the year in which building codes were enacted in Washington State sufficiently stringent to eliminate the need for subsequent treatment by energy efficiency programs (public or private).[196] Roughly 17,000 low-income households in Washington State live in units that have been constructed since 1986.[197]

In sum, therefore, of Washington State's 275,000 low-income population, 63,081 live in units that have either been (1) weatherized through public and private programs (45,950 units); or (2) constructed since 1986, when building codes were sufficiently strict to eliminate the need for subsequent weatherization (17,131 units). Washington State thus has energy efficient housing for 22.9 percent (63,081 units) of its households living at or below 125 percent of Poverty, and needs yet to weatherize 77.1 percent (212,050 units).

Given the unmet need identified above, the funding trends set forth in Table 8-1 above provide substantial cause for concern. Oil overcharge funds have provided $18.8 million of the $72.8 million (25.8%) in weatherization funding. Moreover, block transfers from the HHS fuel assistance program have provided $25.0 of the $72.8 million (34.3%) in the weatherization funding. Oil overcharge funds, however, have been depleted and it is uncertain whether the HHS fuel assistance program will continue to exist as a funded program, let alone a program funded at levels sufficient to

196. ***1991 Northwest Conservation and Electric Power Plan***, Volume II, Part 1, p. 220 (1991).

197. Data indicates that 20,558 low-income households live in units constructed since 1985. Assuming that an equal number of units were constructed each year (20,558/6 = 3,427), this number is reduced to 17,132 households living in units since 1986 (20,558 - 3,427 = 17,131).

permit block transfers to non-fuel-assistance purposes. Accordingly, nearly 60 percent of the public funding for low-income weatherization (25.8% + 34.3% = 60.1%) over the past six years is in serious jeopardy.

In addition, BPA has announced that it intends to substantially curtail, if not eliminate altogether, its energy efficiency funding, including its low-income programs. When combined with reductions in public funds, therefore, roughly 75 percent of the low-income weatherization activity is in future jeopardy due to depleted or withdrawn funding.

8.3 GEOGRAPHIC DISTRIBUTION OF WEATHERIZED HOMES

This section presents data on two related issues. First, the evaluation presents data on the number of low-income homes weatherized through CTED and BPA programs on a county-by-county basis.[198] Second, given the number of households living at or below 125 percent of Poverty in each county, this section compares the number of households which have been weatherized to the number of households who remain to be weatherized.[199]

The number of households living at or below 125 percent of the federal Poverty Level in each county is set forth in Table F-2, Part B (Appendix F) below. The number of households weatherized by county was obtained from CTED.[200] The number of units treated by BPA for each county was obtained by calculating the number of units treated by each PUD/municipal utility, assigning each utility to its appropriate county, and then summing all utilities in each county.[201] The number of units weatherized through CTED in each county by year for the period 1988 - 1993 is set forth in Table 8-5. Units weatherized through BPA in each county by year for that period is set forth in Table 8-6.

The sum of the results of this analysis are presented in Table 8-7. This Table includes four parts: (1) the number of low-income households at or below 125 percent of the federal Poverty Level by county; (2) the number of households weatherized by county; (3) the number of low-income households living in units that were constructed recently enough not to need weatherization (*i.e.*, post-1986); and (4) the number of low-income households remaining to be weatherized.

198. A geographic distribution of Puget Power units was not available.

199. As discussed above, homes constructed since 1986 are considered to be "weatherized."

200. Department of Communities and Development (DCD--now Department of Communities, Trade and Economic Development (CTED)), Housing Division, ***History of Weatherization Efforts: April 1988 -- October 1992*** (October 1993).

201. Bonnevile Power Administration, ***Residential Weatherization Detail Report for FY xx***, Bonnevile Power Administration: Portland, OR (for each year 1988 - 1993).

8.4 THE EXTENT OF THE SAVINGS

As of 1990, CTED estimated that each weatherized home was saving an average of 21.5 mmBtu per year.[202] This appears to be a prediction based on measures installed, rather than a monitored result.[203] As such, and given experience in the Pacific Northwest and elsewhere, this estimate seems high.[204] It appears that CTED might benefit from an organized monitoring program in order to more fully understand the impact that weatherization is having on the target population.

In light of estimated low-income heating consumption, the CTED estimate represents approximately 50 percent of the average low-income heating consumption per year. At 1990 prices utilized earlier in this report, these savings equal approximately $225 per household, or 27 percent of the average low-income energy bill each year. Based on 45,950 households having been weatherized between 1988 and 1993, Washington State thus experiences an annual savings of 988,000 mmBtu and $10.3 million from the CTED/BPA programs.

In contrast, there are approximately 212,050 homes that have not been weatherized, representing about 4.56 million mmBtus and $47.7 million in potential savings each year that are not being realized. If the CTED savings per household turn out to be high, these estimates will have to be scaled down accordingly.

In a study conducted for the CTED in 1990, it was estimated that it would cost an average of about $1,900 to weatherize each remaining low-income household that qualified for the WAP.[205] Given

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202. ***Washington State Low-Income Weatherization Assistance Plan, 1990***, at Exhibit E, Washington State Department of Community Development (March 1990).

203. In surveys completed for the current study, Community Action Agencies responsible for implementing weatherization programs at the local level indicated that most do not monitor actual savings. The few that have report average savings of *up to* half of the heating consumption. On the basis of a statewide average, this represents up to 21.5 mmBtu.

204. The prediction is in line with others performed in the region. *See* Oak Ridge National Laboratory, ***Evaluation of the Bonneville Power Administration Low Income Residential Weatherization Program***, at ii, (July 1988). Oak Ridge predicted savings of approximately 23.8 mmBtu/year. However, it should be noted that this study found only 36 percent (8.6 mmBtu) of the expected savings were actually realized.

The latest nationwide study on the DOE WAP has found a first-year savings averaging 16.4 mmBtu. *See* Oak Ridge National Laboratory, ***National Impacts of the Weatherization Assistance Program in Single Family and Small Multi-Family Dwellings***, ORNL/Con-326, at p.xxxv, (Draft: March 1993).

205. Institute for Public Policy and Management, University of Washington, ***Closing the Gap: Housing Needs in Washington State*** (October 1990) *cited in* ***Washington State Low Income Weatherization Assistance Plan, 1991***, at 3, Department of Community Development, (April 1991). This document cited 170,000 qualifying homes that could be weatherized for $322 million. $322 million / 170,000 = $1,894 each.

the estimated 212,050 households remaining to be weatherized, and assuming the WAP cost estimate is reasonable for all weatherization activities, providing weatherization to these units, without any increase in their numbers, would cost roughly $402 million.

Notwithstanding this cost, it also appears that these households will collectively save over $400 million in energy costs in just 8.4 years, making the weatherization a cost-justified investment.

As time passes, however, the number of homes qualifying for weatherization can be expected to increase, making it more difficult to finish the job. The number of units qualifying for weatherization can be expected to increase for two reasons. First, although new homes should be built to standards that make participation in weatherization unnecessary, low-income households generally cannot afford the newer, and thus more expensive, housing. Accordingly, many poor households are forced to live in older, sub-standard structures. Some of these structures currently may not be considered in need of weatherization, but due to deterioration of materials may qualify in the future. Second, some housing units may qualify for weatherization today, but are currently occupied by households that do not meet the income requirements for participation in low-income weatherization programs. As the units get even older, however, it is increasingly likely that they will be occupied by low-income households.

8.5 THE WEATHERIZATION PROGRAM IN 2000 AND BEYOND

At recent funding levels, it will take more than 40 years to complete the job of weatherizing the current stock of low-income housing.[206] This assumes that the per-household average cost will remain steady at $1,900. It also assumes that no more low-income households will be added to the pool during that time. Of course, neither of these assumptions is likely to hold true over the course of four decades.

Moreover, a complicating factor that is not considered in many analyses is the lifespan of the weatherization materials. For instance, caulking and weatherstripping tends to remain effective for about seven years. Once it has deteriorated, the energy savings provided tends to decrease. This tendency has been demonstrated in a number of studies which have shown savings in the first year to be higher than in subsequent years.[207] For this reason, it is necessary to revisit homes that have been

206. The average rate of weatherizing homes between 1988 and 1993 was 5,133 units per year. As cited above, CTED estimates a cost per unit of weatherizing all remaining low-income units of $1,900. 5,133 x $1,900 = $9.72 million per year. If the $400 million figure above is correct, $400 / $9.72 = 41.3 years.

207. *See e.g.* Brandis and Hossein Haeri, *The Persistence of Energy Savings Over Time: Two and Three Years After Participation in a Retrofit Program*, in ***Proceedings of the 1989 Energy Program Evaluation Conference***, Argonne National Laboratory, at 317 - 320 (1989); Gregory, *Durability of Fuel Savings for Single-Family Households: Ohio Home Weatherization Assistance Program (HWAP) Program Years 1985 and 1986*," *Id.*, at 67 - 71; Sumi and Coates, *Persistence of Energy Savings in Seattle City Light's Residential Weatherization Program*, *Id.*, at 311 - 316.

weatherized in order to maintain savings.[208] Because of the difficulty of including such factors in a projection model, this effect has been omitted. However, it should be kept in mind when discussing this issue.

The estimates provided above do not have to be self-fulfilling prophecies. For instance, increasing program spending to $20 million per year will result in weatherization of the currently identified low-income housing stock by the year 2013.

8.6 SUMMARY AND CONCLUSIONS

It is clear from the discussion above that the inefficiency of the built environment, particularly as it affects low-income households, is larger than the public resources now available to resolve the problem By the same token, failure to mitigate these inefficiencies will extract an even larger economic penalty. The reason is that the economy will lose $225 in energy savings for each year that a home is not weatherized to the current program standards. Since an estimated 212,050 qualifying homes are not weatherized, the Washington State economy annually loses an estimated energy savings of $47.7 million.

208. As discussed above, due to rule changes promulgated by DOE, homes weatherized by CTED prior to 1982 are already being revisited.

Table 8-5
CTED Weatherization By County By Year
(1988 - 1993)

County	1988	1989	1990	1991	1992	1993	Total
Adams	25	37	23	21	28	30	163
Asotin	43	58	52	40	41	53	287
Benton	59	46	89	64	56	71	386
Chelan	73	93	60	83	86	89	484
Clallam	51	57	38	66	61	61	335
Clark	96	157	76	5	203	117	654
Columbia	8	14	14	3	5	10	53
Cowlitz	105	127	197	85	48	127	689
Douglas	20	16	25	17	30	24	131
Ferry	20	18	52	10	8	24	132
Fanklin	41	34	34	43	70	49	271
Garfield	1	1	1	0	1	1	5
Grant	75	87	72	70	105	91	500
Grays Harbor	108	67	135	125	147	131	713
Island	31	17	34	46	38	38	204
Jefferson	29	38	45	5	42	35	194
King	1,191	1,536	1,445	1,018	1,253	1,442	7,885
Kitsap	152	164	144	183	176	184	1,004
Kittitas	42	45	43	26	72	51	279

Table 8-5
CTED Weatherization By County By Year
(1988 - 1993)

County	1988	1989	1990	1991	1992	1993	Total
Klickitat	40	54	48	33	42	49	266
Lewis	58	70	59	53	75	70	385
Lincoln	8	15	0	16	5	10	54
Mason	39	36	60	30	46	47	258
Okanogan	121	138	160	117	114	146	796
Pacific	35	52	32	23	48	42	233
Pend Oreille	42	49	44	25	69	51	279
Pierce	491	307	572	743	499	595	3,207
San Juan	43	0	76	94	10	52	274
Skagit	81	76	87	100	92	98	535
Skamania	15	16	16	14	19	18	97
Snohomish	322	333	286	400	390	389	2,121
Spokane	441	587	487	498	359	534	2,906
Stevens	53	59	93	34	44	64	347
Thurston	143	163	139	151	180	174	949
Wahkiakum	3	2	4	4	4	4	21
Walla Walla	81	65	113	117	54	98	528
Whatcom	78	121	19	40	176	95	529
Whitman	56	87	66	36	58	67	369
Yakima	344	406	406	343	357	417	2,274

Table 8-6
BPA Weatherization By County By Year
(1988 - 1993)

County	1988	1989	1990	1991	1992	1993	Total
Adams	9	2	1	3	2	25	42
Asotin	0	0	0	0	0	0	0
Benton	97	57	45	61	165	74	499
Chelan	0	0	0	0	0	0	0
Clallam	59	79	61	64	59	84	406
Clark	107	77	190	164	149	81	768
Columbia	0	0	0	1	0	0	1
Cowlitz	43	41	25	17	133	17	276
Douglas	0	0	0	0	0	0	0
Ferry	7	7	2	28	4	5	53
Fanklin	76	35	48	67	112	28	366
Garfield	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0
Grays Harbor	96	89	118	153	204	101	761
Island	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0
King	594	716	796	1,066	1,133	117	4,422
Kitsap	0	0	0	0	0	0	0
Kittitas	241	90	27	110	84	15	567

Table 8-6
BPA Weatherization By County By Year
(1988 - 1993)

County	1988	1989	1990	1991	1992	1993	Total
Klickitat	11	16	19	34	16	5	101
Lewis	41	40	43	55	148	148	475
Lincoln	0	0	0	0	0	0	0
Mason	35	22	72	36	34	93	292
Okanogan	5	9	18	20	8	6	66
Pacific	17	19	7	33	32	22	130
Pend Oreille	0	0	0	0	0	0	0
Pierce	400	196	176	260	197	154	1,383
San Juan	0	0	0	0	0	0	0
Skagit	0	0	0	0	0	0	0
Skamania	1	2	1	0	0	1	5
Snohomish	109	162	150	188	124	56	789
Spokane	48	13	43	91	15	9	219
Stevens	0	0	0	0	0	0	0
Thurston	0	0	0	0	0	0	0
Wahkiakum	3	0	0	1	0	0	4
Walla Walla	0	0	0	0	0	0	0
Whatcom	50	16	25	6	40	15	152
Whitman	0	0	0	0	0	0	0
Yakima	0	0	0	0	0	0	0

Table 8-7
Low-Income Homes Weatherized and Low-Income Homes Remaining to be Weatherized
By County (Washington State)

COUNTIES	Low-Income Homes	Public/Private Weatherized Units	Post-1985 Construction	Remaining be Weatherized
ADAMS	1,040	205	63	772
ASOTIN	1,678	287	101	1,290
BENTON	6,304	885	386	5,033
CHELAN	4,158	489	261	3,408
CLALLAM	4,200	741	222	3,237
CLARK	11,722	1,422	712	9,588
COLUMBIA	405	54	20	331
COWLITZ	5,611	3,065	353	2,193
DOUGLAS	1,615	131	92	1,392
FERRY	570	185	25	360
FRANKLIN	3,120	637	207	2,276
GARFIELD	156	5	7	144
GRANT	4,896	500	282	4,114
GRAYS HARBOR	5,800	1,474	337	3,989
ISLAND	2,342	204	126	2,012
JEFFERSON	1603	194	79	1,330
KING	66,943	12,307	4,514	50,122
KITSAP	8,874	1,004	542	7,328
KITTITAS	3,035	846	203	1,986

Table 8-7
Low-Income Homes Weatherized and Low-Income Homes Remaining to be Weatherized
By County (Washington State)

COUNTIES	Low-Income Homes	Public/Private Weatherized Units	Post-1985 Construction	Remaining be Weatherized
KLICKITAT	1,465	367	82	1,016
LEWIS	4,633	860	295	3,478
LINCOLN	644	54	31	559
MASON	2,534	550	129	1,855
OKANOGAN	3,589	862	182	2,545
PACIFIC	1,931	363	101	1,467
PEND OREILLE	856	279	45	532
PIERCE	32,604	4,590	2,101	25,913
SAN JUAN	496	274	22	200
SKAGIT	4,667	535	255	3,877
SKAMANIA	548	102	28	418
SNOHOMISH	16,085	2,910	971	12,204
SPOKANE	27,792	3,125	1,727	22,940
STEVENS	2,620	347	129	2,144
THURSTON	8,579	949	507	7,123
WAHKIAKUM	209	25	8	176
WALLA WALLA	3,768	528	246	2,994
WHATCOM	8,310	681	502	7,127
WHITMAN	4,009	369	292	3,348
YAKIMA	16,320	2,274	970	13,076

CHAPTER 9: ADDITIONAL DATA COLLECTION

This Chapter sets forth a series of recommendations regarding the collection of data on a systematic basis to facilitate ongoing assessment of the energy needs of low-income households in Washington state.[209] The Chapter should not be construed as a comprehensive discussion of everything that needs to be learned about low-income energy needs. The recommendations reflect a balancing of what data needs exist with the administrative feasibility of obtaining and maintaining such data.

With this introduction, the following recommendations are made:

9.1 FUEL OIL DATA COLLECTION

The biggest single area in which there is a lack of data is in the area of information regarding fuel oil consumption. Little or no data exists regarding the number of residential households generally who heat with fuel oil, let alone the number of low-income households. Moreover, no systematic data exists regarding geographically disaggregated prices for residential heating fuel oil. If these two data deficiencies could be overcome, many of the relatively precise calculations that are done for consumers of public utilities could also be done for fuel oil users as well.

Accordingly, two data maintenance efforts should be undertaken to remedy this data shortfall. First, CTED should request the Washington State Energy Office to provide a fuel oil demographic Table when that agency updates its publication *Washington State Energy Use Profile, 1960 - 1990* (July 1992). That update was scheduled for completion in 1994. Appendix A ("economic and demographic data") of the *Energy Use Profile* presents the total electric customers by sector (Table A1) and total natural gas customers by sector (Table A2). No similar data is presented for fuel oil customers. While WSEO would have no more data sources than the researchers for this report did from which to easily extract this data, WSEO

209. A discussion of the data sources actually used in this report, as well as data problems and discrepancies, can be found at Appendix N, *infra*.

might commission the necessary study to develop such a fuel oil data base.

Second, CTED should undertake a periodic collection of fuel oil prices offered to residential consumers. A requirement for reporting such prices during the winter heating season could easily be made part of the EAP/ECIP vendor contract each year. Prices should be collected on a monthly basis from August through the heating season. More important than the average price over the course of the entire heating season is the price *per month* over the course of the heating season. A 1992 study in Connecticut found data for federal fuel assistance clients indicating that the price per month for households during the 1990 - 1991 heating season varied by up to 30 percent:[210]

NOVEMBER	$1.31
DECEMBER	$1.27
JANUARY	$1.25
FEBRUARY	$1.19
MARCH	$1.10
APRIL	$1.05

As importantly as prices during the heating season were prices over the course of the months immediately preceding the heating season, the Connecticut study found. That study concluded that it is clear that retail fuel oil prices are generally the lowest during the month of August. August retail prices have been the lowest monthly price in five of the eight years since 1984-1985, including the last three years in a row.[211] In 1984-1985, September was the least expensive month while in 1987-1988, July was the least expensive month.

A comparison of the August fuel prices to the average price that prevailed during the months of November and December is set out below for Connecticut:

210. Colton, R., ***Filling the Gaps: Financing Low-Income Energy Assistance in Connecticut***, at 54 (Sept. 1992).

211. The years in which August was the lowest priced month include 1985-1986, 1986-1987, 1989-1990, 1990-1991 and 1991-1992.

	AUGUST	NOVEMBER	DECEMBER	LOW MONTH
1984/1985	$1.098	$1.090	$1.089	Sept.
1985/1986	$1.012	$1.100	$1.147	Aug.
1986/1987	$0.693	$0.707	$0.724	Aug.
1987/1988	$0.847	$0.881	$0.877	July
1988/1989	$0.840	$0.809	$0.831	Nov.
1989/1990	$0.872	$0.924	$0.947	Aug.
1990/1991	$0.897	$1.328	$1.317	Aug.
1991/1992	$0.937	$1.018	$1.030	Aug.

Washington state does not collect similar data. It should undertake to do so.[212]

9.2 PRIVATE FUEL FUND BENEFITS

A second area where data collection needs to be systematized is the quantification of benefits provided by private fuel funds. While this study certainly made an initial effort to identify those institutions providing private sources of supplemental fuel assistance, it became clear that a comprehensive study would require data collection over time. Survey responses were obtained from a sizable *portion* of the institutions providing private supplemental fuel assistance, but by no means from the entire population of private fuel assistance providers. Moreover, the size of the contract for this report did not allow for the individualized personal contact necessary to develop the relationships necessary to coax information out of private benefit providers.

If CTED were to institutionalize a data collection effort along these lines, perhaps over a few years, CTED would develop a comprehensive data base regarding private fuel fund suppliers. The data to be collected from such funds would include items such as that set forth in the survey instrument set forth in Appendix L.

9.3 UNSERVED EAP/ECIP POPULATION

CTED should systematize data collection on the number of households the state EAP/ECIP program fails to serve due to insufficient funds. As Chapter 7 states above, it is difficult to quantify the number of eligible households who seek energy or emergency assistance in

212. The collection and publication of fuel oil prices, also, might generate increased competition for LIHEAP customers. Thus, in addition to the data keeping advantages, there may be immediate direct advantages to LIHEAP clients as well.

Washington state, but who are denied benefits due to insufficient funds. Many of the agencies distributing EAP/ECIP funds simply stop taking applications once funds run out. In other instances, agencies use a tape-recorded message saying there are no funds remaining. In these circumstances, it is not possible even to track telephone inquiries once the agency stops accepting applications. Nonetheless, Chapter 7 states, despite this inability to ascertain the precise number of households denied benefits due to insufficient funds, it is possible to conclude that the number is substantial.

It should not be difficult for CTED to develop a system through which local EAP/ECIP subgrantees can track the "number of eligible households who seek energy or emergency assistance* * *but who are denied benefits due to insufficient funds." Such data collection might serve to support a number of efforts to expand public and private assistance programs for the state's poor. Moreover, such data collection would help support the conclusion that Washington's EAP/ECIP agency is *not* "making do" despite cutbacks in federal EAP/ECIP appropriations.

9.4 WEATHERIZATION EFFORTS

CTED should adopt systematized data collection efforts on two aspects of low-income weatherization programs. On the one hand, CTED should undertake ongoing data collection regarding low-income weatherization performed outside the realm of the federally-funded Weatherization Assistance Program (WAP). At present, there is no available estimate of homes weatherized outside of CTED's programs. While, as Chapter 8 indicates, a number of utility-financed programs exist, no current estimate exists at those companies, or elsewhere, of how many low-income homes are being reached by those programs. To request the WUTC to formally or informally adopt reporting requirements for each utility regarding low-income households weatherized to the standards of CTED programs would not seem an unreasonable action.

On the other hand, CTED should adopt increased data collection for its own programs as well. As Chapter 8 indicates, CTED's own estimate of the savings attributable to its WAP efforts appears to be a prediction based on measures installed, rather than a monitored result. The research results reported in Chapter 8 indicate that CTED's estimates may be substantially too high. Accordingly, CTED should organize a monitoring program in order to more fully understand the impact the WAP is having on the target population.

9.5 HEALTH AND SAFETY PROBLEMS ASSOCIATED WITH INABILITY-TO-PAY

As Chapter 2 discusses, little or no information exists regarding the health and safety aspects of being poor. What *is* known is disturbing. Data shows, for example, that 13 percent of the households losing heat generated heat by using either a portable electric or a portable propane heater. Households which experienced loss of home heat between April and November were more likely to respond that they used a fireplace or portable electric heater. Home heating equipment is the leading cause of all residential fires. While space heaters account for only a small number of them, residential fires caused by electric space heaters are five times more likely to result in a fatality than the average house fire, and ten times more likely to result in a fatality than all fires. Death rates due to fires caused by portable heaters are greatest in children and the elderly.[213]

Chapter 2 cited one study, also, as finding that the dangerous tradeoffs between health and energy affect not only the vulnerable elderly, but young children as well. This study of 7,367 children, done by Boston City Hospital, found that "the number of malnourished, low-weight children jumped dramatically following the coldest winter months."[214]

Finally, loss of a household's primary heat source presents serious risks both in terms of the cold as well as the dangerous side effects such as carbon monoxide poisoning resulting from using unsafe heating sources. According to the National Center for Heath Statistics, approximately 60,000 lives are lost annually by problems associated with cold weather including fires, carbon monoxide poisoning, pneumonia, influenza and other infectious diseases and, of course, hypothermia."[215] Hypothermia is a more serious danger than people are commonly aware, particularly for the elderly. Over 2.5 million older Americans are at risk of developing hypothermia during the winter season each year according to the National Institute on Aging.[216]

While these national statistics are available, no similar data exists at the statewide level in Washington state. Efforts by CTED to work with state, county and local health officials, fire officials, hospitals and the like to develop a data base regarding the adverse impacts of cold weather on the poor would be appropriate.

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213. ***Deadly Cold***, at 9.

214. Diego Ribadeneira, "BCH Study Illustrates Poor's Painful Choice," ***The Boston Globe***, at 1 (Sept. 8, 1992).

215. Select Committee on Aging, House of Representatives, ***Deadly Cold: Health Hazards Due to Cold Weather***, at 2 (1984).

216. *Id.*

9.6 IMPACT OF DIFFERING POVERTY STANDARDS

As Chapter 2 indicates, differing definitions of "being poor" yield substantially different pictures of the extent and seriousness of poverty in Washington state. The definition of "poor" dramatically affects the number of households found to be poor in Washington state. Using the federal Poverty Level as the definition of poor yields 235,169 (13%) of the state's households as being low-income. Use of 125 percent of Poverty reveals 316,304 households as being "poor." Use of the Washington payment standard reveals 107,806 (6%) and the Washington need standard as 248,022 (13%). HUD shows more households to be poor, with the HUD "very low income" standard revealing 416,904 (22%) as poor and the "lower income" standard yielding 732,273 (39%) of the state's households as poor.

Moreover, as Chapter 2 indicates, for a variety of reasons, the generally accepted definition of "poor," the federal Poverty Level or some multiple thereof, is an inappropriate measure of low-income status.

Despite the inappropriateness of the use of the federal Poverty Level as a measure of "being poor," both EAP/ECIP and WAP rely upon the Poverty Level as an eligibility guideline.[217] CTED should systematically collect data not only on the extent to which its EAP/ECIP and WAP population compare to the Poverty Level, but on how its EAP/ECIP and WAP population compare to other generally accepted standards of "being poor" as well. Quantification of the extent to which EAP/ECIP and WAP are inadequately serving the poor of Washington state is substantially understated unless data based on these other indicators of poverty are systematically maintained.

9.7 DATA ON PHA UTILITY ALLOWANCES

CTED should systematically collect data on Public Housing Authority (PHA) utility allowances. As Appendix O indicates, while EAP/ECIP may serve a larger number of low-income households in Washington state, PHA utility allowances provide a far larger amount of low-income energy benefits (in dollars) to the poor of Washington state.

Nonetheless, data on PHA utility allowances was virtually impossible to collect. Despite the outstanding assistance provided by Kenny Pittman of the Washington legislature, and Curt Creager of the Vancouver Housing Authority (and president of the Association of Washington Housing Authorities), much information that should have been readily available was not obtained.

Data for the Appendix on utility allowances was solicited through two sources. First, a written request for limited information was submitted to each PHA in the state seeking

217. Because of this use, this was the standard adopted for this report, also, for measuring "low-income."

specific information as to utility allowances as well as the number of Section 8 and Public Housing units. This written request for information was followed up by a telephone call to those PHAs that did not respond. The request for information to Washington's PHAs was generally met with active resistance. For example, Mr. Robert Barrett of the Kennewick Housing Authority responded to the telephone follow-up by stating that he "threw away" the request. Similarly, Mr. Merrill Wallace of the Bremerton Public Housing Authority informed researchers that the requested information was "not public information" and was "none of your damn business."

Given the failure to obtain information from the PHAs, researchers for this report subsequently sought detailed information directly from the U.S. Department of Housing and Urban Development. Following established HUD procedures, a Freedom of Information Act (FOIA) request was submitted to HUD on July 6, 1993, seeking information about Washington state's Public Housing Authorities. On July 23, 1993, HUD provided limited information about some of the PHAs for whom information was sought, but indicated in general that the requested information was not maintained by HUD and would instead need to be obtained from the local PHAs. In a follow-up phone call to HUD on September 2, 1993, Mr. Harlan Stewart, Director, Public Housing Management Division, said that HUD had copied "everything we had."

Public Housing Authorities complete standard forms regarding energy consumption within the respective developments maintained by each PHA. CTED should seek to systematize collection and maintenance of these standard forms on a regular basis. Among the forms that CTED should ask each PHA to submit to CTED regarding both public housing and Section 8 housing where appropriate are: (1) the PHA's schedule of Public Housing and Section 8 housing utility allowances for electricity, natural gas and other home energy (both heating and non-heating); (2) Form HUD-51466A (electricity data); (3) Form HUD-51466B (gas data); (4) Form HUD-51466C (water and sewage disposal data); (5) the number of Public Housing Authority units within each Housing Authority that are: (a) individually metered (tenant paid); (b) master metered (and *not* check-metered); and (c) check-metered; and (6) the reporting form indicating the number of surcharges for excess consumption, which excess consumption was determined by a check-meter.

9.8 NON-TRADITIONAL POPULATIONS

As Chapter 4 discusses, not all low-income persons live in "traditional" housing units. To limit a discussion of low-income energy needs to those traditional households, therefore, would substantially misstate the impacts of inability-to-pay. CTED should systematize its collection of data regarding the energy needs of these non-traditional housing units. This data collection should include the percentage of the shelter's budget devoted to paying energy bills;[218] the need for energy audits in particular shelters; the extent to which audits

218. Care must be made to distinguish the program's budget from the budget for the particular shelter.

have been completed, either by government or by the local public utility; the extent to which there is energy inefficiency existent in the shelter; and the population and demographics served by the shelters.

9.9 LOW-INCOME HOUSING DEVELOPMENTS

Institutions involved with the development of low-income housing find several obstacles to the aggressive inclusion of energy efficiency measures within their efforts. Perhaps the most significant obstacle is the "over-improvement" of the properties in the first instance. This "over-improvement" is significant for those seeking additional debt with which to finance energy efficiency measures, even if such measures are cost-effective over the lifetime of the project.[219] In those instances where a housing developer has borrowed at or in excess of traditional loan-to-value ratios, additional debt most often will *not* be provided for energy efficiency measures.[220] The appraisal process applies to both rental and for-sale housing. When a house in a low-income neighborhood is purchased and rehabilitated, from a market standpoint, it is "almost always" over-improved. A property purchased for $15,000 and improved with $35,000 might receive a maximum appraisal of $25,000.

In this regard, traditional lenders view investments in energy efficiency as additional capital investments, while not taking into account the reduced operating costs that arise as a result of the energy savings (and thus reduced bills). Moreover, according to a recent presentation by William Duncan of the Enterprise Foundation,[221] nonprofit developers experience a "significant crunch" between housing development costs and the "affordability factor." Developers, Duncan said, "are forced to make trade-offs, reduce fees, and take other measures to keep their housing affordable." Examples of these trade-offs, he said, are design standards attached by financing sources and regulations controlling the use of lead-based paints.

Finally, low-income housing developers face the inability to obtain financing for energy efficiency improvements. A lack of relevant investment expertise is one factor that prevents adequate private capital from flowing to small business incubation and energy conservation Most banks, one researcher notes, "have had little experience in making loans for energy efficiency equipment and are not familiar with how energy efficiency equipment works or how it relates to the overall operation of a facility."

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219. Cost-effective means simply that the life-cycle benefits from the energy efficiency improvements on a net present value basis exceed the life-cycle costs.

220. Virtually every housing development experiences this situation. This is one reason why "soft dollars" (such as local CDBG dollars and the like) are so essential to make low-income developments financially viable in the first instance.

221. Duncan is Director of the Enterprise Foundation's Rehabilitation Work Group.

Lack of an established track record in producing results is a second factor that has been cited as interfering with the generation of adequate capital for energy conservation. This lack generates a skepticism, sometimes deservedly so, regarding the projected results. Accordingly, banks are generally unwilling to rely upon the stream of energy savings as a source of loan repayment. Articulated problems include the difficulty in measuring the savings as well as the unreliability of the savings projections. In response to efforts to generate bank financing for one shared savings project, one bank refused even an insurance policy that would have insured the estimated energy savings that would have been realized for the transaction.

A final barrier to bank financing of energy conservation equipment includes the lack of generally accepted collateral for the loan. The energy conservation measures themselves are infrequently of sufficient value to secure a bank loan. Moreover, even if the measures are sufficiently valuable, banks have posited that such measures are ill-suited to be collateral for a loan since the removal of energy conservation measures is both difficult and expensive. Moreover, there is a lack of a readily identified secondary market for such measures, even if removed. When coupled with the unwillingness of banks to rely upon the projected energy savings as a source of repayment, this barrier is fatal to many banking transactions.

The situation identified above can be summarized as two problems: first, there is the inability to receive additional debt financing through traditional lenders, even for cost-effective energy efficiency improvements. Second, there is the unwillingness[222] of lenders to account for energy savings in their underwriting criteria. CTED should systematize its collection of data on both aspects of this problem.

Amongst the data to be collected by CTED in this regard is the number of units of low-income housing being developed/financed in Washington state and by whom; the energy efficiency of each of those units, including an examination of appliances, envelope measures, and lighting and other electrical usage; the financial institutions providing funding for these projects, and the manner in which the underwriting criteria for those institutions consider energy efficiency improvements, if at all; and the extent to which, if at all, developers are facing the problems identified above, including an inability to meet loan-to-value requirements, an inability to finance energy efficiency in light of more pressing regulatory requirements, and the like.

9.10 ENERGY AND HOMELESSNESS/HOUSING ABANDONMENTS

CTED should systematically collect data on the connection between energy payment

222. To say "unwillingness" may unfairly imply a misfeasance. These traditional lenders operate under regulatory guidelines that may restrict their discretion on such matters.

problems and homelessness. CTED should also collect data on the connection between energy payment problems and housing abandonment. While other states have such information, no data appears to exist at either the state or local levels in Washington on these issues.

The connection between the loss of home energy and homelessness or housing abandonment has been established in other locations. For example, utility terminations are "clearly a precipitating factor in housing abandonment," recent research in Philadelphia has found. According to a joint study by the Philadelphia Energy Coordinating Agency and Temple University's Institute for Public Policy Studies (ECA/IPPS), over five years, an average of 32 percent of the homes of residential electric customers in that city became abandoned within one year following termination. (The average percentage was found to be slightly lower for gas terminations: 22.4 percent.)[223]

The ECA/IPPS study concluded:

> The evidence linking utility terminations to abandonment is strong, consistent over a five year period and across two utilities, gas and electric. The utility survey results in Philadelphia suggests a stronger relationship between the loss of electric service than of gas. The evidence also suggests that the percentage of units which have experienced termination and become vacant increases over time."

Moreover, the loss of home heating has been causally related to homelessness. The Philadelphia research found that "the relationship between termination and homelessness is also clearly discernible." Surveys of homeless persons and emergency shelter providers across Pennsylvania, ECA/IPPS said, "have found the loss of utility service to be a minor, but consistent contributor to homelessness. Among the dominant housing related reasons for homelessness, utility terminations were cited as the cause 7.9% of the time." High energy prices "also undoubtedly contribute to the other, more frequently cited housing related reasons for homelessness," ECA/IPPS said, "such as `lack of housing in income range,' and `eviction for nonpayment.'"

This Philadelphia research is confirmed by research by the Northern Kentucky Coalition for the Homeless, which found in a recent study that the disconnection of utility service was one of the reasons consistently cited as a cause of homelessness.[224]

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223. Energy Coordinating Committee and Institute for Public Policy Studies of Temple University, ***An Examination of the Relationship Between Utility Terminations, Housing Abandonment and Homelessness*** (June 1991).

224. Northern Kentucky Coalition for the Homeless (with technical assistance by Applied Information Resources, ***Homelessness and Low-Cost Housing in Northern Kentucky: An Analysis and a Strategic Action Plan*** (July 1990).

CTED should systematize the collection of similar data. Research designs for such data collection are available through the Kentucky and Philadelphia studies.

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APPENDIX A: DIFFERING POVERTY STANDARDS IN WASHINGTON STATE

This Appendix seeks to expand the picture of the condition of the poor in Washington State beyond that picture that was presented in Chapter 2. Since the focus of this Report is on the various state energy assistance programs, Chapter 2 was rightfully limited to an examination of households who live at or below the eligibility guidelines for those programs. Eligibility has been set at 125 percent of the federal Poverty Level.

Readers of this Report, however, should not believe that only households living at or below 125 percent of the federal Poverty Level are "poor." That would represent a grave misjustice both to those households and to the policymakers who must seek to help those households maintain their home heating.[225] The primary purposes of this Appendix, therefore, are two-fold:

1. To consider the problems of the poverty thresholds used by policymakers to gauge the conditions facing low-income populations, and to determine the impacts on the quantification of "low-income" if other, equally acceptable, definitions of "low-income" were to be used; and

2. To present a brief profile of these other low-income populations that were *not* considered above.

This Appendix is organized into three parts. The first is a discussion of problems with the statistical measures currently in wide use to classify who is poor and who is not. The second presents data which paint a statistical picture of the state's low-income population using the various definitions of "low-income" as the guide, *not* including 125 percent of Poverty.

The third discusses the changing condition of the poor over time, including a review of the impact of state funding levels relative to state determined need, and the ability of the poor to make up the difference. Due to data limitations, in other words, this Report presents a "snapshot" in time of Washington State's low-income population. Readers, however, should at least be aware of the dynamic, changing nature of poverty and income distribution.

PROBLEMS WITH USING THE POVERTY LEVEL TO DEFINE WHO IS POOR

Of the various standards that have been developed to define what poverty is, and to determine who the poor are, the one most frequently cited is the federal Poverty Level. The

225. For instance, the federal LIHEAP statute sets maximum eligibility for LIHEAP at either 150 percent of the federal Poverty Level or 60 percent of a state's median income. *Actual* state decisions regarding eligibility guidelines are largely budget-driven. As budgets decrease, eligibility tends to shrink not because fewer households are "low-income," but rather because fewer resources are available to meet the need. For LIHEAP, state budgets are largely dependent upon federal appropriations by Congress.

Poverty Level (or some multiple of it) is used as an eligibility marker or point of reference by most state and federal agencies to determine income eligibility for public benefits programs. The substantial weight placed on the Poverty Level as an eligibility standard makes the history of its development of some interest.

Whatever its initial legitimacy, the federal Poverty Level is no longer an adequate mechanism to define who is "poor" in Washington State.

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.[226] In 1969 the basic procedure was changed, and thereafter the previous year's figure was simply increased by the amount of the CPI without further reference to the 3:1 formula.[227] 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.[228] In Washington State, for example, DSHS Division of Income Assistance calculations show that 48 percent of its "Need Standard" is associated with rent and utilities, and only 29 percent is associated with food. Were food used as the basis for establishing the "Needs Standard," therefore, that standard would be set at $963, three times the allowed $321 per month for food. The result would be that Washington State households would receive a total of $162 *less* than the amount calculated by the Division as required ($1,125 - $963 = $162), and only 85 percent of the actual Need Standard of $1,125 ($963 / $1,125 = 0.85).[229]

In addition, the standard used to determine the cost of food has been subject to criticism from the beginning. The federal government used as its standard USDA's "Economy Food Plan." This plan represents the minimum amount of money needed for subsistence on a temporary or emergency basis when funds are low.[230] By contrast, the U.S. Department of Agriculture

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226. *See*, Committee on Ways and Means, ***Overview of Entitlement Programs: 1991 Green Book***, at 1132ff (May 1991); *see also*, Women for Economic Justice, ***Beyond Growth, The Underside of the Economic Miracle in Massachusetts***, at 1 (1987).

227. Committee on Ways and Means, ***Overview of Entitlement Programs: 1991 Green Book***, at 1133 (May 1991).

228. *Id.*

229. Division of Income Assistance, ***Annual Program Briefing Book, FY 1992***, at 94 (December 1992).

230. U.S. Department of Labor, Bureau of Labor Statistic, ***Three Standards of Living for an Urban Family of Four Persons***, at 9, Bulletin No. 1570-5 (1969).

has also defined a "Low Cost Food Plan" which the Department defines in terms of the minimum amount of money needed to provide a nutritionally adequate diet on a consistent basis.[231] Since the Poverty Level represents annual income, it would be more sensible to base the Poverty Level on the USDA's Low Cost Food Plan which provides adequate nutrition, rather than on a plan which is *not* nutritionally adequate and is designed to be used on a temporary emergency basis only.

The recognition that the Poverty Level does not provide an adequate standard for determining who *is* poor and who is *not* poor is evident in the income eligibility criteria set forth by both state and federal agencies for means-tested public benefits programs. Agencies seeking to set income eligibility limits for benefits often use either some multiple of the Poverty Level, or some other standard entirely (*see* Table A-1). In fact, programs such as Women, Infants, and Children (WIC) and Healthy Start have income levels that allow eligibility for people who are up to 185 percent and 200 percent of the Poverty Level. Table A-1 illustrates the spectrum of eligibility standards for various federal and state public assistance programs.

THE SIGNIFICANCE OF DEFINING "POOR" USING THE DIFFERENT STANDARDS

In addition to the 125 percent of Poverty that is discussed in the body of this Report, four additional standards are examined below:

- **The Washington "need standard":** Prepared under federal mandate, this standard sets forth in dollar terms what level of income is necessary for AFDC recipients to live a "minimum but adequate" quality of life.

- **The Washington "payment standard":** The Washington State Payment Standard is the maximum AFDC benefit payable to a family regardless of their income or need. The Payment Standard in 1989 was only 57 percent of the Need Standard that the Department also calculates,[232] and only 59 percent of the federal Poverty Level.[233] The Washington State Payment Standard is generally less than half of the HUD "Very Low Income" standard and less than a third of the HUD "Lower Income Limit."

231. *Id.*

232. The ratio of payment standard to need standard has continued to decline since 1989, with the 1993 payment figure at only 48.5% of the need standard. Division of Income Assistance, ***Annual Briefing Book, FY 1992***, at 92 (December 1992).

233. The federal Poverty Level is uniform in the 48 continental states, with variations allowed only for the cases of Hawaii and Alaska.

The U.S. Department of Housing and Urban Development (HUD) prepares and updates on an annual basis both a "Lower Income" and a "Very Low Income" eligibility standard for use in conjunction with the projects it sponsors.[234] Both of these standards are calculated on a county-by-county basis and are revised annually.

- **The HUD "Very Low-Income Limit":** The "very low-income standard" refers to all households in a county who live at or below 50 percent of the county's median income.[235]

- **The HUD "Lower Income Limit":** The "low-income standard" refers to all households who live above 50 percent of the county median income, but at or below 80 percent.[236]

HUD can decide to increase the incomes eligible to qualify as either "low-income" or "very low-income" if specified local conditions, such as unusual area income levels, prevailing construction costs, fair market rents, and the like justify such a variation.[237]

The choice of standards to use can make a substantial difference both in defining the number of households who are "poor" in any particular county, and in defining the average incomes that those households have to meet basic living expenses. It is to those observations that we now turn.

The Number of Low-Income Households

Table A-2 presents the difference in the numbers of households deemed to be "poor" using the different definitions of "low-income." As one can see, the very low Washington Payment Standard shows only 409 families qualifying in, for example, Adams County. Under the Washington State Need Standard, more than double this number (850) would qualify. Under the Poverty Level, 800 would qualify, while under 125 percent of the Poverty Level, 1,106. Move, however, to the HUD "Very Low Income" standard and the number rises to 1,164 households; move to the HUD "Lower Income" standard and the number is 1,917 households.

Looking at the State as a whole, if the Washington State Payment Standard is used as the

234. *See e.g.*, 24 ***C.F.R.*** §91.5 (1992).

235. "Very low-income" is a term-of-art established by HUD. It has a defined meaning. *See*, 24 ***C.F.R.*** §91.5 (1994).

236. "Lower income" is a term-of-art established by HUD. It has a defined meaning. *See*, 24 ***C.F.R.*** §91.5 (1994).

237. 24 ***C.F.R.*** §91.5 (1994).

gauge, only six percent (6%) of Washington's households are "low-income." Using the Washington State Need Standard, or the Poverty Level, however, more than double (13 percent) of the households are "low-income." The other standards yield similar results:

125 percent of Poverty Level; 17 percent

HUD "Very Low Income" level: 22 percent

HUD "Lower Income" level: 39 percent

Varying Levels of Household Income

Table A-3 presents income data on each of the five poverty standards (each based on a three person household).[238] In order to focus on a strong data year, all the standards considered in Table A-3 are centered on 1989. Across the board, the "low-income" population defined by the Washington Payment Standard is much worse off than any other standard. Even the households defined as low-income under Need Standard, however, fall at roughly two-thirds HUD's Very Low-Income limit. The Washington Need Standard averages from $2,000 to $4,000 less than the Very Low-Income limit.

Moreover, when looking at these various standards there is a tendency to assume incorrectly that all households are *at* the standard. So, for example, if the federal poverty standard for a family of three in 1989 was $10,056, and we are told that 400 families are living in poverty relative to the federal poverty guidelines, there is a natural tendency to think that all 400 families have incomes at or close to $10,056.

Table A-4 addresses this misperception by using Census-based household income data to compute the weighted average of household incomes for each of the poverty standards presented in previous Tables for each county. The results show that the weighted average household income for households with incomes below the Poverty Level ($10,056) ranges from a low of $5,301 in Wahkiakum County, to a high of $6,225 in Jefferson. For 125 percent of the Poverty Level ($12,570) the range is from a low of $6,317 (again in Wahkiakum), to a high of $7,597 in Jefferson.

The results for the Washington Payment Standard ($5,904) are a low of $3,418 in Wahkiakum with a high of $4,146 in Pacific County. For the Washington Need Standard ($10,464), the low is $5,492 in Wahkiakum, with a high of $6,519 in Jefferson. For HUD's

238. The Washington State Department of Social and Health Services (DSHS) considers a three person household to be typical of its low income client base. The "typical" family used by DSHS for statistical purposes is composed of a 35 year old mother of two, a toddler and a nine year old girl. More than 60 percent of the DSHS caseload is comprised of single parent-two children and single parent-one child families. DSHS, ***Cost of Living in 1991 for Low-Income Families in Washington State***, at 3 (December 1991).

"Very Low Income" Standard (which varies by county from $12,100 to $18,100) the low is $6,844 in Whitman with a high of $10,499 in Snohomish. The last standard is HUD's "Low Income" Limit. The standard itself ranges from a low of $20,500 in a number of counties to a high of $28,950 in several counties, with the weighted averages ranging from $10,155 in Whitman to $16,688 in Snohomish.

CHANGES IN THE DISPARITY IN INCOME OVER TIME

Having surveyed the condition of the poor as of a particular point in time, it is finally important to examine how the incomes of low-income households have changed *over time*. The Center on Budget and Policy Priorities has recently examined these changes in its report, *Where Have all the Dollars Gone*,[239] as has the Center on Social Welfare Policy and Law,[240] and the Washington DSHS Division of Income Assistance.[241]

Changes in Income Disparity Generally

Comparisons of the distribution of income by the top 20 percent versus bottom 20 percent shows a large disparity conditioned by a slow movement in the direction of reducing the gap over time. By 1989,[242] the top 20 percent of the Washington state population was receiving more than 40 percent of all the before tax income in the state. By comparison, the share of state income going to the poorest fifth of the population was only six percent.

Statewide, low-income households' income grew at a significant rate in the 1980s. The income of the bottom fifth of households grew $1,266 from 1980 to the late 1980s, 1.1 percent per year or roughly 10.7 percent over the whole period.[243] This modest gain was

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239. Barancik and Shapiro, ***Where Have All The Dollar Gone: A State-by-State Analysis of Income Disparities Over the 1980s*** (1992).

240. Center on Social Welfare Policy and Law, ***The Poor Got Poorer as Welfare Programs Were Slashed*** (February 1992: Pub. No. 165); ***No Relief for the Poor: 1992 State Cutbacks in AFDC, GA and EAF: Part 1*** (September 1992; Pub. No. 167); ***No Relief for the Poor: 1992 State Cutbacks in AFDC, GA and EAF: Part 2*** (September 1992: Pub. No. 167A); ***Living at the Bottom: An Analysis of AFDC Benefit Levels*** (July 1993: Pub. No. 210); and ***Everything You Wanted to Know and More About State AFDC Benefits in 1992: Supplement to 'Living at the Bottom . . .*** (July 1993: Pub. No. 210A).

241. The Division's *Annual Program Briefing Book, FY 19XX*, series presents a wealth of information.

242. The relevant time period studied was 1979 through the late 1980s. The authors explained their choice of time period, stating: "Instead of comparing data for 1979 to data for 1989, this report compares the 1979 data to "pooled" data for the final three years of the 1980s --1987, 1988 and 1989. The purpose of pooling these data is to increase their precision by enlarging the size of the sample for each state." ***Where Have all the Dollars Gone***, at 45.

243. *Id.*, at 7.

nonetheless substantially better than the national average, where the income of the bottom fifth *fell* by $347, or roughly 0.3 percent per annum. In contrast, the incomes of the upper fifth in Washington state rose by $2,953 (3.3 percent over the whole period).[244]

This difference in growth rates meant that during the 1980s, incomes "grew more equal" in Washington state between the top and bottom fifths.[245] While the ratio of the average income of the top fifth to the bottom fifth was 7.62 in 1979, that ratio had fallen to 7.11 by the late 1980s.[246]

This improvement should not be misconstrued, however. At the end of the 1980s, there was a significant gap in income in Washington state between those doing especially well and those at the bottom. While the bottom fifth of the population held 5.7 percent of the income in the late 1980s (up from 5.3 percent in 1979), the top fifth held 40.4 percent (down from 40.5 percent in 1979). In 1992 dollars, the average income of the top fifth in Washington was $93,136 while the bottom fifth was $13,108. The resulting ratio (7.11) was the ninth lowest ratio in the country.[247]

Washington was one of only eleven states where income for every fifth grew from 1979 to the late 1980s.[248] The average income of the bottom fifth in 1979 (1992 dollars) was $11,842. The total state average income grew from $44,558 in 1979 to $46,114.[249]

One Illustration: Changes in AFDC Benefits Over Time

Aid to Families with Dependent Children (AFDC) is the main cash assistance program of the Federal and State governments. Established by the Social Security Act of 1935, AFDC rolls nationwide had swelled to 13.6 million recipients by 1992. AFDC provides cash payments for needy children who have one parent who is continuously absent from the home, incapacitated, deceased, or unemployed (AFDC-UP). Generally, eligibility ends upon a child's 18th birthday. State maintenance of an AFDC program is voluntary.

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244. *Id.*

245. *Id.*, at 12.

246. In contrast, the income disparity grew between the high income bracket and the middle income bracket. While the incomes of the middle bracket grew during the time period, the incomes of the higher brackets grew faster. *Id.*, at 14. The ratio of the incomes of the top fifth to that of the middle fifth grew from 2.24 to 2.28 in that time period. *Id.*, at 16.

247. *Id.*, at 22.

248. *Id.*, at 31, A-7.

249. This is again expressed in constant 1992 dollars.

States have substantial latitude on how to operate their AFDC programs. While federal law requires that need standards developed by the states be applied uniformly to all families in similar economic circumstances, states set both their own need standards and their own benefit levels. They also set their own income limitations (within Federal guidelines).[250]

States typically pay whatever they choose in benefits. Benefit levels generally depend upon family size; some states also have a shelter cost component to benefit determinations. Federal funds pay from 50 to 80 percent of benefit costs and 50 percent of administrative costs.

Federal law requires that the income of AFDC recipients be counted against the benefit amount, except for specifically deductible income such as the income of full-time undergraduate students until age 19. In 1984 Congress increased the gross income limit to 185 percent of the state need standard. The Family Support Act revised earned income disregards as of October 1989, allowing $90 per month for work expenses, and $175 per month for child care ($200 for children under age two). States must also disregard the earned-income tax credit. Because of the impact which increased AFDC household income has upon benefits, an AFDC recipient family's net wages could increase substantially without any associated increase in disposable income.[251]

Most households who receive AFDC also take part in the food stamp program, which is an increasingly important facet of public assistance benefits packages. Benefits from food stamps are not counted toward AFDC eligibility. However, benefits from AFDC are considered countable income in the food stamp program; food stamp benefits are reduced $0.30 for every $1 of AFDC income. In Washington, $86 of the AFDC benefit is designated as energy aid and is disregarded in calculating food stamp benefits.

Families who receive AFDC benefits are also automatically eligible for Medicaid. If a family loses AFDC eligibility, categorical Medicaid usually ends as well. In response to this, the Family Support Act of 1988[252] requires states to provide transitional Medicaid for 12 months for families who lose eligibility for AFDC due to increased earnings or loss of disregards.

Washington State Need and Benefit Trends

AFDC families have faced reduced benefits in real terms in recent years, both nationally and in Washington state. Nationwide, average AFDC benefits in the period 1980-1992 declined

250. States also administer their own programs.

251. Disposable income = wages + AFDC - Federal income and payroll taxes.

252. Public Law 100-485.

in real terms.[253] Table A-5 shows the national average monthly AFDC benefit for a 3-person family in nominal versus 1992 dollars for this period.[254]

The data for Washington mirror the national trend for declining disposable income for AFDC recipients. Table A-6 summarizes the trend for Washington state for the period 1980-1993.[255] It shows the Washington AFDC need standard and maximum monthly AFDC benefit for a 3-person family in nominal dollars over that time period. The need standard increased by almost 146 percent, while the maximum AFDC benefit increased by 19 percent. During the same time period, the Consumer Price Index for All Items-Urban (CPI-U), increased by about 75 percent. Thus, during the 1980s the Washington AFDC need standard outstripped the CPI-U, but actual maximum AFDC benefits lagged significantly behind both the need standard and the CPI-U.

Table A-7 shows the Washington maximum monthly AFDC benefit plotted against the CPI-U on a doubling scale for each data set. Once again, CPI-U increases far outstripped maximum AFDC benefits.

The same data can be seen in terms of constant 1992 dollars (Table A-8). As is evident, the value of AFDC benefits in Washington declined rapidly in real terms throughout the 1980s. Maximum 3-person benefits declined by 32 percent in real terms from 1980 to 1992.[256]

In contrast, food stamp benefits rose during 1980-92, partly cushioning the decline in AFDC benefit amounts. Comparing Table A-9 with Table A-10 shows the effect that the trend in food stamp benefits has had upon the combined income of AFDC recipients.[257] Food stamp benefits were adjusted for food price inflation in every year except 1982. Thus, in Washington, the 15.1 percent real decline in combined AFDC and food stamp income is almost completely due to shrinking AFDC benefits.

Table A-11 summarizes the January, 1993 AFDC and food stamp need and benefit amounts

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253. Data on national and Washington trends were compiled from studies that the Congressional Research Service conducted in early 1993. The CRS interviewed all 50 states to determine their need and benefit levels. These data are published in the 1993 *Green Book. See*, note **Error! Bookmark not defined.**, *infra*.

254. ***Overview of Entitlement Programs, 1993 Green Book. Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means***, Committee on Ways and Means, U.S. House of Representatives, at 688, Table 15 (July 1993).

255. *Id*., at 662 - 667, Tables 13 and 14.

256. *Id*., at 1248 - 1250, Table 8.

257. *Id*., at 1251 - 1253, Table 9.

for a 3-person Washington family with no earnings.[258] Table A-12 shows the effect of family size upon maximum January, 1993 AFDC benefits in Washington.[259]

Table A-13 demonstrates the disincentives to work faced by AFDC recipient families.[260] It shows the disposable income (1992 dollars) of a 3-person family in Washington with wages at 0, 50, and 75 percent of the federal Poverty Level[261] in 1972 and 1992. In 1992 as wages rose to 50 percent of Poverty, the average tax rate on those wages rose to 65 percent, and as wages rose to 75 percent of Poverty, the average tax rate on those wages rose to 72 percent. During the period 1978-1992, disposable incomes of AFDC families declined by 28 percent for wages at 50 percent of Poverty, and by 31 percent for wages at 75 percent of Poverty.[262] Clearly, tax rates on AFDC recipients are very high compared to other income groups. Data from the other states show a trend similar to that in Washington State.

Summary

The period from 1980 to 1993 has seen AFDC benefits in Washington lag behind both the State need standard and the CPI-U. This has led to substantial declines in the real incomes of AFDC recipient families. Food stamp benefits have offset part of the income loss from AFDC benefit declined. However, because of the interaction between AFDC, food stamps, and wage income, disposable incomes of Washington AFDC recipient families have declined substantially during this period. Disincentives to work and high average tax rates make it difficult for families to significantly increase their overall incomes.

SUMMARY AND CONCLUSIONS

Evaluating the condition of low-income households is a multi-faceted endeavor. It first involves developing a low-income profile, both in terms of geography and economic circumstances. Unfortunately, there is a substantial lack of data on much of what "being poor" is all about, including health circumstances, employment, and so forth. In contrast, there is an abundance of information on income and housing.

A second facet of any effort to profile low-income households is the very act of defining what income level represents "poverty." The generally accepted definition of "poor," the

258. *Id.*, at 657 - 658, Table 11.

259. *Id.*, at 659 - 660, Table 12.

260. These examples assume no child care expenses.

261. 100 percent of the 1992 federal Poverty Level for a 3-person family was $11,195.

262. ***1993 Green Book***, at 1255 - 1256, Table 10.

federal Poverty Level or some multiple thereof, is an inappropriate measure of low-income status. For a family of three, the choice of poverty definition could mean that the income delineation of what constitutes "being poor" could range from roughly $6,000 to more than $30,000 in some counties. Use of either of HUD's percentage of median income standards results in a substantial increase of the number of Washington state households defined to be low-income.

Moreover, use of any particular standard of defining "poor" is often misused, since persons assume that households are at the maximum permissible income within the standard. Indeed, for example, median incomes of 3-person households at or below 100 percent of the federal Poverty Level range from $6,000 and down, notwithstanding the fact that 100 percent of Poverty is more than $10,000. The fact that median income is substantially less than the poverty standard is true across the various poverty standards available.

These low-incomes do not allow households to live a "minimum but adequate" quality of life. A 1-person LIHEAP household, for example, has an average income of $4,334 in Washington state while the AFDC "standard of need" finds an income of $8,340 necessary to lead a minimum but adequate quality of life.

Finally, even having defined and described a low-income household at some particular point in time, it is necessary to be aware of the changes which occur in the income of poor households over time. In recent years, the real incomes of low-income households have been declining, as well as the incomes of poor people relative to the rest of the State's population.

TABLE A-1.
FINANCIAL ELIGIBILITY STANDARDS FOR PUBLIC BENEFIT PROGRAMS FOR A SINGLE PERSON HOUSEHOLD[263]

PROGRAM	POPULATION SERVED	ELIGIBILITY % OF POVERTY
Supplemental Security Income (SSI)*	Elderly Disabled Blind	Elderly: 98% Disabled: 95% Blind: 102%
Medicaid for Elderly and Disabled*	Elderly and disabled	100%
Food Stamps	All who qualify	123%
Aid to Families with Dependent Children	Children and parent(s)	124% (varies depending on household size
Legal Services	All who quality	125%
Free Lunch Program	Children	130%
Medicaid for Children ages 1 to 5	Children	133%
Home Energy Assistance Program (LIHEAP)	All qualified households	150%
Temporary Emergency Food Assistance Program	All who qualify	150%
Medicaid for Pregnant Women and Infants	Pregnant women and children, 0 - 12 months	185%
Women, Infants and Children (WIC)	Women, infants and children	185%
Reduced Price Lunches	Children	185%
Healthy Start	Pregnant women and minors	200%
Hospital Free Care (Hill-Burton Act)	Persons in need of medical services but unable to pay	200%

263. These calculations are based on 1990 eligibility guidelines. The eligibility tests for AFDC, SSI, and Food Stamps are more complicated than the eligibility standard for other public assistance programs. Each of the eligibility tests includes an analysis of a household or individual's income (depending upon which program is being applied for), and an assets test, in addition to other specific eligibility requirements for each individual program such as proof of disability, inability to work or age. After all of this information is analyzed the final determining factor is that the household or individuals net worth must be at or below the benefit level for a household of that particular size. For this table, the percent of the federal poverty standard for AFDC, GR and SSI has been calculated by determining at what level of poverty the maximum benefit is at.

* "An applicant or recipient meets the financial eligibility requirements if he or she has assets and income at or below levels specified by the Department." 106 C.M.R. 304.

* "If in any month the total of the filing unity, excluding only the types of non-countable income listed in 106 C.M.R. 304.250 is above the appropriate eligibility standard for the assistance unit, the unit is ineligible." 106 C.M.R. 304.400.

TABLE A-2. NUMBER OF HOUSEHOLDS WITH INCOMES LESS THAN VARIOUS POVERTY LEVEL STANDARDS							
Counties	**HHs**	**Households with Incomes Less Than**					
		Poverty Level (1989) ($10,056)	**125% of Poverty ($12,570)**	**Washington Payment Std ($5,904)**	**Washington Need Standard ($10,464)**	**HUD "Very Low Income" Standard**	**HUD "Lower Income" Standard**
Adams[264]	4,608	800[265]	1,106	409[266]	850[267]	1,164[268]	1,917[269]
Asotin	7,119	1,604	2,016	707	1,671	2,048	3,177
Benton	42,384	5,412	7,250	2,354	5,707	11,100	18,680
Chelan	20,638	3,686	5,104	1,755	3,915	5,363	8,912
Clallam	22,820	3,890	5,260	1,657	4,110	5,729	9,663
Clark	88,571	10,479	14,275	4,763	11,090	17,378	31,493
Columbia	1,583	348	441	166	363	451	709
Cowlitz	31,714	5,237	7,026	2,458	5,525	8,145	11,754
Douglas	9,693	1,388	1,914	606	1,472	2,064	3,599
Ferry	2,243	473	605	234	495	613	941

264. All figures are approximate due to interpolation within the Census categories.

265. DIA, *Annual Program Briefing Book, FY1992*, at 91 (1992).

266. DIA, *Annual Program Briefing Book, FY1992*, at 9 (1992), for a three person household in 1989.

267. DIA, *Annual Program Briefing Book, FY1992*, at 91 (1992).

268. As defined at 24 ***C.F.R.*** §91.5 (1992) as "very low income families."

269. As defined at 24 ***C.F.R.*** §91.5 (1992) as "lower income families."

TABLE A-2. NUMBER OF HOUSEHOLDS WITH INCOMES LESS THAN VARIOUS POVERTY LEVEL STANDARDS							
Counties	**HHs**	**Households with Incomes Less Than**					
		Poverty Level (1989) ($10,056)	**125% of Poverty ($12,570)**	**Washington Payment Std ($5,904)**	**Washington Need Standard ($10,464)**	**HUD "Very Low Income" Standard**	**HUD "Lower Income" Standard**
Franklin	12,248	2,457	3,134	1,506	2,566	4,546	7,131
Garfield	915	155	201	76	163	206	369
Grant	19,852	3,961	5,218	1,849	4,164	5,310	,90303
Grays Harbor	25,603	5,208	6,941	2,309	5,487	7,753	12,444
Island	21,918	2,016	2,960	978	2,167	3,052	6,754
Jefferson	8,622	1,445	1,970	565	1,529	2,015	3,549
King	616,691	61,611	83,222	28,980	65,078	129,994	234,840
Kitsap	69,488	7,843	10,268	3,854	8,231	13,389	25,250
Kittitas	10,563	2,767	3,504	1,356	2,887	3,552	5,384
Klickitat	6,240	1,253	1,729	561	1,331	1,753	2,791
Lewis	22,566	4,373	5,779	1,910	4,600	5,886	9,490
Lincoln	3,613	660	907	275	700	959	1,560
Mason	14,545	2,372	3,221	1,034	2,509	3,365	5,624
Okanogan	12,773	3,071	3,910	1,381	3,206	3,979	6,448
Pacific	7,903	1,934	2,568	766	2,037	2,608	4,041
Pend Oreille	3,360	772	1,010	354	811	1,026	1,660
Pierce	214,795	28,138	38,058	13,077	29,730	44,491	79,606
San Juan	4,373	389	595	179	422	625	1,349
Skagit	30,661	4,426	5,807	1,981	4,648	6,029	10,706

TABLE A-2. NUMBER OF HOUSEHOLDS WITH INCOMES LESS THAN VARIOUS POVERTY LEVEL STANDARDS							
Counties	**HHs**	**Households with Incomes Less Than**					
		Poverty Level (1989) ($10,056)	**125% of Poverty ($12,570)**	**Washington Payment Std ($5,904)**	**Washington Need Standard ($10,464)**	**HUD "Very Low Income" Standard**	**HUD "Lower Income" Standard**
Skamania	3,043	465	661	202	497	762	1,230
Snohomish	171,851	14,254	19,905	6,242	15,162	32,033	61,695
Spokane	141,859	25,503	33,821	11,833	26,843	36,524	60,111
Stevens	11,347	2,359	3,039	1,101	2,469	3,097	4,709
Thurston	62,047	7,315	10,019	3,331	7,750	11,755	21,951
Wahkiakum	1,269	226	271	123	234	320	538
Walla Walla	17,589	3,513	4,385	1,435	3,463	4,484	7,524
Whatcom	48,645	6,923	9,397	3,244	7,320	11,595	20,514
Whitman	13,582	3,277	4,216	1,713	3,429	4,279	6,464
Yakima	66,174	13,222	17,161	6,386	13,855	17,462	28,666
State	1,875,508	235,169	316,304	107,806	248,022	416,904	732,273

TABLE A-3. POVERTY STANDARDS AND COUNTY MEDIAN INCOMES (1989)						
County	**WA Pmt Standard**	**WA Need Standard**	**HUD Very Low Income Limit**	**HUD Lower Income Limit**	**Census Median**	**HUD Median Income**
Adams	$5,904	$10,464	$13,200	$21,100	$24,604	$26,370
Asotin	$5,904	$10,464	$12,800	$20,500	$22,897	$23,310
Benton	$5,904	$10,464	$18,100	$28,950	$32,593	$36,180
Chelan	$5,904	$10,464	$13,150	$21,000	$24,312	$26,280
Clallam	$5,904	$10,464	$13,500	$21,600	$25,434	$27,000
Clark	$5,904	$10,464	$14,950	$23,900	$31,800	$29,880
Columbia	$5,904	$10,464	$12,800	$20,500	$22,418	$22,050
Cowlitz	$5,904	$10,464	$14,350	$22,950	$27,866	$28,710
Douglas	$5,904	$10,464	$13,300	$21,350	$27,054	$26,640
Ferry	$5,904	$10,464	$12,800	$20,500	$25,170	$22,680
Franklin	$5,904	$10,464	$18,100	$28,950	$24,604	$36,180
Garfield	$5,904	$10,464	$12,800	$20,500	$25,156	$24,300
Grant	$5,904	$10,464	$12,800	$20,500	$22,372	$24,750
Grays Harbor	$5,904	$10,464	$13,950	$22,300	$23,042	$27,900
Island	$5,904	$10,464	$12,800	$20,500	$29,161	$23,760
Jefferson	$5,904	$10,464	$12,800	$20,500	$25,197	$23,760
King	$5,904	$10,464	$17,900	$28,650	$36,179	$35,820
Kitsap	$5,904	$10,464	$15,650	$24,950	$32,043	$31,140
Kittitas	$5,904	$10,464	$12,800	$20,500	$20,489	$23,760
Klickitat	$5,904	$10,464	$12,800	$20,500	$23,012	$24,840

TABLE A-3. POVERTY STANDARDS AND COUNTY MEDIAN INCOMES (1989)

County	WA Pmt Standard	WA Need Standard	HUD Very Low Income Limit	HUD Lower Income Limit	Census Median	HUD Median Income
Lewis	$5,904	$10,464	$12,800	$20,500	$24,410	$24,300
Lincoln	$5,904	$10,464	$13,400	$21,450	$24,617	$26,820
Mason	$5,904	$10,464	$13,100	$20,950	$26,304	$26,190
Okanogan	$5,904	$10,464	$12,800	$20,500	$20,303	$22,770
Pacific	$5,904	$10,464	$12,800	$20,500	$20,029	$24,300
Pend Oreille	$5,904	$10,464	$12,800	$20,500	$20,808	$21,960
Pierce	$5,904	$10,464	$14,350	$22,950	$30,412	$28,710
San Juan	$5,904	$10,464	$12,800	$20,500	$31,278	$24,750
Skagit	$5,904	$10,464	$13,000	$20,800	$28,389	$26,010
Skamania	$5,904	$10,464	$14,250	$22,800	$28,778	$28,530
Snohomish	$5,904	$10,464	$17,900	$28,600	$36,847	$35,820
Spokane	$5,904	$10,464	$13,600	$21,750	$25,769	$27,180
Stevens	$5,904	$10,464	$12,800	$20,500	$24,440	$24,030
Thurston	$5,904	$10,464	$14,350	$22,950	$30,976	$28,710
Wahkiakum	$5,904	$10,464	$14,200	$22,750	$26,969	$28,440
Walla Walla	$5,904	$10,464	$12,800	$20,500	$24,414	$24,570
Whatcom	$5,904	$10,464	$15,100	$24,200	$28,367	$30,240
Whitman	$5,904	$10,464	$12,800	$20,500	$21,674	$24,570
Yakima	$5,904	$10,464	$12,800	$20,500	$23,612	$24,750

Sources: Washington payment and need standards: DIA, *Annual Briefing Book FY1992*, p.92 (for a three person household). HUD median income figures from HUD Region X Economic and Market Analysis Staff, "Income Limits" for 1989.

TABLE A-4. WEIGHTED AVERAGE INCOME OF HOUSEHOLDS AT OR BELOW VARIOUS POVERTY LEVEL STANDARDS (1989 DATA: THREE PERSON HOUSEHOLD)						
County	**Poverty Level ($10,056)**	**125% of Poverty Level ($12,570)**	**Washington Payment Std. ($5,904)**	**Washington Need Std. ($10,464)**	**HUD 50% "Very Low Income Limit"**	**HUD 80% "Low Income" Limit**
Adams	$5,484	$7,110	$3,521	$5,840	$7,441	$11,274
Asotin	$5,917	$7,031	$3,873	$6,141	$7,134	$10,563
Benton	$5,954	$7,328	$3,900	$6,245	$10,140	$14,904
Chelan	$5,703	$7,276	$3,680	$6,047	$7,589	$12,101
Clallam	$6,010	$7,406	$3,952	$6,307	$7,925	$11,845
Clark	$5,836	$7,307	$3,791	$6,152	$8,457	$13,369
Columbia	$5,689	$6,898	$3,680	$5,932	$7,045	$10,314
Cowlitz	$5,744	$7,177	$3,717	$6,048	$8,080	$10,885
Douglas	$5,944	$7,437	$3,887	$6,267	$7,897	$11,976
Ferry	$5,592	$6,849	$3,605	$5,851	$6,941	$10,377
Franklin	$5,446	$6,726	$3,504	$5,706	$9,417	$14,540
Garfield	$5,617	$6,923	$3,624	$5,882	$7,100	$11,270
Grant	$5,759	$7,110	$3,731	$6,042	$7,225	$11,157
Grays Harbor	$5,903	$7,267	$3,853	$6,191	$7,946	$11,786
Island	$5,652	$7,480	$3,634	$6,065	$7,670	$12,712
Jefferson	$6,225	$7,597	$4,108	$6,519	$7,734	$11,538
King	$5,738	$7,202	$3,711	$6,065	$10,157	$16,028
Kitsap	$5,609	$6,972	$3,615	$5,891	$8,696	$14,173
Kittitas	$5,616	$6,824	$3,624	$5,863	$6,918	$10,311
Klickitat	$5,879	$7,383	$3,827	$6,210	$7,470	$11,017

TABLE A-4. WEIGHTED AVERAGE INCOME OF HOUSEHOLDS AT OR BELOW VARIOUS POVERTY LEVEL STANDARDS (1989 DATA: THREE PERSON HOUSEHOLD)

County	Poverty Level ($10,056)	125% of Poverty Level ($12,570)	Washington Payment Std. ($5,904)	Washington Need Std. ($10,464)	HUD 50% "Very Low Income Limit"	HUD 80% "Low Income" Limit
Lewis	$5,945	$7,262	$3,891	$6,220	$7,380	$10,907
Lincoln	$6,067	$7,508	$4,007	$6,382	$7,848	$11,524
Mason	$5,949	$7,377	$3,893	$6,256	$7,649	$11,521
Okanogan	$5,864	$7,045	$3,824	$6,104	$7,190	$10,818
Pacific	$6,192	$7,465	$4,146	$6,462	$7,563	$10,703
Pend Oreille	$5,809	$7,115	$3,773	$6,081	$7,221	$10,837
Pierce	$5,773	$7,232	$3,739	$6,084	$8,175	$12,828
San Juan	$5,808	$7,753	$3,753	$6,252	$8,040	$12,328
Skagit	$5,877	$7,184	$3,832	$6,149	$7,426	$11,655
Skamania	$5,955	$7,556	$3,892	$6,312	$8,381	$12,314
Snohomish	$5,938	$7,480	$3,879	$6,275	$10,499	$16,688
Spokane	$5,776	$7,151	$3,745	$6,067	$7,369	$11,572
Stevens	$5,760	$7,016	$3,735	$6,017	$7,142	$10,360
Thurston	$5,831	$7,326	$3,786	$6,153	$8,275	$13,131
Wahkiakum	$5,301	$6,317	$3,418	$5,492	$7,449	$11,568
Walla Walla	$5,944	$7,305	$3,891	$6,230	$7,447	$11,109
Whatcom	$5,749	$7,229	$3,719	$6,066	$8,488	$13,360

Whitman	$5,416	$6,741	$3,484	$5,690	$6,844	$10,155
Yakima	$5,659	$6,970	$3,654	$5,931	$7,087	$10,857

Sources: 1990 Census, STF 3A, Table P-80 and worksheets for Table 5, *supra*.
Note: Weighted averages are based on class means for the census classes.

TABLE A-5. NATIONWIDE AVERAGE MONTHLY AFDC BENEFIT PER FAMILY: 1980 - 1992, NOMINAL VS. CONSTANT 1992 DOLLARS

	1980	1985	1988	1990	1991	1992
NOMINAL DOLLARS	$269	$329	$370	$389	$388	$388
CONSTANT DOLLARS (1992)	$458	$429	$439	$417	$399	$388

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*.

TABLE A-6. AFDC 3-PERSON NEED STANDARD AND MAXIMUM BENEFIT (NOMINAL $), WASHINGTON STATE, 1980 - 1993		
YEAR	**3-PERSON NEED STANDARD**	**3-PERSON MAXIMUM BENEFIT**
1980 (July)	$458	$458
1985 (January)	$768	$476
1987/1988 (January)	$835	$492
1990 (January)	$907	$501
1991 (January)	$983	$531
1992 (January)	$1014	$531
1993 (January)	$1125	$546

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book.*

TABLE A-7. AFDC 3-PERSON MAXIMUM BENEFIT (NOMINAL $) VS. CPI-U WASHINGTON STATE, 1980 - 1993

YEAR	3-PERSON MAX. BENEFIT	CPI-U
1980	$458	82.4
1981	n/a	90.9
1982	n/a	96.5
1983	n/a	99.6
1984	n/a	103.9
1985	$768	107.6
1986	n/a	109.6
1987	n/a	113.6
1988	$835	118.3
1989	$872	124.0
1990	$907	130.7
1991	$983	136.2
1992	$1014	140.4
1993 (CPI-U projected)	$1125	144.6

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*.

TABLE A-8. AFDC 3-PERSON MAXIMUM BENEFIT (1992 $) VS. CPI-U WASHINGTON STATE, 1980 - 1993

YEAR	3-PERSON MAX. BENEFIT	CPI-U
1980	$781	82.4
1985	$622	107.6
1988	$584	118.3
1991	$547	136.2
1992	$531	140.4

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*.

TABLE A-9. MAXIMUM AFDC BENEFIT LEVELS (YEARLY)
1992 DOLLARS, 3-PERSON FAMILY
WASHINGTON STATE, 1980 - 1992

AFDC BENEFIT LEVELS (1992 dollars)						PERCENT CHANGE		
1980	**1985**	**1988**	**1991**	**1992**		**1980-92**	**1985-92**	**1988-92**
$9,372	$7,459	$7,005	$6,569	$6,372		-32.0%	-14.6%	-9.0%

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*

TABLE A-10. MAXIMUM AFDC AND FOOD STAMP BENEFIT LEVELS (YEARLY), 1992 DOLLARS, 3-PERSON FAMILY WASHINGTON STATE, 1980 - 1992

AFDC AND FOOD STAMP BENEFIT LEVELS (1992 dollars)						PERCENT CHANGE		
1980	**1985**	**1988**	**1991**	**1992**		**1980-92**	**1985-92**	**1988-92**
$10,674	$9,393	$9,133	$9,008	$9,062		-15.1%	-3.5%	-0.8%

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*

TABLE A-11. GROSS INCOME LIMIT, NEED STANDARD, AND MAXIMUM MONTHLY BENEFITS, AFDC AND FOOD STAMPS, 1-PARENT FAMILY OF THREE, WASHINGTON STATE, JANUARY 1993	
Gross Income Limit (185% of Need Standard)	$2,081
100% of Need Standard	$1,125
Maximum AFDC Grant	$546
Food Stamp Benefit	$252
Combined Benefits	$798
AFDC Benefits as a Percent of 1992 Poverty Level	59%
Combined Benefits as a Percent of 1992 Poverty Level	86%
SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*	

TABLE A-12. MAXIMUM MONTHLY AFDC BENEFITS BY FAMILY SIZE WASHINGTON STATE, JANUARY 1993

BENEFIT	1 PERSON	2 PERSON	3 PERSON	4 PERSON	5 PERSON	6 PERSON
	$349	$440	$546	$642	$740	$841

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*

TABLE A-13. DISPOSABLE INCOME (1992 DOLLARS) AND AVERAGE TAX RATES
3-PERSON FAMILY
WASHINGTON STATE 1972 AND 1992

Disposable Income (1992 Dollars)[270]							Pct Change in Disposal Income, 1972 - 1992			Average Tax Rate on Wages			
0 Percent[271]		50 Percent		75 Percent			50 Percent	75 Percent		50 Percent		75 Percent	
1972	1992	1972	1992	1972	1992					1972	1992	1972	1992
$12,312	$9,062	$15,289	$11,008	$16,501	$11,415		-28%	-31%		47%	65%	50%	72%

SOURCE: U.S. Congress, House Ways and Means Committee, *1993 Green Book*

270. The percents (0, 50 and 75) refer to the level of wages as a percentage of the federal Poverty Level ($11,195 for a 3-persn family). Disposable income is defined as AFDC plus wages minus federal income and payroll taxes.

271. AFDC benefits are tax exempt.

APPENDIX B: AN OVERVIEW OF POVERTY DATA IN WASHINGTON STATE

This Appendix presents basic background data on households in Washington State living at or below 100 percent of the Federal Poverty Level. The data is set forth in this Appendix since it is not reported in a form applicable to households at or below *125* percent of Poverty, the eligibility guidelines for the State's various energy assistance programs. It is that population eligible for the various energy assistance programs which is discussed in the body of this Report.

There are, of course, many dimensions to being poor in Washington. There is, however, virtually no data, for example, on health broken down by income. There is very little data --none has been found on a county-by-county basis-- on the impact of the tax system on the poor.[272] Nor does information on job opportunities for the poor and what they earn appear to be systematically collected.[273]

The Tables presented below are self-explanatory. They are thus presented without comment. The Tables include the following data:

Table B-1 presents foundation numbers for households, population, and average household size in Washington State.

Table B-2 shows the distribution of poverty by age bracket.

Table B-3 shows the number of households living at or below Poverty who are homeowners versus the number of households who are renters.

Table B-4 presents the "mean income deficit" of households living at or below 100 percent of Poverty in each county. The "mean income deficit" is the amount of money that would be needed to bring household income up to equal 100 percent of Poverty.

Table B-5 presents the number and percent of households in each county receiving public assistance benefits, as well as the number of households receiving Social Security income.

Table B-6 presents the mean income for those households receiving public assistance and Social Security.

Table B-7 presents the unemployment rates by county from 1989 to 1992 to provide some context

272. Some *general* conclusions are presented on the marginal tax rates on work generated income in the AFDC program. For a broad-based discussion of the impact of state tax policies on the poor, *see generally*, Kahan and Greenstein, ***The Next Frontier: Relieving State Tax Burdens on the Poor***, Center on Budget and Policy Priorities (1987).

273. Chapter 9 deals at length with the maintenance of the data presented in this report and includes a discussion of the important gaps in the State's data collection coverage of the low income population.

for the previous tables.

Finally, Table B-8 presents data on the impacts of changing the levels of "Poverty" defined to be "low-income." This Table presents the number of households, by county, at 100 percent, 125 percent, and 200 percent of Poverty.

TABLE B-1. BASIC DEMOGRAPHICS BY COUNTY			
County	**Households**	**Population**	**Average Household Size**
Adams	4,608	13,603	2.95
Asotin	7,119	17,605	2.47
Benton	42,384	112,560	2.66
Chelan	20,638	52,250	2.53
Clallam	22,820	56,464	2.47
Clark	88,571	238,053	2.69
Columbia	1,583	4,024	2.54
Cowlitz	31,714	82,119	2.59
Douglas	9,693	26,205	2.70
Ferry	2,243	6,295	2.81
Franklin	12,248	37,473	3.06
Garfield	915	2,248	2.46
Grant	19,852	54,758	2.76
Grays Harbor	25,603	64,175	2.51
Island	21,918	60,195	2.75
Jefferson	8,622	20,146	2.34
King	616,691	1,507,319	2.44
Kitsap	69,488	189,731	2.73

TABLE B-1. BASIC DEMOGRAPHICS BY COUNTY			
County	**Households**	**Population**	**Average Household Size**
Kittitas	10,563	26,725	2.53
Klickitat	6,240	16,616	2.66
Lewis	22,566	59,358	2.63
Lincoln	3,613	8,864	2.45
Mason	14,545	38,341	2.64
Okanogan	12,773	33,350	2.61
Pacific	7,903	18,882	2.39
Pend Oreille	3,360	8,915	2.65
Pierce	214,795	586,203	2.73
San Juan	4,373	10,035	2.29
Skagit	30,661	79,555	2.59
Skamania	3,043	8,289	2.72
Snohomish	171,851	465,642	2.71
Spokane	141,859	361,364	2.55
Stevens	11,347	30,948	2.73
Thurston	62,047	161,238	2.60
Wahkiakum	1,269	3,327	2.62
Walla Walla	17,589	48,439	2.75

Whatcom	48,645	127,780	2.63
Whitman	13,582	38,775	2.85
Yakima	66,174	188,823	2.85
STATE	1,875,508	4,866,692	2.59

Source: Census, STF 3A, Tables P-1 and P-5.

TABLE B-2. POVERTY IN WASHINGTON (1989 CENSUS DATA)							
County	AGE OF HEAD OF HOUSEHOLD HOUSEHOLDS AT OR BELOW 100% OF POVERTY						
	Birth to 17		18 to 59		Over 60		Total
	No.	Share	No.	Share	No.	Share	
Adams	1,064	4.5%	1,060	4.5%	236	10.0%	2,360
Asotin	1,508	4.5%	1,431	4.3%	392	11.8%	3,331
Benton	4,911	4.0%	6,182	5.0%	1,309	10.6%	12,402
Chelan	2,810	3.6%	3,915	5.0%	1,119	14.3%	7,844
Clallam	2,337	3.4%	3,313	4.8%	1,202	17.5%	6,852
Clark	8,413	3.8%	10,721	4.9%	2,817	12.8%	21,951
Columbia	234	3.1%	372	4.9%	151	20.0%	757
Cowlitz	4,128	3.8%	5,206	4.8%	1,413	13.2%	10,747
Douglas	1,223	3.9%	1,561	4.9%	386	12.2%	3,170
Ferry	596	4.0%	713	4.8%	175	11.8%	1,484
Franklin	3,921	4.6%	3,989	4.7%	581	6.8%	8,491
Garfield	123	4.4%	90	3.2%	69	24.5%	282
Grant	4,454	4.2%	4,833	4.5%	1,344	12.6%	10,631

TABLE B-2. POVERTY IN WASHINGTON (1989 CENSUS DATA)							
County	AGE OF HEAD OF HOUSEHOLD HOUSEHOLDS AT OR BELOW 100% OF POVERTY						
	Birth to 17		18 to 59		Over 60		Total
	No.	Share	No.	Share	No.	Share	
Grays Harbor	3,756	3.6%	5,119	5.0%	1,431	13.9%	10,306
Island	1,260	3.3%	2,046	5.3%	550	14.3%	3,856
Jefferson	977	3.8%	1,263	4.9%	359	13.8%	2,599
King	32,595	2.8%	70,282	6.0%	14,712	12.5%	117,589
Kitsap	6,644	3.9%	8,527	5.0%	1,918	11.2%	17,089
Kittitas	1,005	2.0%	3,416	7.0%	492	10.0%	4,913
Klickitat	1,092	3.9%	1,397	5.0%	297	10.7%	2,786
Lewis	3,215	3.8%	3,676	4.4%	1,494	17.8%	8,385
Lincoln	422	3.9%	423	4.0%	226	21.1%	1,071
Mason	1,817	3.8%	2,380	4.9%	620	12..9%	4,817
Okanogan	2,674	3.8%	3,398	4.8%	1,005	14.2%	7,077
Pacific	1,108	3.5%	1,505	4.8%	553	17.5%	3,166
Pend Oreille	739	4.2%	818	4.6%	219	12.3%	1,776

TABLE B-2. POVERTY IN WASHINGTON (1989 CENSUS DATA)							
County	AGE OF HEAD OF HOUSEHOLD HOUSEHOLDS AT OR BELOW 100% OF POVERTY						
	Birth to 17		18 to 59		Over 60		Total
	No.	Share	No.	Share	No.	Share	
Pierce	24,088	3.8%	33,064	5.2%	6,916	10.8%	64,068
San Juan	171	1.5%	437	3.8%	557	47.8%	1,165
Skagit	3,229	3.6%	4,522	5.0%	1,261	14.0%	9,012
Skamania	220	2.8%	402	5.2%	152	19.6%	774
Snohomish	10,976	3.9%	13,801	4.8%	3,714	13.0%	28,491
Spokane	15,714	3.3%	25,952	5.4%	6,361	13.2%	48,027
Stevens	2,192	4.2%	2,349	4.5%	708	13.5%	5,249
Thurston	5,645	3.5%	8,546	5.4%	1,716	10.8%	15,907
Wahkiakum	71	2.1%	182	5.3%	88	25.8%	341
Walla Walla	2,539	3.6%	3,719	5.2%	886	12.4%	7,144
Whatcom	4,034	2.7%	9,249	6.1%	1,859	12.3%	15,142
Whitman	1,042	1.3%	6,424	8.2%	361	4.6%	7,827
Yakima	16,085	4.3%	17,087	4.6%	4,314	11.5%	37,486

TABLE B-2. POVERTY IN WASHINGTON (1989 CENSUS DATA)							
County	**AGE OF HEAD OF HOUSEHOLD HOUSEHOLDS AT OR BELOW 100% OF POVERTY**						
	Birth to 17		**18 to 59**		**Over 60**		**Total**
	No.	**Share**	**No.**	**Share**	**No.**	**Share**	
STATE	179,032	3.5%	273,370	5.3%	63,963	12.4%	516,365
Source: 1990 Census, STF 3A, Table P-117.							

TABLE B-3. Occupied Units Below 100 Percent of Poverty: Homeowner vs. Renter Status					
County	**OCCUPIED HOUSING UNIT**	**Owner-Occupied**		**Renter-Occupied**	
		Number	**Percent**	**Number**	**Percent**
Adams	738	238	32.3%	500	67.8%
Asotin	1,341	432	32.2%	909	67.8%
Benton	4,554	1,403	30.8%	3,151	69.2%
Chelan	3,134	880	28.1%	2,254	71.9%
Clallam	2,950	1,304	44.2%	1,646	55.8%
Clark	8,116	2,559	31.5%	5,557	68.5%
Columbia	1,705	148	8.7%	1,557	91.3%
Cowlitz	4,269	1,199	28.1%	3,070	71.9%
Douglas	1,120	4,☺25	38.0%	695	62.1%
Ferry	440	256	58.2%	184	41.8%
Franklin	2,447	545	22.3%	1,902	77.7%
Garfield	111	61	55.0%	50	45.1%
Grant	3,554	1,304	36.7%	2,250	63.3%
Grays Harbor	4,277	1,529	35.8%	2,748	64.3%
Island	1,606	689	42.9%	917	57.1%
Jefferson	1,103	559	50.7%	544	49.3%

TABLE B-3. Occupied Units Below 100 Percent of Poverty: Homeowner vs. Renter Status					
County	**OCCUPIED HOUSING UNIT**	**Owner-Occupied**		**Renter-Occupied**	
		Number	**Percent**	**Number**	**Percent**
King	49,570	10,248	20.7%	39,322	79.3%
Kitsap	6,656	2,068	31.1%	4,588	68.9%
Kittitas	2,366	504	21.3%	1,862	78.7%
Klickitat	1,002	399	39.8%	603	60.2%
Lewis	3,322	1,433	43.1%	1,889	56.9%
Lincoln	436	231	53.0%	205	47.0%
Mason	1,735	828	47.7%	907	52.3%
Okanogan	2,615	1,256	48.0%	1,359	52.0%
Pacific	6,301	5,592	88.8%	709	11.3%
Pend Oreille	639	283	44.3%	356	55.7%
Pierce	24,184	6,177	25.5%	18,007	74.5%
San Juan	336	191	56.9%	145	43.2%
Skagit	3,335	1,388	41.6%	1,947	58.4%
Skamania	383	183	47.8%	200	52.2%
Snohomish	11,483	3,698	32.2%	7,785	67.8%
Spokane	20,389	5,974	29.3%	14,415	70.7%
Stevens	1,925	981	51.0%	944	49.0%

TABLE B-3. Occupied Units Below 100 Percent of Poverty: Homeowner vs. Renter Status					
County	**OCCUPIED HOUSING UNIT**	**Owner-Occupied**		**Renter-Occupied**	
		Number	**Percent**	**Number**	**Percent**
Thurston	6,085	2,084	34.3%	4,001	65.8%
Wahkiakum	173	112	64.7%	61	35.3%
Walla Walla	2,740	658	24.0%	2,082	76.0%
Whatcom	6,138	1,966	32.0%	4,172	68.0%
Whitman	3,309	395	11.9%	2,914	88.1%
Yakima	12,060	4,059	33.7%	8,001	66.3%
Source: Census, STF 3A, Tables P-94 and P-95.					

TABLE B-4. MEAN INCOME DEFICIT
FOR HOUSEHOLDS LIVING AT OR BELOW 100 PERCENT OF POVERTY
BY COUNTY ($1989)

County	Mean Income Deficit
Adams	$4,391
Asotin	$4,104
Benton	$3,775
Chelan	$3,330
Clallam	$3,264
Clark	$3,705
Columbia	$4,060
Cowlitz	$3,821
Douglas	$3,893
Ferry	$3,882
Franklin	$4,726
Garfield	$3,886
Grant	$4,058
Grays Harbor	$3,717
Island	$3,729
Jefferson	$3,599
King	$3,583
Kitsap	$4,088

TABLE B-4. MEAN INCOME DEFICIT
FOR HOUSEHOLDS LIVING AT OR BELOW 100 PERCENT OF POVERTY
BY COUNTY ($1989)

County	Mean Income Deficit
Kittitas	$3,101
Klickitat	$3,826
Lewis	$3,765
Lincoln	$3,261
Mason	$3,906
Okanogan	$3,667
Pacific	$3,521
Pend Oreille	$3,682
Pierce	$3,871
San Juan	$2,350
Skagit	$3,860
Skamania	$2,957
Snohomish	$3,633
Spokane	$3,301
Stevens	$3,707
Thurston	$3,618
Wahkiakum	$3,587
Walla Walla	$3,506

TABLE B-4. MEAN INCOME DEFICIT FOR HOUSEHOLDS LIVING AT OR BELOW 100 PERCENT OF POVERTY BY COUNTY ($1989)	
County	**Mean Income Deficit**
Whatcom	$3,417
Whitman	$3,628
Yakima	$4,572
Source: Census, STF 3A, Tables P-94 and P-95.	

TABLE B-5. HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY					
County	**Households**	**Households Receiving Public Assistance**		**Households Receiving Social Security Income**	
		Number	**Percent**	**Number**	**Percent**
Adams	4,608	376	8.2%	1,175	25.5%
Asotin	7,119	946	13.3%	2,211	31.1%
Benton	42,384	3,073	7.3%	9,279	21.9%
Chelan	20,638	1,538	7.5%	6,375	30.9%
Clallam	22,820	1,809	7.9%	8,799	38.6%
Clark	88,571	5,999	6.8%	20,438	23.1%
Columbia	1,583	180	11.4%	565	35.7%
Cowlitz	31,714	3,221	10.2%	9,105	28.7%
Douglas	9,693	550	5.7%	2,505	25.8%
Ferry	2,243	194	8.7%	576	25.7%
Franklin	12,248	1,138	9.3%	3,057	25.0%
Garfield	915	38	4.2%	377	41.2%
Grant	19,852	1,814	9.1%	5,526	27.8%
Grays Harbor	25,603	2,676	10.5%	8,054	31.5%
Island	21,918	891	4.1%	6,080	27.7%
Jefferson	8,622	560	6.5%	3,257	37.8%

TABLE B-5. HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY					
County	**Households**	**Households Receiving Public Assistance**		**Households Receiving Social Security Income**	
		Number	**Percent**	**Number**	**Percent**
King	616,691	30,306	4.9%	127,626	20.7%
Kitsap	69,488	4,535	6.5%	14,699	21.2%
Kittitas	10,563	674	6.4%	2,698	25.5%
Klickitat	6,240	704	11.3%	1,927	30.9%
Lewis	22,566	2,068	9.2%	7,564	33.5%
Lincoln	3,613	261	7.2%	1,339	37.1%
Mason	14,545	1,185	8.2%	5,016	34.5%
Okanogan	12,773	1,444	11.3%	3,883	30.4%
Pacific	7,903	774	9.8%	3,303	41.8%
Pend Oreille	3,360	368	11.0%	1,125	33.5%
Pierce	214,795	16,741	7.8%	49,044	22.8%
San Juan	4,373	174	4.0%	1,548	35.4%
Skagit	30,661	2,244	7.3%	9,744	31.8%
Skamania	3,043	255	8.4%	787	25.9%
Snohomish	171,851	9,408	5.5%	35,321	20.6%
Spokane	141,859	12,301	8.7%	38,658	27.3%
Stevens	11,347	1,029	9.1%	3,369	29.7%

TABLE B-5. HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY					
County	**Households**	**Households Receiving Public Assistance**		**Households Receiving Social Security Income**	
		Number	**Percent**	**Number**	**Percent**
Thurston	62,047	4,046	6.5%	14,955	24.1%
Wahkiakum	1,269	61	4.8%	493	38.9%
Walla Walla	17,589	1,424	8.1%	5,557	31.6%
Whatcom	48,645	2,803	5.8%	12,217	25.1%
Whitman	13,582	500	3.7%	2,711	20.0%
Yakima	66,174	7,713	11.7%	19,047	28.8%
STATE	1,875,508	126,021	6.7%	450,010	24.0%
Source: Census, STF 3A, Tables P-94 and P-95.					

TABLE B-6. MEAN INCOME FOR HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY		
County	**Mean Income Households Receiving Public Assistance**	**Mean Income Households Receiving Social Security Income**
Adams	$4,692	$8,236
Asotin	$4,442	$8,245
Benton	$4,425	$8,388
Chelan	$3,785	$7,935
Clallam	$4,769	$8,377
Clark	$4,327	$8,267
Columbia	$4,132	$7,754
Cowlitz	$4,375	$8,223
Douglas	$4,353	$8,329
Ferry	$3,632	$7,814
Franklin	$3,956	$8,223
Garfield	$4,461	$8,396
Grant	$4,620	$7,832
Grays Harbor	$4,687	$8,269
Island	$4,354	$8,330
Jefferson	$3,775	$8,707
King	$4,495	$8,481

TABLE B-6. MEAN INCOME FOR HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY		
County	**Mean Income Households Receiving Public Assistance**	**Mean Income Households Receiving Social Security Income**
Kitsap	$4,352	$6,931
Kittitas	$4,170	$7,932
Klickitat	$5,316	$8,204
Lewis	$4,479	$7,739
Lincoln	$5,470	$8,227
Mason	$4,580	$8,681
Okanogan	$4,072	$7,399
Pacific	$5,055	$8,220
Pend Oreille	$4,393	$7,876
Pierce	$4,610	$7,914
San Juan	$5,273	$8,033
Skagit	$4,653	$8,348
Skamania	$4,437	$7,312
Snohomish	$4,734	$8,308
Spokane	$4,576	$8,158
Stevens	$4,395	$7,468
Thurston	$4,494	$8,290
Wahkiakum	$2,949	$8,288

TABLE B-6. MEAN INCOME FOR HOUSEHOLDS RECEIVING SOCIAL SECURITY AND PUBLIC ASSISTANCE BY COUNTY		
County	**Mean Income Households Receiving Public Assistance**	**Mean Income Households Receiving Social Security Income**
Walla Walla	$4,218	$8,102
Whatcom	$4,282	$7,998
Whitman	$5,373	$8,862
Yakima	$4,166	$7,787
Source: Census, STF 3A, Tables P-94 and P-95.		

TABLE B-7. UNEMPLOYMENT IN WASHINGTON COUNTIES				
County	**1992**	**1991**	**1990**	**1989**
Adams	15.0%	13.6%	10.6%	12.0%
Asotin	5.4%	5.0%	4.1%	5.1%
Benton	7.6%	7.0%	6.0%	7.7%
Chelan	11.1%	10.3%	8.0%	10.3%
Clallam	9.1%	7.9%	6.9%	6.9%
Clark	7.7%	6.6%	4.9%	5.9%
Columbia	12.7%	11.7%	9.4%	13.8%
Cowlitz	10.5%	8.2%	7.0%	8.2%
Douglas	8.5%	8.1%	7.2%	8.5%
Ferry	11.7%	10.0%	8.9%	11.8%
Franklin	11.9%	12.0%	10.1%	12.3%
Garfield	5.9%	4.1%	4.0%	5.1%
Grant	11.0%	10.0%	8.1%	10.1%
Grays Harbor	12.9%	11.5%	9.2%	10.3%
Island	6.1%	4.5%	3.5%	4.6%
Jefferson	8.5%	6.2%	4.7%	5.8%
King	6.0%	4.7%	3.4%	4.5%
Kitsap	6.3%	5.1%	4.2%	5.4%

TABLE B-7. UNEMPLOYMENT IN WASHINGTON COUNTIES				
County	**1992**	**1991**	**1990**	**1989**
Kittitas	14.1%	11.0%	7.9%	9.0%
Klickitat	13.8%	13.0%	11.5%	13.5%
Lewis	11.1%	10.5%	8.0%	8.9%
Lincoln	6.0%	5.6%	4.1%	4.7%
Mason	9.3%	8.8%	6.3%	7.3%
Okanogan	12.2%	11.6%	9.7%	11.9%
Pacific	10.4%	10.1%	8.7%	9.8%
Pend Oreille	14.0%	13.4%	13.0%	9.5%
Pierce	7.9%	6.4%	4.8%	6.3%
San Juan	5.4%	3.4%	2.6%	4.0%
Skagit	10.2%	8.4%	6.7%	8.4%
Skamania	26.5%	19.5%	15.7%	18.4%
Snohomish	6.5%	5.3%	3.8%	4.9%
Spokane	6.8%	6.2%	5.4%	6.5%
Stevens	13.1%	11.0%	9.3%	9.4%
Thurston	6.6%	5.9%	4.9%	6.3%
Wahkiakum	10.5%	9.2%	9.0%	8.2%

Walla Walla	7.2%	7.1%	5.9%	7.1%
Whatcom	7.4%	6.3%	4.8%	6.7%
Whitman	3.3%	2.8%	2.2%	2.7%
Yakima	12.5%	11.6%	9.7%	12.0%
STATE	7.5%	6.3%	4.9%	6.2%
Source:				

TABLE B-8. Persons by County at 100%, 125% and 200% of Poverty Level			
County	**100% of Poverty**	**125% of Poverty**	**200% of Poverty**
Adams	2,360	3,282	6,217
Asotin	3,331	4,302	6,750
Benton	12,402	16,999	30,423
Chelan	7,844	10,427	18,971
Clallam	6,852	9,794	18,367
Clark	21,910	30,664	61,971
Columbia	757	994	1,617
Cowlitz	10,747	13,927	25,914
Douglas	3,170	4,461	8,585
Ferry	1,484	1,759	2,774
Franklin	8,491	10,657	17,001
Garfield	231	336	732
Grant	10,631	14,295	24,873
Grays Harbor	10,306	14,218	24,290
Island	4,156	6,244	16,527
Jefferson	2,684	3,856	7,189
King	117,589	157,518	292,282
Kitsap	17,119	23,041	47,922

TABLE B-8. Persons by County at 100%, 125% and 200% of Poverty Level			
County	**100% of Poverty**	**125% of Poverty**	**200% of Poverty**
Kittitas	4,913	6,253	10,501
Klickitat	2,786	3,981	7,211
Lewis	8,385	11,425	22,204
Lincoln	1,071	1,549	3,278
Mason	4,817	6,511	12,145
Okanogan	7,077	9,618	16,169
Pacific	3,166	4,412	7,453
Pend Oreille	1,776	2,272	3,936
Pierce	64,068	87,220	166,206
San Juan	728	1,161	2,300
Skagit	9,012	12,060	22,725
Skamania	774	1,177	2,772
Snohomish	30,173	42,458	89,536
Spokane	448,027	65,981	119,391
Stevens	5,249	6,879	12,607
Thurston	15,907	21,996	42,161
Wahkiakum	341	440	1,070

Walla Walla	7,144	9,828	16,648
Whatcom	15,142	20,501	37,654
Whitman	7,827	9,516	14,010
Yakima	37,486	50,199	82,836
Source:			

APPENDIX C: USE OF REGRESSION ANALYSIS

A technique often used to estimate one set of economic values based upon a second set of data is referred to as regression analysis.[274] The technique establishes a mathematical relationship between the estimated value and the series of data thought to impact it. The estimation technique results in a regression equation which has the form of

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n$$

where Y is the dependent variable being estimated, α is a constant, β is the series of regression coefficients assigned to the independent variables which explain or influence the size of the dependent variable. In this study the dependent variables including estimates of the household energy requirements for heating, cooling, and all other energy uses. The independent variables include such things as the number of heating and cooling degree days, household income and size, and the price of energy.

The application of regression analysis in this study is intended to estimate the energy consumption patterns of average and low-income households for both Washington State as a whole and for each of its 39 counties. Since there is no previously established database or survey which contains this information at the state or sub-state level, the consumption patterns must be estimated. Fortunately, the Energy Information Administration (EIA) publishes a triennial survey of household energy consumption and expenditure patterns for each of the four U.S. Census Regions and its divisions.[275]

The EIA report contains sufficient information to create a series of 26 observations or regional data records which can be used to estimate coefficients to project values for Washington household energy requirements for heating, cooling and all other energy uses. Based upon the regional data, the following regression equations are suggested as reasonable estimates of the three different residential energy requirements.[276]

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274. For a review of various applications of regression models, *see* Chapter 4 of Michael D. Intriligator, *Econometric Models, Techniques, & Applications* (NJ: Prentice-Hall, Inc., 1978).

275. Energy Information Administration, *Household Energy Consumption and Expenditures: Regional Supplement* (Washington, D.C.: U.S. Department of Energy, March 1993).

276. Beneath each equation coefficient is the T-statistic (in parentheses) for that coefficient. While two of the T-statistics are below 2.0, indicating weaker relationships for those coefficients, the data is sufficiently strong so that the full regression equations are significant at the 99 percent confidence level. The statement is based on the fact that for this level of confidence, all F-Statistics should be greater than 3.87 (derived from the F-Distribution table where $F_{0.01} = 3.87$ for 6 explanatory variables and 20 degrees of freedom). As shown in the text of the appendix, this is clearly the case. Also provided in the text is the adjusted R-squared which indicates the level of how much the listed variables "explain" the resulting consumption levels.

1. Residential Heating Consumption

HEAT = -45.299 + 0.003 * HDD - 8.703 * LOW - 1.756 * PRICE + 51.986 HHSF + 0.0001 * HHINC
(4.65) (1.95) (6.19) (2.29) (7.19) (1.33)

Where:

HEAT = Residential Heating Requirements in Million Btus
HDD = Heating Degree Days
LOW = Dummy Variable for Whether Equation is for Low-Income Unit
(where the variable has a value of 0 for an average household and a 1 for a low-income household)
PRICE = 1990 Price of Heating Fuel (in dollars per mmBtu)
HHSF = Average Size of Home (in thousand square feet)
HHINC = Median Household Income (in actual 1990 dollars)

Adjusted R-Squared: 0.970
F-Statistic: 160.70

2. Residential Cooling Consumption

COOL = 4.948 + 0.005 * CDD - 2.384 * LOW - 0.142 * PRICE
(2.45) (11.21) (5.35) (2.06)

Where:

COOL = Residential Cooling Requirements in Million Btus
HDD = Cooling Degree Days
LOW = Dummy Variable for Whether Equation is for Low-Income Unit
(where the variable has a value of 0 for an average household and a 1 for a low-income household)
PRICE = 1990 Price of Electricity (in dollars per mmBtu)

Adjusted R-Squared: 0.912
F-Statistic: 87.67

3. Other Residential Energy Consumption

OTHER = -25.828 + 7.912 * POP - 2.554 * LOW - 0.431 * PRICE - 0.002 HDD + 0.309 * HEAT
(4.12) (3.06) (2.90) (2.43) (2.61) (4.02)

Where:

OTHER = Residential Requirements in Million Btus for All Other Uses
POP = Average Number of Persons per Household
LOW = Dummy Variable for Whether Equation is for Low-Income Unit (where the variable has a value of 0 for an average household and a 1 for a low-income household)
PRICE = 1990 Price of Electricity (in dollars per mmBtu)
HDD = Heating Degree Days
HEAT = Heating Requirements per Household (in mmBtus)

Adjusted R-Squared: 0.737
F-Statistic: 15.02

APPENDIX D: DATA AND SOURCES FOR BASE-YEAR MODEL

The tables in this appendix provide the county-specific data used in the Economic Research Associates spreadsheet model to estimate average and total residential energy consumption and expenditures in the state of Washington.

Table D-1 contains the data utilized to estimate figures for the average household in each county. Part A presents the number of households per county, average household size, median household income, heating degree-days, cooling degree-days, and average prices paid for electricity and for all fuels. Part B sets forth primary heating fuel types by county in percent. The percentage of homes in each county that are heated by electricity, natural gas, propane, heating oil, coal, wood, other sources or no source is presented.

Table D-2, Parts A and B, present the same data for low-income households by county. Heating degree-days, cooling degree days, and average electricity prices are the same as for average households. Because the ratio of primary heating fuel types is different, average all-fuels costs are different than for average households.

The sources for the data in Tables D-1 and D-2 are set forth at the end of the tables.

TABLE D-1, PART A
DATA SETS FOR ESTIMATES: AVERAGE HOUSEHOLD DEMOGRAPHIC AND ENERGY PRICES
1990

	Households	HHSize	HHInc	HDD	CDD	$Elec	$Fuel
Adams	4,586	2.97	$24,604	6,080	400	$14.18	$10.55
Asotin	7,003	2.51	$22,897	5,429	400	$13.46	$8.35
Benton	42,227	2.67	$32,593	4,879	400	$12.48	$11.69
Chelan	20,645	2.53	$24,312	5,879	400	$10.46	$7.86
Clallam	22,837	2.47	$25,434	5,714	44	$13.77	$11.64
Clark	88,440	2.69	$31,800	5,026	269	$12.25	$10.95
Columbia	1,582	2.54	$22,418	5,644	400	$13.46	$9.86
Cowlitz	31,640	2.60	$27,866	5,059	139	$10.46	$7.86
Douglas	9,687	2.71	$27,045	5,924	400	$10.46	$7.86
Ferry	2,247	2.80	$25,170	8,217	122	$15.50	$8.87
Franklin	12,196	3.07	$24,604	5,043	400	$12.54	$11.45
Garfield	922	2.44	$25,156	5,686	400	$13.46	$9.94
Grant	19,745	2.77	$22,372	5,916	400	$10.46	$7.86
Grays Harbor	25,514	2.52	$23,042	5,320	26	$11.49	$9.63
Island	21,787	2.76	$29,161	5,614	28	$15.86	$12.34
Jefferson	8,627	2.34	$25,197	5,258	47	$15.86	$11.33
King	615,792	2.45	$36,179	4,979	177	$15.86	$10.52
Kitsap	69,267	2.74	$32,043	5,193	28	$15.86	$11.45
Kittitas	10,460	2.55	$20,489	6,694	211	$15.86	$11.00
Klickitat	6,210	2.68	$23,012	6,255	400	$15.06	$10.08
Lewis	22,478	2.64	$24,410	5,210	172	$11.51	$8.87
Lincoln	3,605	2.46	$24,617	6,812	340	$14.18	$10.08
Mason	14,565	2.63	$26,304	5,229	148	$15.59	$11.44
Okanogan	12,654	2.64	$20,303	6,698	400	$10.46	$7.86

Pacific	7,896	2.39	$20,029	5,022	26	$13.07	$10.32
Pend Oreille	3,395	2.63	$20,808	7,434	190	$10.46	$7.86
Pierce	214,652	2.73	$30,412	5,026	129	$15.86	$11.92
San Juan	4,392	2.28	$31,278	5,706	27	$15.86	$10.93
Skagit	30,573	2.60	$28,389	5,418	63	$15.86	$10.03
Skamania	3,066	2.70	$28,778	5,184	400	$12.60	$9.38
Snohomish	171,713	2.71	$36,847	5,352	76	$12.75	$10.57
Spokane	141,619	2.55	$25,769	6,882	400	$14.18	$8.95
Stevens	11,241	2.75	$24,440	7,133	202	$14.18	$8.96
Thurston	62,150	2.59	$30,976	5,709	94	$15.86	$11.04
Wahkiakum	1,321	2.52	$26,969	5,247	83	$14.33	$9.74
Walla Walla	17,623	2.75	$24,414	4,918	400	$13.46	$9.54
Whatcom	48,543	2.63	$28,367	5,724	62	$15.86	$10.20
Whitman	13,546	2.86	$21,674	6,627	249	$14.18	$10.15
Yakima	65,985	2.86	$23,612	5,817	400	$13.46	$10.07
State	1,872,431	2.60	$31,183	5,379	222	$12.88	$9.83

TABLE D-1, PART B
DATA SETS FOR ESTIMATES: AVERAGE HOUSEHOLD PRIMARY HEATING SOURCES
1990

	Gas	LPG	Electric	Oil	Coal	Wood	Other/None
Adams	20.3%	2.2%	57.6%	11.7%	0.4%	7.1%	0.7%
Asotin	36.8%	1.2%	40.3%	8.9%	0.1%	12.1%	0.6%
Benton	4.8%	0.4%	86.3%	3.9%	0.0%	4.3%	0.2%
Chelan	5.9%	0.3%	81.4%	4.6%	0.0%	7.4%	0.4%
Clallam	0.1%	2.0%	68.2%	3.2%	0.0%	25.8%	0.5%
Clark	6.7%	0.5%	76.8%	5.3%	0.0%	10.4%	0.3%
Columbia	0.0%	1.8%	42.0%	28.1%	2.1%	24.9%	1.0%
Cowlitz	3.0%	0.3%	82.8%	2.8%	0.0%	10.6%	0.4%
Douglas	2.0%	1.3%	86.7%	4.4%	0.0%	4.9%	0.7%
Ferry	0.0%	1.8%	22.9%	5.4%	0.1%	69.2%	0.6%
Franklin	5.8%	1.6%	82.2%	5.8%	0.0%	4.3%	0.4%
Garfield	0.3%	0.8%	46.1%	21.5%	1.6%	27.7%	2.1%
Grant	2.3%	0.5%	93.5%	1.4%	0.0%	1.8%	0.5%
Grays Harbor	5.3%	1.3%	61.0%	6.4%	0.0%	25.2%	0.9%
Island	7.1%	2.2%	60.9%	7.5%	0.0%	21.7%	0.6%
Jefferson	0.1%	4.3%	47.0%	8.8%	0.0%	39.4%	0.5%
King	33.8%	0.9%	46.7%	14.2%	0.0%	3.5%	0.9%
Kitsap	14.9%	1.3%	52.3%	15.0%	0.0%	15.8%	0.6%
Kittitas	12.4%	3.0%	47.0%	8.6%	0.3%	27.8%	1.0%
Klickitat	9.1%	2.2%	39.5%	9.3%	0.2%	38.8%	0.8%
Lewis	11.9%	2.0%	47.5%	2.6%	0.8%	34.7%	0.5%
Lincoln	10.4%	0.9%	46.3%	25.8%	0.4%	14.7%	1.4%
Mason	5.0%	3.5%	52.1%	3.8%	0.0%	34.5%	0.9%
Okanogan	0.0%	1.2%	61.7%	5.1%	0.0%	31.4%	0.5%
Pacific	0.1%	2.3%	54.6%	4.4%	0.0%	37.7%	0.9%

Pend Oreille	0.0%	1.3%	50.8%	2.0%	0.1%	44.8%	0.9%
Pierce	21.9%	1.0%	60.1%	8.4%	0.0%	8.0%	0.6%
San Juan	0.3%	2.1%	44.4%	5.6%	0.0%	46.9%	0.6%
Skagit	25.6%	2.8%	38.8%	9.1%	0.0%	22.8%	0.8%
Skamania	3.6%	1.7%	44.4%	5.2%	0.0%	44.1%	1.0%
Snohomish	15.1%	0.9%	66.9%	5.0%	0.0%	11.6%	0.4%
Spokane	33.5%	0.8%	43.3%	12.7%	0.3%	8.3%	1.2%
Stevens	7.7%	1.1%	32.3%	4.8%	0.1%	53.3%	0.7%
Thurston	22.5%	1.7%	50.3%	6.4%	0.2%	18.4%	0.4%
Wahkiakum	0.0%	3.7%	36.4%	9.0%	0.0%	49.7%	1.2%
Walla Walla	28.7%	1.1%	46.9%	13.0%	0.2%	9.5%	0.7%
Whatcom	29.0%	3.5%	41.3%	7.4%	0.1%	17.6%	1.1%
Whitman	23.3%	1.1%	55.6%	10.4%	0.9%	7.1%	1.7%
Yakima	19.1%	1.4%	52.4%	11.4%	0.4%	14.6%	0.8%
State	22.4%	1.1%	55.1%	9.9%	0.1%	10.6%	0.7%

TABLE D-2, PART A
DATA SETS FOR ESTIMATES: LOW-INCOME HOUSEHOLD DEMOGRAPHICS AND ENERGY PRICES
1990

	Households	HHSize	HHInc	HDD	CDD	$Elec	$Fuel
Adams	1,040	3.18	$13,110	6,080	400	$14.18	$11.29
Asotin	1,678	2.62	$11,900	5,429	400	$13.46	$8.98
Benton	6,304	2.72	$12,305	4,879	400	$12.48	$11.78
Chelan	4,158	2.55	$11,945	5,879	400	$10.46	$7.86
Clallam	4,200	2.41	$11,789	5,714	44	$13.77	$11.86
Clark	11,722	2.65	$12,375	5,026	269	$12.25	$11.03
Columbia	405	2.53	$11,979	5,644	400	$13.46	$9.52
Cowlitz	5,611	2.53	$12,118	5,059	139	$10.46	$7.86
Douglas	1,615	2.80	$12,411	5,924	400	$10.46	$7.86
Ferry	570	3.11	$12,669	8,217	122	$15.50	$8.82
Franklin	3,120	3.47	$13,394	5,043	400	$12.54	$11.75
Garfield	156	2.22	$11,697	5,686	400	$13.46	$10.30
Grant	4,896	2.95	$12,593	5,916	400	$10.46	$7.86
Grays Harbor	5,800	2.50	$11,903	5,320	26	$11.49	$9.88
Island	2,342	2.83	$12,566	5,614	28	$15.86	$12.98
Jefferson	1,603	2.43	$11,422	5,258	47	$15.86	$11.29
King	66,943	2.40	$11,723	4,979	177	$15.86	$12.33
Kitsap	8,874	2.70	$12,502	5,193	28	$15.86	$11.74
Kittitas	3,035	2.27	$12,010	6,694	211	$15.86	$12.35
Klickitat	1,465	2.75	$12,332	6,255	400	$15.06	$10.71
Lewis	4,633	2.51	$12,239	5,210	172	$11.51	$9.13
Lincoln	644	2.44	$11,752	6,812	340	$14.18	$10.51
Mason	2,534	2.70	$12,217	5,229	148	$15.59	$11.73
Okanogan	3,589	2.72	$12,225	6,698	400	$10.46	$7.86
Pacific	1,931	2.34	$11,572	5,022	26	$13.07	$10.81

Pend Oreille	856	2.69	$12,199	7,434	190	$10.46	$7.86
Pierce	32,604	2.79	$12,480	5,026	129	$15.86	$12.65
San Juan	496	2.38	$11,287	5,706	27	$15.86	$9.87
Skagit	4,667	2.63	$12,136	5,418	63	$15.86	$11.00
Skamania	548	2.17	$12,407	5,184	400	$12.60	$10.54
Snohomish	16,085	2.68	$12,429	5,352	76	$12.75	$11.10
Spokane	27,792	2.45	$12,001	6,882	400	$14.18	$9.96
Stevens	2,620	2.66	$12,540	7,133	202	$14.18	$9.21
Thurston	8,579	2.61	$12,115	5,709	94	$15.86	$12.08
Wahkiakum	209	2.14	$11,912	5,247	83	$14.33	$10.66
Walla Walla	3,768	2.84	$12,528	4,918	400	$13.46	$10.12
Whatcom	8,310	2.56	$12,216	5,724	62	$15.86	$11.31
Whitman	4,009	2.84	$12,832	6,627	249	$14.18	$11.70
Yakima	16,320	3.13	$12,830	5,817	400	$13.46	$10.53
State	275,731	2.61	$12,128	5,379	222	$12.88	$10.52

TABLE D-2, PART B
Data Sets for Estimates: Low-Income Household Primary Heating Sources
1990

	Gas	LPG	Electric	Oil	Coal	Wood	Other/None
Adams	19.2%	1.4%	67.5%	7.9%	0.0%	3.9%	0.0%
Asotin	35.1%	2.4%	47.7%	7.4%	0.0%	6.9%	0.4%
Benton	4.6%	0.6%	87.8%	3.3%	0.0%	3.6%	0.2%
Chelan	5.4%	0.5%	82.0%	3.5%	0.0%	8.2%	0.4%
Clallam	0.4%	2.4%	71.0%	2.7%	0.0%	23.1%	0.4%
Clark	8.2%	1.0%	78.4%	4.0%	0.1%	8.2%	0.2%
Columbia	0.0%	1.5%	40.0%	18.5%	3.7%	34.8%	1.5%
Cowlitz	2.9%	0.2%	89.3%	1.6%	0.0%	5.5%	0.6%
Douglas	1.8%	2.8%	84.8%	5.0%	0.0%	5.3%	0.4%
Ferry	0.0%	2.6%	21.4%	4.9%	0.4%	70.7%	0.0%
Franklin	5.4%	2.5%	86.7%	3.2%	0.0%	2.0%	0.2%
Garfield	0.0%	0.0%	48.7%	24.4%	0.0%	26.9%	0.0%
Grant	3.4%	0.7%	93.2%	1.0%	0.0%	1.3%	0.3%
Grays Harbor	6.4%	1.4%	66.9%	5.1%	0.0%	19.5%	0.8%
Island	7.3%	2.1%	67.7%	6.5%	0.0%	16.3%	0.0%
Jefferson	0.0%	5.7%	45.9%	8.9%	0.0%	38.6%	0.9%
King	19.7%	1.1%	65.3%	9.1%	0.1%	2.3%	2.4%
Kitsap	19.2%	2.4%	56.3%	11.1%	0.0%	10.1%	0.9%
Kittitas	11.1%	2.0%	63.2%	7.5%	0.1%	13.8%	2.3%
Klickitat	11.7%	3.3%	47.8%	6.6%	0.5%	28.6%	1.4%
Lewis	13.2%	2.6%	52.4%	2.7%	0.5%	28.1%	0.5%
Lincoln	7.1%	0.3%	51.6%	21.4%	1.1%	17.5%	0.9%
Mason	7.8%	5.9%	54.2%	2.5%	0.0%	29.2%	0.4%
Okanogan	0.0%	0.9%	64.1%	4.5%	0.0%	30.2%	0.3%
Pacific	0.4%	2.5%	61.8%	3.4%	0.0%	31.6%	0.3%

Pend Oreille	0.0%	1.5%	55.0%	1.2%	0.0%	40.7%	1.6%
Pierce	19.4%	1.7%	67.7%	5.7%	0.0%	4.5%	1.0%
San Juan	0.6%	2.8%	32.3%	4.2%	0.4%	59.7%	0.0%
Skagit	22.3%	3.6%	49.0%	6.3%	0.0%	17.6%	1.3%
Skamania	2.4%	2.6%	62.4%	2.9%	0.0%	29.7%	0.0%
Snohomish	10.4%	1.3%	74.7%	3.7%	0.0%	9.2%	0.8%
Spokane	27.0%	1.1%	54.9%	9.2%	0.5%	5.4%	1.8%
Stevens	7.3%	1.9%	34.8%	5.5%	0.0%	49.8%	0.8%
Thurston	15.9%	2.6%	60.3%	5.1%	0.4%	14.9%	0.8%
Wahkiakum	0.0%	7.7%	45.0%	12.0%	0.0%	34.4%	1.0%
Walla Walla	26.6%	2.5%	54.7%	8.7%	0.3%	6.4%	0.8%
Whatcom	22.4%	3.1%	53.6%	4.7%	0.1%	13.9%	2.2%
Whitman	14.0%	0.7%	73.0%	6.6%	0.8%	3.3%	1.5%
Yakima	19.0%	1.9%	59.6%	6.9%	0.4%	11.3%	0.9%
State	16.0%	1.6%	65.2%	6.6%	0.2%	9.1%	1.3%

Sources: Tables D-1 and D-2.

PART A:

Households (Number of Households): The number of occupied housing units was used as a proxy for households, as determined in "1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, Washington," 1990 CPH-5-49, US Department of Commerce, Bureau of the Census, Washington, DC, May 1992, Table 14. This data was not published for low-income households. For this project, data for low-income households was obtained from a special Census data run requested by CTED.

HHSize (Average Household Size): Average household size was determined by dividing the total population ("1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, Washington," 1990 CPH-5-49, US Department of Commerce, Bureau of the Census, Washington, DC, May 1992, Table 2) by the number of households, as determined above. The 1990 Census publications did not provide low-income population figures. Therefore, the low-income population figures for each county were obtained from "Why is Poverty Growing in Good Economic Times?" Washington State Office of Financial Management, Olympia, 1990. These figures were divided by the low-income household figures as discussed above to determine average household sizes for low-income households.

HHInc (Household Income): Income figures for the "Average" household represent Median Household Income, as reported in "1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, Washington," 1990 CPH-5-49, US Department of Commerce, Bureau of the Census, Washington, DC, May 1992, Table 10. "Low-Income" figures represent the cutoff level below which a household of the average size for that county is determined to be "low-income," as set forth in the same source, Appendix B, Table A.

HDD (Heating Degree Days): Heating-degree days are 30-year average heating degree days, population-weighted, based on at least three weather stations within each county, as provided in "Washington State Low-Income Weatherization Assistance Plan, 1990," Washington State Department of Community Development, Olympia, March 1990, Exhibit G. Most of the figures used by CTED are close to the data provided in Climates of the States, by James Ruffner, National Oceanic and Atmospheric Administration, 1985 by the Gale Research Company, Detroit, MI, pp. 1182-1201.

CDD (Cooling Degree Days): Cooling-degree days were estimated by Economic Research Associates from data provided in Climates of the States, by James Ruffner, National Oceanic and Atmospheric Administration, 1985 by the Gale Research Company, Detroit, MI, pp. 1182-1201.

$Elec (Average Electricity Price): Average electricity prices were obtained from "State Energy Price and Expenditure Report, 1990," US Department of Energy, Energy Information

Administration, Washington, DC, September 1992, pp. 163-165; "Financial Statistics of Selected Publicly Owned Electric Utilities, 1990," US Department of Energy, Energy Information Administration, Washington, DC, February 1992, pp. 253-255; "Financial Statistics of Selected Investor-Owned Electric Utilities, 1990," US Department of Energy, Energy Information Administration, Washington, DC, January 1992, p. 265; and "Annual Statistics of Electric Companies, 1982-1991," Utilities Division, Washington Utilities and Transportation Commission, Olympia, January 1993, pp. 23, 29, and 39. Additional data was obtained from "Washington State Energy Use Profile, 1960-1990," Prepared by Mark Anderson, Washington State Energy office, Olympia, July 1992.

$Fuel (Average Price of All Fuels): The average fuel price is a weighted average based on the percentage of each fuel used for primary heating in each county, and the average cost of each fuel in that county. Due to the differences in heating fuels for low-income and average population, these figures differ for the two populations. Prices for electricity are from the sources listed above. Natural gas prices are from "Annual Statistics of Gas Companies, 1982-1991," Gas Program Section, Washington Utilities and Transportation Commission, Olympia, January, 1993, pp. 20, 34, and 55; and from "State Energy Price and Expenditure Report, 1990," US Department of Energy, Energy Information Administration, Washington, DC. Average LPG, Fuel Oil, and Coal prices for the state are also from the "State Energy Price and Expenditure Report." Wood price data was obtained from "Washington State Energy Use Profile, 1960-1990," Prepared by Mark Anderson, Washington State Energy office, Olympia, July 1992, Table 11.

PART B:

Primary Heating Fuel Data: The percentage of homes in each county with each of the five main categories of heating fuel is presented in "1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, Washington," 1990 CPH-5-49, US Department of Commerce, Bureau of the Census, Washington, DC, May 1992, Table 14. This data was not published for low-income households. For this project, data for low-income households was obtained from a special Census data run requested by CTED.

APPENDIX E: SOURCES USED IN YEAR 2000 PROJECTIONS

As noted in the text of the report, Economic Research Associates did not generate the forecasts utilized in the year 2000 projections. Instead, we utilized reasonable forecasts provided by agencies that are in the business of making such forecasts.

Table E-1 contains the estimated annual growth rates utilized in this study for overall energy consumption, consumption of energy used for heating, income, energy prices, average household size, and number of households per county. The sources for these forecasts are presented following the table.

TABLE E-1
AVERAGE ANNUAL RATES OF GROWTH
1990-2000

	Households	HHSize	HHInc	Total Consumption	Heat Consumption	$Fuel
Average Annual Rate of Growth	2.6%	-0.6%	1.3%	-0.5%	-0.5%	1.6%

Sources: Table E-1.

Households (Number of Households): The average annual rate of increase for the number of households is based on the actual annual rate for Washington State between 1970 and 1990, as published in "1990 Population Trends for Washington State," Washington Office of Finance and Management, Olympia, August, 1991, p. 36.

HHSize (Average Household Size): The average annual rate of increase for household size is based on the NWPPC medium forecast, as published in "1991 Northwest Conservation and Electric Power Plan," Northwest Power Planning Council, Volume II, Part 1, p. 125.

HHInc (Household Income): The average annual rate of increase for household income is based on projections made for Washington State in **BEA, 1990-2000** (*see* footnote 52 in text for this cite).

Total Consumption (Average Household Consumption for all End-Uses): The average annual rate of increase for all household energy use is based on the NWPPC medium forecast, as published in "1991 Northwest Conservation and Electric Power Plan," Northwest Power Planning Council, Volume II, Part 1, p. 221.

Heat Consumption (Average Household Consumption for Heating Only): The average annual rate of increase for household heating energy use is based on the NWPPC medium forecast, as published in "1991 Northwest Conservation and Electric Power Plan," Northwest Power Planning Council, Volume II, Part 1, p. 221.

$Fuel (Energy Prices): The average annual rate of increase for energy prices is based on a weighted average of NWPPC data on electricity prices for investor-owned utilities,

public electric utilities, and natural gas prices, as published in "1991 Northwest Conservation and Electric Power Plan," Northwest Power Planning Council, Volume II, Part 1, p. 221.

APPENDIX F: COUNTY ENERGY PATTERNS, 1990

The tables in this appendix provide estimates of residential energy consumption and expenditure patterns for average and low-income households in the state of Washington in the year 1990.

Table F-1, Part A, contains estimates of energy consumption for the average household in each county. Separate estimates are provided for space heat, air conditioning, and all other uses. This table also contains the number of households and estimated total energy consumed for heating and for all uses by county. Part B contains estimated energy expenditure data related to the consumption figures presented in Part A.

Table F-2, Parts A and B, contain the same estimates for low-income households in each county of the state.

TABLE F-1, PART A
ESTIMATED 1990 AVERAGE HOUSEHOLD AND TOTAL COUNTY ENERGY CONSUMPTION
(MMBTU)

	Per Household Consumption				Total	Per County Consumption	
	Total	Heat	AC	Other	Households	Total	Heat
Adams	95.9	50.3	4.9	40.6	4,586	439,579	230,696
Asotin	95.3	51.5	5.0	38.8	7,003	667,647	360,604
Benton	94.1	47.2	5.2	41.7	42,227	3,972,416	1,994,233
Chelan	98.9	54.3	5.5	39.2	20,645	2,042,798	1,120,259
Clallam	88.4	47.5	3.2	37.7	22,837	2,019,655	1,085,250
Clark	94.9	48.7	4.5	41.7	88,440	8,393,884	4,307,931
Columbia	93.0	49.4	5.0	38.6	1,582	147,082	78,115
Cowlitz	98.6	52.9	4.2	41.6	31,640	3,119,847	1,672,699
Douglas	101.3	55.3	5.5	40.5	9,687	981,304	536,057
Ferry	97.5	60.2	3.4	33.9	2,247	219,083	135,317
Franklin	95.1	45.4	5.2	44.5	12,196	1,159,895	554,203
Garfield	93.0	50.3	5.0	37.6	922	85,720	46,382
Grant	100.2	53.7	5.5	41.1	19,745	1,979,227	1,060,688
Grays Harbor	92.3	49.0	3.4	39.9	25,514	2,355,726	1,249,376
Island	89.4	47.3	2.8	39.3	21,787	1,948,059	1,029,476
Jefferson	86.2	46.5	2.9	36.8	8,627	743,762	401,480
King	92.6	50.8	3.6	38.3	615,792	57,051,011	31,283,899
Kitsap	91.4	48.4	2.8	40.1	69,267	6,328,821	3,355,695
Kittitas	89.1	50.1	3.7	35.3	10,460	931,744	523,812
Klickitat	93.5	51.1	4.8	37.5	6,210	580,594	317,614
Lewis	95.7	50.4	4.2	41.1	22,478	2,151,668	1,133,040
Lincoln	93.0	53.5	4.6	35.0	3,605	335,389	192,690
Mason	89.4	46.6	3.5	39.3	14,565	1,301,812	679,100
Okanogan	99.2	55.5	5.5	38.2	12,654	1,254,888	702,310
Pacific	87.9	45.8	3.2	38.9	7,896	694,349	361,559

Pend Oreille	98.9	58.0	4.4	36.5	3,395	335,754	196,957
Pierce	90.3	46.5	3.3	40.4	214,652	19,377,278	9,988,801
San Juan	88.9	50.7	2.8	35.3	4,392	390,415	222,784
Skagit	91.9	50.4	3.0	38.5	30,573	2,810,049	1,541,056
Skamania	97.3	50.9	5.2	41.2	3,066	298,347	156,109
Snohomish	96.5	52.1	3.5	40.9	171,713	16,571,387	8,951,976
Spokane	96.5	56.0	4.9	35.5	141,619	13,666,151	7,936,123
Stevens	96.9	56.4	3.9	36.6	11,241	1,088,953	633,712
Thurston	91.4	50.4	3.2	37.8	62,150	5,679,712	3,134,998
Wahkiakum	92.1	49.9	3.3	38.9	1,321	121,648	65,893
Walla Walla	95.2	48.3	5.0	41.8	17,623	1,677,046	851,357
Whatcom	92.1	51.1	3.0	38.1	48,543	4,471,766	2,479,021
Whitman	94.5	51.7	4.2	38.6	13,546	1,279,890	700,984
Yakima	95.7	50.0	5.0	40.7	65,985	6,314,542	3,297,642
State	95.7	51.6	4.2	39.9	1,872,431	179,104,841	96,578,163

TABLE F-1, PART B
ESTIMATED 1990 AVERAGE HOUSEHOLD AND TOTAL COUNTY ENERGY EXPENDITURES
($1990)

	Per Household Expenditures				Total	Per County Expenditures	
	Total	Heat	AC	Other	Households	Total	Heat
Adams	$1,029	$531	$70	$429	4,586	$4,719,969	$2,434,089
Asotin	$822	$430	$68	$324	7,003	$5,755,515	$3,011,314
Benton	$1,103	$552	$65	$487	42,227	$46,596,967	$23,305,415
Chelan	$792	$427	$57	$308	20,645	$16,349,455	$8,805,235
Clallam	$1,036	$553	$44	$439	22,837	$23,666,042	$12,632,983
Clark	$1,045	$533	$56	$456	88,440	$92,429,917	$47,169,071
Columbia	$935	$487	$68	$380	1,582	$1,479,052	$770,289
Cowlitz	$786	$416	$43	$327	31,640	$24,863,679	$13,147,413
Douglas	$810	$435	$57	$318	9,687	$7,850,562	$4,213,406
Ferry	$887	$534	$52	$301	2,247	$1,994,014	$1,200,799
Franklin	$1,094	$520	$65	$509	12,196	$13,346,892	$6,344,327
Garfield	$942	$500	$68	$374	922	$868,414	$461,043
Grant	$802	$422	$57	$323	19,745	$15,837,015	$8,337,004
Grays Harbor	$895	$471	$40	$384	25,514	$22,841,272	$12,027,459
Island	$1,113	$583	$45	$485	21,787	$24,257,509	$12,704,565
Jefferson	$990	$527	$46	$416	8,627	$8,539,072	$4,547,639
King	$994	$534	$57	$403	615,792	$611,933,299	$329,111,258
Kitsap	$1,059	$555	$45	$459	69,267	$73,344,861	$38,431,345
Kittitas	$998	$551	$59	$388	10,460	$10,436,048	$5,759,881
Klickitat	$966	$515	$72	$378	6,210	$5,999,404	$3,200,641
Lewis	$860	$447	$48	$365	22,478	$19,332,065	$10,049,486
Lincoln	$957	$539	$66	$353	3,605	$3,450,637	$1,943,255
Mason	$1,037	$533	$54	$449	14,565	$15,102,477	$7,769,039
Okanogan	$794	$436	$57	$300	12,654	$10,043,052	$5,520,158
Pacific	$916	$472	$42	$402	7,896	$7,232,840	$3,729,874

Pend Oreille	$789	$456	$46	$287	3,395	$2,677,943	$1,548,085
Pierce	$1,090	$555	$53	$482	214,652	$233,880,133	$119,111,758
San Juan	$986	$555	$45	$386	4,392	$4,329,212	$2,435,518
Skagit	$939	$505	$48	$386	30,573	$28,709,431	$15,450,686
Skamania	$930	$478	$65	$387	3,066	$2,850,287	$1,464,808
Snohomish	$1,028	$551	$45	$432	171,713	$176,438,132	$94,603,554
Spokane	$890	$502	$70	$318	141,619	$126,023,244	$71,066,590
Stevens	$889	$505	$56	$328	11,241	$9,987,804	$5,677,952
Thurston	$1,024	$557	$50	$417	62,150	$63,653,003	$34,611,897
Wahkiakum	$912	$486	$48	$379	1,321	$1,204,695	$641,643
Walla Walla	$928	$461	$68	$399	17,623	$16,346,480	$8,121,700
Whatcom	$957	$521	$48	$388	48,543	$46,434,196	$25,284,994
Whitman	$976	$525	$59	$391	13,546	$13,216,241	$7,113,762
Yakima	$980	$503	$68	$410	65,985	$64,693,339	$33,195,788
State	$953	$507	$54	$392	1,872,431	$1,784,451,476	$949,210,140

TABLE F-2, PART A
ESTIMATED 1990 LOW-INCOME HOUSEHOLD AND TOTAL COUNTY ENERGY CONSUMPTION
(MMBTU)

	Per Household Consumption				Total	Per County Consumption	
	Total	Heat	AC	Other	Households	Total	Heat
Adams	80.9	41.6	2.5	36.7	1,040	84,085	43,266
Asotin	79.5	42.8	2.6	34.0	1,678	133,347	71,802
Benton	77.8	38.5	2.8	36.5	6,304	490,241	242,853
Chelan	82.4	45.6	3.1	33.7	4,158	342,435	189,439
Clallam	71.2	38.8	0.8	31.6	4,200	299,016	163,039
Clark	77.9	40.0	2.2	35.7	11,722	912,942	468,967
Columbia	76.1	40.7	2.6	32.8	405	30,820	16,473
Cowlitz	81.3	44.2	1.8	35.4	5,611	456,309	247,803
Douglas	85.3	46.6	3.1	35.6	1,615	137,758	75,315
Ferry	83.2	51.5	1.0	30.7	570	47,419	29,366
Franklin	81.5	36.7	2.8	42.0	3,120	254,241	114,624
Garfield	74.5	41.6	2.6	30.2	156	11,620	6,490
Grant	84.9	45.0	3.1	36.8	4,896	415,759	220,401
Grays Harbor	75.5	40.3	1.1	34.1	5,800	437,699	233,540
Island	73.2	38.5	0.4	34.2	2,342	171,414	90,282
Jefferson	70.2	37.8	0.5	31.9	1,603	112,604	60,649
King	75.5	42.1	1.2	32.3	66,943	5,056,798	2,818,294
Kitsap	74.3	39.7	0.4	34.1	8,874	659,605	352,679
Kittitas	70.1	41.4	1.4	27.3	3,035	212,684	125,573
Klickitat	77.4	42.4	2.4	32.5	1,465	113,335	62,179
Lewis	78.0	41.7	1.8	34.5	4,633	361,359	193,214
Lincoln	76.2	44.7	2.2	29.2	644	49,045	28,818
Mason	73.2	37.9	1.1	34.1	2,534	185,370	96,096
Okanogan	83.1	46.8	3.1	33.2	3,589	298,289	167,959
Pacific	70.8	37.1	0.8	32.9	1,931	136,682	71,616

Pend Oreille	82.6	49.3	2.0	31.3	856	70,740	42,210
Pierce	74.0	37.8	0.9	35.2	32,604	2,413,543	1,233,477
San Juan	72.9	42.0	0.4	30.4	496	36,154	20,843
Skagit	75.4	41.7	0.6	33.1	4,667	351,845	194,628
Skamania	76.3	42.2	2.8	31.4	548	41,839	23,133
Snohomish	79.5	43.4	1.1	35.0	16,085	1,279,218	698,581
Spokane	78.9	47.3	2.5	29.1	27,792	2,193,902	1,315,555
Stevens	79.4	47.7	1.6	30.2	2,620	208,067	124,901
Thurston	74.8	41.7	0.8	32.3	8,579	641,825	358,084
Wahkiakum	72.4	41.2	0.9	30.3	209	15,125	8,606
Walla Walla	79.1	39.6	2.6	36.9	3,768	298,205	149,238
Whatcom	74.8	42.4	0.6	31.8	8,310	621,734	352,059
Whitman	77.6	43.0	1.8	32.8	4,009	311,081	172,570
Yakima	81.1	41.3	2.6	37.2	16,320	1,323,771	673,573
State	79.0	42.9	1.8	34.3	275,731	21,793,623	11,822,304

TABLE F-2, PART B
ESTIMATED 1990 LOW-INCOME HOUSEHOLD AND TOTAL COUNTY ENERGY EXPENDITURES
($1990)

	Per Household Expenditures				Total	Per County Expenditures	
	Total	Heat	AC	Other	Households	Total	Heat
Adams	$921	$470	$36	$415	1,040	$957,358	$488,680
Asotin	$725	$384	$36	$306	1,678	$1,217,279	$644,724
Benton	$918	$454	$35	$430	6,304	$5,788,684	$2,861,489
Chelan	$655	$358	$32	$265	4,158	$2,724,792	$1,488,992
Clallam	$846	$461	$11	$374	4,200	$3,553,932	$1,934,193
Clark	$862	$441	$27	$394	11,722	$10,103,467	$5,174,189
Columbia	$735	$387	$36	$312	405	$297,647	$156,831
Cowlitz	$644	$347	$19	$278	5,611	$3,612,404	$1,947,732
Douglas	$678	$367	$32	$280	1,615	$1,095,689	$591,979
Ferry	$740	$454	$15	$271	570	$421,698	$258,868
Franklin	$960	$432	$35	$493	3,120	$2,994,182	$1,346,834
Garfield	$776	$429	$36	$311	156	$120,997	$66,853
Grant	$675	$354	$32	$289	4,896	$3,307,016	$1,732,350
Grays Harbor	$748	$398	$12	$337	5,800	$4,336,278	$2,308,432
Island	$951	$500	$7	$444	2,342	$2,227,767	$1,171,758
Jefferson	$795	$427	$9	$360	1,603	$1,274,834	$684,500
King	$935	$519	$19	$398	66,943	$62,616,130	$34,741,026
Kitsap	$874	$467	$7	$401	8,874	$7,760,204	$4,140,556
Kittitas	$870	$511	$22	$338	3,035	$2,640,616	$1,550,504
Klickitat	$839	$455	$36	$348	1,465	$1,229,742	$666,214
Lewis	$716	$381	$21	$315	4,633	$3,318,407	$1,763,757
Lincoln	$809	$470	$32	$306	644	$520,732	$302,854
Mason	$863	$445	$17	$401	2,534	$2,185,631	$1,127,548
Okanogan	$661	$368	$32	$261	3,589	$2,373,253	$1,320,157
Pacific	$767	$401	$11	$355	1,931	$1,481,027	$774,094

Pend Oreille	$655	$388	$21	$246	856	$560,520	$331,773
Pierce	$939	$479	$15	$446	32,604	$30,627,370	$15,601,815
San Juan	$722	$415	$7	$300	496	$358,194	$205,746
Skagit	$832	$459	$10	$364	4,667	$3,882,925	$2,140,112
Skamania	$811	$445	$35	$331	548	$444,287	$243,925
Snohomish	$885	$482	$14	$388	16,085	$14,232,026	$7,755,816
Spokane	$797	$472	$36	$289	27,792	$22,151,855	$13,104,332
Stevens	$739	$439	$22	$278	2,620	$1,936,734	$1,150,464
Thurston	$907	$504	$12	$390	8,579	$7,781,291	$4,327,305
Wahkiakum	$775	$439	$13	$322	209	$161,916	$91,722
Walla Walla	$810	$401	$36	$373	3,768	$3,050,678	$1,510,021
Whatcom	$849	$479	$10	$360	8,310	$7,052,984	$3,980,609
Whitman	$912	$504	$25	$383	4,009	$3,657,369	$2,019,052
Yakima	$862	$435	$36	$392	16,320	$14,063,914	$7,091,585
State	$836	$451	$24	$361	275,731	$230,411,871	$124,340,500

APPENDIX G: PROJECTED COUNTY ENERGY PATTERNS, 2000

The tables in this appendix provide projections of residential energy consumption and expenditure patterns for average and low-income households in the state of Washington in the year 2000.

Table G-1, Part A, contains projections of energy consumption for the average household in each county. Separate estimates are provided for space heat and for total use. This table also contains the projections for the number of households and total energy consumed for heating and for all uses by county. Part B contains projected energy expenditure data related to the consumption figures presented in Part A.

Table G-2, Parts A and B, contain the same projections for low-income households in each county of the state.

TABLE G-1, PART A
PROJECTED 2000 AVERAGE HOUSEHOLD AND TOTAL COUNTY ENERGY CONSUMPTION
(MMBTU)

	Per Household Consumption		Total	Per County Consumption	
	Total	Heat	Households	Total	Heat
Adams	91.4	48.0	5,196	474,909	249,415
Asotin	90.9	49.1	8,626	784,095	423,799
Benton	89.7	45.1	60,284	5,407,270	2,716,483
Chelan	94.3	51.8	23,315	2,199,694	1,207,155
Clallam	84.3	45.3	31,567	2,661,884	1,431,361
Clark	90.5	46.5	129,656	11,733,305	6,026,065
Columbia	88.6	47.1	1,594	141,271	75,081
Cowlitz	94.0	50.4	37,679	3,542,537	1,900,670
Douglas	96.6	52.8	12,635	1,220,400	667,140
Ferry	93.0	57.5	2,942	273,478	169,034
Franklin	90.7	43.4	15,112	1,370,401	655,248
Garfield	88.6	48.0	892	79,036	42,796
Grant	95.6	51.3	24,619	2,352,978	1,261,878
Grays Harbor	88.0	46.7	28,763	2,532,206	1,343,925
Island	85.3	45.1	34,953	2,979,889	1,575,876
Jefferson	82.2	44.4	12,425	1,021,368	551,721
King	88.3	48.5	770,419	68,056,352	37,345,126
Kitsap	87.1	46.2	99,328	8,653,272	4,591,428
Kittitas	84.9	47.8	11,806	1,002,714	564,110
Klickitat	89.1	48.8	7,680	684,649	374,803
Lewis	91.3	48.1	27,242	2,486,361	1,310,213
Lincoln	88.7	51.0	3,694	327,652	188,378
Mason	85.2	44.5	20,053	1,708,923	892,105
Okanogan	94.6	53.0	13,927	1,316,849	737,509
Pacific	83.8	43.7	9,042	758,158	395,066

Pend Oreille	94.3	55.4	3,798	358,120	210,227
Pierce	86.1	44.4	282,390	24,306,365	12,538,580
San Juan	84.8	48.4	7,236	613,311	350,224
Skagit	87.6	48.1	40,034	3,508,487	1,925,450
Skamania	92.8	48.6	3,953	366,809	192,068
Snohomish	92.0	49.7	247,215	22,747,966	12,297,317
Spokane	92.0	53.5	173,716	15,983,664	9,288,514
Stevens	92.4	53.8	15,163	1,400,555	815,625
Thurston	87.1	48.1	96,472	8,406,208	4,643,216
Wahkiakum	87.8	47.6	1,408	123,671	67,036
Walla Walla	90.7	46.1	20,122	1,825,750	927,504
Whatcom	87.8	48.7	64,805	5,692,138	3,157,797
Whitman	90.1	49.4	15,207	1,370,020	750,880
Yakima	91.2	47.7	77,331	7,056,057	3,687,495
State	91.2	49.2	2,417,435	220,479,904	118,972,989

TABLE G-1, PART B
PROJECTED 2000 AVERAGE HOUSEHOLD AND TOTAL COUNTY ENERGY EXPENDITURES
($1990)

	Per Household Expenditures		Total	Per County Expenditures	
	Total	Heat	Households	Total	Heat
Adams	$1,149	$593	5,196	$5,971,185	$3,081,524
Asotin	$918	$480	8,626	$7,915,045	$4,144,126
Benton	$1,232	$617	60,284	$74,272,570	$37,173,666
Chelan	$884	$477	23,315	$20,615,203	$11,110,485
Clallam	$1,157	$618	31,567	$36,524,556	$19,510,706
Clark	$1,167	$596	129,656	$151,292,491	$77,262,699
Columbia	$1,044	$544	1,594	$1,663,504	$866,965
Cowlitz	$877	$464	37,679	$33,059,321	$17,493,496
Douglas	$905	$486	12,635	$11,432,646	$6,140,265
Ferry	$991	$597	2,942	$2,914,665	$1,756,460
Franklin	$1,222	$581	15,112	$18,465,312	$8,783,545
Garfield	$1,052	$559	892	$937,592	$498,123
Grant	$896	$472	24,619	$22,046,672	$11,614,150
Grays Harbor	$1,000	$527	28,763	$28,750,266	$15,149,672
Island	$1,243	$652	34,953	$43,450,174	$22,772,613
Jefferson	$1,105	$589	12,425	$13,731,128	$7,317,947
King	$1,110	$597	770,419	$854,784,896	$460,048,096
Kitsap	$1,182	$620	99,328	$117,428,818	$61,574,136
Kittitas	$1,114	$615	11,806	$13,151,157	$7,263,554
Klickitat	$1,079	$576	7,680	$8,284,208	$4,422,700
Lewis	$960	$500	27,242	$26,158,612	$13,607,804
Lincoln	$1,069	$602	3,694	$3,947,407	$2,224,590
Mason	$1,158	$596	20,053	$23,215,061	$11,950,792
Okanogan	$886	$487	13,927	$12,340,817	$6,787,932
Pacific	$1,023	$528	9,042	$9,247,796	$4,772,338

Pend Oreille	$881	$509	3,798	$3,344,694	$1,934,896
Pierce	$1,217	$620	282,390	$343,532,650	$175,080,213
San Juan	$1,101	$620	7,236	$7,963,625	$4,483,333
Skagit	$1,048	$565	40,034	$41,973,775	$22,605,231
Skamania	$1,038	$534	3,953	$4,103,499	$2,110,348
Snohomish	$1,147	$616	247,215	$283,611,342	$152,176,061
Spokane	$994	$561	173,716	$172,595,010	$97,398,172
Stevens	$992	$564	15,163	$15,042,105	$8,557,326
Thurston	$1,144	$622	96,472	$110,316,430	$60,028,080
Wahkiakum	$1,018	$543	1,408	$1,434,120	$764,381
Walla Walla	$1,036	$515	20,122	$20,838,575	$10,360,924
Whatcom	$1,068	$582	64,805	$69,212,045	$37,715,020
Whitman	$1,089	$587	15,207	$16,565,698	$8,922,959
Yakima	$1,095	$562	77,331	$84,650,047	$43,466,869
State	$1,064	$566	2,417,435	$2,572,254,095	$1,369,238,931

TABLE G-2, PART A
PROJECTED 2000 LOW-INCOME HOUSEHOLD AND TOTAL COUNTY ENERGY CONSUMPTION
(MMBTU)

	Per Household Consumption		Total	Per County Consumption	
	Total	Heat	Households	Total	Heat
Adams	77.1	39.7	1,178	90,843	46,776
Asotin	75.8	40.8	2,067	156,605	84,385
Benton	74.1	36.8	9,000	667,318	330,807
Chelan	78.5	43.5	4,696	368,736	204,134
Clallam	67.9	37.0	5,806	394,100	215,036
Clark	74.3	38.2	17,185	1,276,147	656,005
Columbia	72.6	38.8	408	29,602	15,833
Cowlitz	77.5	42.1	6,682	518,132	281,576
Douglas	81.3	44.5	2,106	171,322	93,733
Ferry	79.3	49.2	746	59,192	36,683
Franklin	77.7	35.1	3,866	300,383	135,523
Garfield	71.0	39.7	151	10,714	5,988
Grant	81.0	43.0	6,105	494,269	262,206
Grays Harbor	72.0	38.4	6,539	470,489	251,213
Island	69.8	36.8	3,757	262,207	138,199
Jefferson	67.0	36.1	2,309	154,633	83,345
King	72.0	40.2	83,753	6,032,272	3,364,336
Kitsap	70.9	37.9	12,725	901,865	482,553
Kittitas	66.8	39.5	3,426	228,884	135,233
Klickitat	73.8	40.5	1,812	133,648	73,374
Lewis	74.4	39.8	5,615	417,569	223,427
Lincoln	72.6	42.7	660	47,914	28,173
Mason	69.8	36.2	3,489	243,340	126,237
Okanogan	79.2	44.7	3,950	313,017	176,377
Pacific	67.5	35.4	2,211	149,243	78,252

Pend Oreille	78.8	47.1	958	75,452	45,054
Pierce	70.6	36.1	42,893	3,027,487	1,548,338
San Juan	69.5	40.1	817	56,795	32,766
Skagit	71.9	39.8	6,111	439,296	243,175
Skamania	72.8	40.3	707	51,439	28,461
Snohomish	75.8	41.4	23,158	1,756,015	959,639
Spokane	75.3	45.2	34,091	2,565,946	1,539,738
Stevens	75.7	45.5	3,534	267,605	160,755
Thurston	71.3	39.8	13,317	949,927	530,355
Wahkiakum	69.0	39.3	223	15,377	8,756
Walla Walla	75.5	37.8	4,302	324,647	162,586
Whatcom	71.3	40.4	11,094	791,409	448,456
Whitman	74.0	41.1	4,501	332,988	184,853
Yakima	77.3	39.4	19,126	1,479,221	753,204
State	75.4	40.9	355,987	26,828,174	14,563,694

TABLE G-2, PART B
PROJECTED 2000 LOW-INCOME HOUSEHOLD AND TOTAL COUNTY ENERGY EXPENDITURES
($1990)

	Per Household Expenditures		Total	Per County/State Expenditures	
	Total	Heat	Households	Total	Heat
Adams	$1,028	$525	1,178	$1,211,144	$618,663
Asotin	$810	$429	2,067	$1,674,015	$887,260
Benton	$1,025	$507	9,000	$9,226,790	$4,564,262
Chelan	$732	$400	4,696	$3,435,719	$1,878,817
Clallam	$945	$515	5,806	$5,484,896	$2,987,217
Clark	$962	$493	17,185	$16,537,705	$8,475,296
Columbia	$821	$433	408	$334,767	$176,515
Cowlitz	$719	$388	6,682	$4,803,135	$2,591,585
Douglas	$757	$410	2,106	$1,595,635	$862,701
Ferry	$826	$507	746	$616,399	$378,657
Franklin	$1,071	$482	3,866	$4,142,426	$1,864,654
Garfield	$866	$479	151	$130,636	$72,229
Grant	$754	$395	6,105	$4,603,689	$2,413,310
Grays Harbor	$835	$445	6,539	$5,458,065	$2,907,679
Island	$1,062	$559	3,757	$3,990,388	$2,100,347
Jefferson	$888	$477	2,309	$2,049,978	$1,101,480
King	$1,044	$580	83,753	$87,465,942	$48,562,735
Kitsap	$976	$521	12,725	$12,424,477	$6,633,939
Kittitas	$971	$571	3,426	$3,327,616	$1,955,278
Klickitat	$937	$508	1,812	$1,698,075	$920,585
Lewis	$800	$425	5,615	$4,490,204	$2,388,267
Lincoln	$903	$525	660	$595,699	$346,700
Mason	$963	$497	3,489	$3,359,685	$1,734,460
Okanogan	$738	$411	3,950	$2,916,233	$1,623,348
Pacific	$856	$448	2,211	$1,893,618	$990,447

Pend Oreille	$731	$433	958	$700,078	$414,672
Pierce	$1,049	$535	42,893	$44,986,726	$22,932,825
San Juan	$806	$463	817	$658,900	$378,740
Skagit	$929	$512	6,111	$5,676,915	$3,131,105
Skamania	$905	$497	707	$639,631	$351,423
Snohomish	$988	$539	23,158	$22,876,936	$12,475,742
Spokane	$890	$527	34,091	$30,338,051	$17,959,746
Stevens	$825	$491	3,534	$2,916,813	$1,733,881
Thurston	$1,013	$564	13,317	$13,485,683	$7,504,928
Wahkiakum	$865	$490	223	$192,751	$109,267
Walla Walla	$904	$448	4,302	$3,889,020	$1,926,347
Whatcom	$948	$535	11,094	$10,512,757	$5,937,464
Whitman	$1,019	$563	4,501	$4,584,274	$2,532,545
Yakima	$962	$486	19,126	$18,402,373	$9,285,787
State	$933	$504	355,987	$332,134,489	$179,361,604

APPENDIX H: ACTUAL COUNTY ENERGY BURDENS, 1990

TABLE H-1. COUNTY-BY-COUNTY DISTRIBUTION OF LOW-INCOME HOUSEHOLD ACTUAL TOTAL ENERGY BURDENS BY INCOME RANGE

COUNTIES	LIHEAP INCOME RANGES							
	$0-1999	$2-3999	$4-5999	$6-7999	$8-9999	$10-11,999	$12-14,999	$15,000+
ADAMS	92%	31%	18%	13%	10%	8%	7%	6%
ASOTIN	73%	24%	15%	10%	8%	7%	5%	5%
BENTON	92%	31%	18%	13%	10%	8%	7%	6%
CHELAN	66%	22%	13%	9%	7%	6%	5%	4%
CLALLAM	85%	28%	17%	12%	9%	8%	6%	6%
CLARK	86%	29%	17%	12%	10%	8%	6%	6%
COLUMBIA	74%	25%	15%	11%	8%	7%	5%	5%
COWLITZ	64%	21%	13%	9%	7%	6%	5%	4%
DOUGLAS	68%	23%	14%	10%	8%	6%	5%	5%
FERRY	74%	25%	15%	11%	8%	7%	5%	5%
FRANKLIN	96%	32%	19%	14%	11%	9%	7%	6%
GARFIELD	78%	26%	16%	11%	9%	7%	6%	5%
GRANT	68%	23%	14%	10%	8%	6%	5%	5%
GRAYS HARBOR	75%	25%	15%	11%	8%	7%	6%	5%
ISLAND	95%	32%	19%	14%	11%	9%	7%	6%
JEFFERSON	80%	26%	16%	11%	9%	7%	6%	5%
KING	94%	31%	19%	13%	10%	9%	7%	6%

TABLE H-1. COUNTY-BY-COUNTY DISTRIBUTION OF LOW-INCOME HOUSEHOLD ACTUAL TOTAL ENERGY BURDENS BY INCOME RANGE								
COUNTIES	**LIHEAP INCOME RANGES**							
	$0-1999	**$2-3999**	**$4-5999**	**$6-7999**	**$8-9999**	**$10-11,999**	**$12-14,999**	**$15,000+**
KITSAP	87%	29%	17%	12%	10%	8%	6%	6%
KITTITAS	87%	29%	17%	12%	10%	8%	6%	6%
KLICKITAT	84%	28%	17%	12%	9%	8%	6%	6%
LEWIS	72%	24%	14%	10%	8%	7%	5%	5%
LINCOLN	81%	27%	16%	12%	9%	7%	6%	5%
MASON	86%	29%	17%	12%	10%	8%	6%	6%
OKANOGAN	66%	22%	13%	9%	7%	6%	5%	4%
PACIFIC	77%	26%	15%	11%	9%	7%	6%	5%
PEND OREILLE	66%	22%	13%	9%	7%	6%	5%	4%
PIERCE	94%	31%	19%	13%	10%	9%	7%	6%
SAN JUAN	72%	24%	14%	10%	8%	7%	5%	5%
SKAGIT	83%	28%	17%	12%	9%	8%	6%	6%
SKAMANIA	81%	27%	16%	12%	9%	7%	6%	5%
SNOHOMISH	89%	29%	18%	13%	10%	8%	7%	6%
SPOKANE	80%	27%	16%	11%	9%	7%	6%	5%
STEVENS	74%	25%	15%	11%	8%	7%	5%	5%
THURSTON	91%	30%	18%	13%	10%	8%	7%	6%
WAHKIAKUM	78%	26%	16%	11%	9%	7%	6%	5%
WALLA WALLA	81%	27%	16%	12%	9%	7%	6%	5%

WHATCOM	85%	28%	17%	12%	9%	8%	6%	6%
WHITMAN	91%	30%	18%	13%	10%	8%	7%	6%
YAKIMA	86%	29%	17%	12%	10%	8%	6%	6%

TABLE H-2. COUNTY-BY-COUNTY DISTRIBUTION OF LOW-INCOME HOUSEHOLD ACTUAL HEATING ENERGY BURDENS BY INCOME RANGE								
COUNTIES	**LIHEAP INCOME RANGES**							
	$0-1999	**$2-3999**	**$4-5999**	**$6-7999**	**$8-9999**	**$10-11,999**	**$12-14,999**	**$15,000+**
ADAMS	47%	16%	9%	7%	5%	4%	3%	3%
ASOTIN	38%	13%	8%	5%	4%	3%	3%	3%
BENTON	45%	15%	9%	6%	5%	4%	3%	3%
CHELAN	36%	12%	7%	5%	4%	3%	3%	2%
CLALLAM	46%	15%	9%	7%	5%	4%	3%	3%
CLARK	44%	15%	9%	6%	5%	4%	3%	3%
COLUMBIA	39%	13%	8%	6%	4%	4%	3%	3%
COWLITZ	35%	12%	7%	5%	4%	3%	3%	2%
DOUGLAS	37%	12%	7%	5%	4%	3%	3%	2%
FERRY	45%	15%	9%	6%	5%	4%	3%	3%
FRANKLIN	43%	14%	9%	6%	5%	4%	3%	3%
GARFIELD	43%	14%	9%	6%	5%	4%	3%	3%
GRANT	35%	12%	7%	5%	4%	3%	3%	2%
GRAYS HARBOR	40%	13%	8%	6%	4%	4%	3%	3%
ISLAND	50%	17%	10%	7%	6%	5%	4%	3%
JEFFERSON	43%	14%	9%	6%	5%	4%	3%	3%
KING	52%	17%	10%	7%	6%	5%	4%	3%
KITSAP	47%	16%	9%	7%	5%	4%	3%	3%
KITTITAS	51%	17%	10%	7%	6%	5%	4%	3%

TABLE H-2. COUNTY-BY-COUNTY DISTRIBUTION OF LOW-INCOME HOUSEHOLD ACTUAL HEATING ENERGY BURDENS BY INCOME RANGE								
COUNTIES	**LIHEAP INCOME RANGES**							
	$0-1999	**$2-3999**	**$4-5999**	**$6-7999**	**$8-9999**	**$10-11,999**	**$12-14,999**	**$15,000+**
KLICKITAT	46%	15%	9%	7%	5%	4%	3%	3%
LEWIS	38%	13%	8%	5%	4%	3%	3%	3%
LINCOLN	47%	16%	9%	7%	5%	4%	3%	3%
MASON	45%	15%	9%	6%	5%	4%	3%	3%
OKANOGAN	37%	12%	7%	5%	4%	3%	3%	2%
PACIFIC	40%	13%	8%	6%	4%	4%	3%	3%
PEND OREILLE	38%	13%	8%	6%	4%	4%	3%	3%
PIERCE	48%	16%	10%	7%	5%	4%	4%	3%
SAN JUAN	42%	14%	8%	6%	5%	4%	3%	3%
SKAGIT	46%	15%	9%	7%	5%	4%	3%	3%
SKAMANIA	45%	15%	9%	6%	5%	4%	3%	3%
SNOHOMISH	48%	16%	10%	7%	5%	4%	4%	3%
SPOKANE	47%	16%	9%	7%	5%	4%	3%	3%
STEVENS	44%	15%	9%	6%	5%	4%	3%	3%
THURSTON	50%	17%	10%	7%	6%	5%	4%	3%
WAHKIAKUM	44%	15%	9%	6%	5%	4%	3%	3%
WALLA WALLA	40%	13%	8%	6%	4%	4%	3%	3%

WHATCOM	48%	16%	10%	7%	5%	4%	4%	3%
WHITMAN	50%	17%	10%	7%	6%	5%	4%	3%
YAKIMA	44%	15%	9%	6%	5%	4%	3%	3%

APPENDIX I: COUNTY TOTAL ENERGY NEEDS: DIFFERENT PERCENTAGE OF INCOME LEVELS

TABLE I-1. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (15%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$230	92	9%	$21,132
ASOTIN	$484	23	1%	$11,125
BENTON	$257	398	6%	$102,264
CHELAN	$331	57	1%	$18,885
CLALLAM	$193	285	7%	$54,960
CLARK	$186	1,151	10%	$213,812
COLUMBIA	$398	8	2%	$3,180
COWLITZ	$324	30	1%	$9,720
DOUGLAS	$370	36	2%	$13,308
FERRY	$440	8	1%	$3,520
FRANKLIN	$367	322	10%	$118,020
GARFIELD	$81	22	14%	$1,772
GRANT	$303	77	2%	$23,325
GRAYS HARBOR	$463	109	2%	$50,482
ISLAND	$324	276	12%	$89,376
JEFFERSON	$240	192	12%	$46,140
KING	$663	13,193	20%	$8,744,305

TABLE I-1. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (15%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITSAP	$216	840	9%	$181,260
KITTITAS	$246	324	11%	$79,680
KLICKITAT	$118	123	8%	$14,547
LEWIS	$432	94	2%	$40,604
LINCOLN	$188	58	9%	$10,922
MASON	$248	252	10%	$62,376
OKANOGAN	$337	88	2%	$29,668
PACIFIC	$110	167	9%	$18,439
PEND OREILLE	$291	14	2%	$4,070
PIERCE	$334	3,459	11%	$1,155,351
SAN JUAN	$430	38	8%	$16,336
SKAGIT	$176	591	13%	$104,262
SKAMANIA	$126	60	11%	$7,560
SNOHOMISH	$217	1,637	10%	$355,395
SPOKANE	$117	3,212	12%	$374,464
STEVENS	$410	57	2%	$23,373
THURSTON	$222	538	6%	$119,566
WAHKIAKUM	$151	19	9%	$2,875

TABLE I-1. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (15%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
WALLA WALLA	$134	202	5%	$27,120
WHATCOM	$224	881	11%	$197,019
WHITMAN	$352	344	9%	$121,128
YAKIMA	$197	1,980	12%	$389,160
STATE (sum or average)	$411	31,257	11.3%	$12,860,501

TABLE I-2. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (12%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD NEED	NUMBER	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$250	156	15%	$39,036
ASOTIN	$181	167	10%	$30,235
BENTON	$256	697	11%	$178,206
CHELAN	$111	347	8%	$38,525
CLALLAM	$188	496	12%	$93,456
CLARK	$178	2,200	19%	$392,560
COLUMBIA	$189	49	12%	$9,255
COWLITZ	$65	487	9%	$31,748
DOUGLAS	$170	139	9%	$23,562
FERRY	$204	45	8%	$9,180
FRANKLIN	$363	483	15%	$175,560
GARFIELD	$220	22	14%	$4,832
GRANT	$124	478	10%	$59,130
GRAYS HARBOR	$226	519	9%	$117,372
ISLAND	$313	462	20%	$144,642
JEFFERSON	$351	192	12%	$67,440
KING	$621	15,608	23%	$9,691,960
KITSAP	$219	1,424	16%	$311,696

TABLE I-2. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (12%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD NEED	NUMBER	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITTITAS	$229	554	18%	$127,020
KLICKITAT	$262	123	8%	$32,277
LEWIS	$182	532	11%	$96,752
LINCOLN	$312	58	9%	$18,122
MASON	$219	448	18%	$97,904
OKANOGAN	$138	390	11%	$53,790
PACIFIC	$242	167	9%	$40,369
PEND OREILLE	$96	106	12%	$10,150
PIERCE	$316	5,675	17%	$1,793,265
SAN JUAN	$280	88	18%	$24,656
SKAGIT	$308	591	13%	$181,752
SKAMANIA	$263	60	11%	$15,780
SNOHOMISH	$211	3,021	19%	$636,345
SPOKANE	$253	3,212	12%	$811,564
STEVENS	$209	276	11%	$57,564
THURSTON	$222	1,015	12%	$225,205
WAHKIAKUM	$276	19	9%	$5,245
WALLA WALLA	$269	202	5%	$54,420

WHATCOM	$210	1,487	18%	$312,663
WHITMAN	$321	542	14%	$173,904
YAKIMA	$200	3,427	21%	$684,514
STATE		45,964		$16,871,656

TABLE I-3. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (10%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD NEED	NUMBER	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$276	209	20%	$57,589
ASOTIN	$154	320	19%	$49,200
BENTON	$297	868	14%	$258,224
CHELAN	$202	347	8%	$69,985
CLALLAM	$298	496	12%	$147,816
CLARK	$292	2,200	19%	$643,200
COLUMBIA	$167	91	22%	$15,185
COWLITZ	$162	487	9%	$78,728
DOUGLAS	$254	139	9%	$35,342
FERRY	$176	84	15%	$14,760
FRANKLIN	$387	596	19%	$230,360
GARFIELD	$220	36	23%	$7,936
GRANT	$216	478	10%	$103,,050
GRAYS HARBOR	$183	1,019	18%	$186,512
ISLAND	$367	539	23%	$197,689
JEFFERSON	$303	305	19%	$92,375
KING	$628	16,799	25%	$10,550,565
KITSAP	$328	1,424	16%	$467,176

TABLE I-3. TOTAL LOW-INCOME ENERGY BURDEN BY COUNTY (10%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD NEED	NUMBER	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITTITAS	$336	554	18%	$186,180
KLICKITAT	$245	255	17%	$62,445
LEWIS	$155	977	21%	$151,232
LINCOLN	$252	116	18%	$29,244
MASON	$326	448	18%	$146,024
OKANOGAN	$225	390	11%	$87,790
PACIFIC	$204	320	17%	$65,240
PEND OREILLE	$189	106	12%	$20,030
PIERCE	$363	6,662	20%	$2,421,018
SAN JUAN	$222	146	29%	$32,412
SKAGIT	$288	994	21%	$286,608
SKAMANIA	$260	98	18%	$25,478
SNOHOMISH	$323	3,021	19%	$975,885
SPOKANE	$238	5,622	20%	$1,336,734
STEVENS	$189	475	18%	$89,725
THURSTON	$271	1,263	15%	$342,841
WAHKIAKUM	$221	37	18%	$8,175
WALLA WALLA	$250	361	10%	$90,110

WHATCOM	$317	1,487	18%	$470,963
WHITMAN	$341	672	17%	$228,864
YAKIMA	$310	3,427	21%	$1,062,774
STATE		53,868		$21,325,464

APPENDIX J: COUNTY HEATING NEEDS: DIFFERENT PERCENTAGE OF INCOME LEVELS

TABLE J-1. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (10%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$227	14	1%	$3,180
ASOTIN	$223	23	1%	$5,132
BENTON	$260	77	1%	$20,058
CHELAN	$142	57	1%	$8,106
CLALLAM	$273	59	1%	$16,099
CLARK	$227	198	2%	$44,918
COLUMBIA	$162	8	2%	$1,296
COWLITZ	$134	30	1%	$4,010
DOUGLAS	$161	36	2%	$5,812
FERRY	$254	8	1%	$2,032
FRANKLIN	$243	108	3%	$26,256
GARFIELD	$196	3	2%	$587
GRANT	$106	77	2%	$8,158
GRAYS HARBOR	$208	109	2%	$22,682
ISLAND	$305	74	3%	$22,600
JEFFERSON	$248	78	4%	$19,306
KING	$338	13,193	20%	$4,453,067

TABLE J-1. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (10%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITSAP	$264	173	2%	$45,691
KITTITAS	$95	324	11%	$30,764
KLICKITAT	$222	9	1%	$1,995
LEWIS	$192	94	2%	$18,014
LINCOLN	$264	17	3%	$4,490
MASON	$263	71	3%	$18,695
OKANOGAN	$152	88	2%	$13,384
PACIFIC	$198	35	2%	$6,935
PEND OREILLE	$145	14	2%	$2,,032
PIERCE	$282	1,103	3%	$311,237
SAN JUAN	$220	38	8%	$8,370
SKAGIT	$245	130	3%	$31,870
SKAMANIA	$234	9	2%	$2,105
SNOHOMISH	$275	306	2%	$84,092
SPOKANE	$260	517	2%	$134,524
STEVENS	$220	57	2%	$12,523
THURSTON	$47	538	6%	$25,552
WAHKIAKUM	$259	5	2%	$1,295

TABLE J-1. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (10%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
WALLA WALLA	$179	36	1%	$6,436
WHATCOM	$293	233	3%	$68,307
WHITMAN	$131	344	9%	$44,976
YAKIMA	$209	407	2%	$85,145
STATE		18,700		$5,621,731

TABLE J-2. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (8%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$101	92	9%	$9,320
ASOTIN	$255	23	1%	$5,872
BENTON	$101	398	6%	$40,372
CHELAN	$185	57	1%	$10,566
CLALLAM	$113	285	7%	$32,105
CLARK	$80	1,151	10%	$92,471
COLUMBIA	$207	8	2%	$1,656
COWLITZ	$176	30	1%	$5,290
DOUGLAS	$203	36	2%	$7,292
FERRY	$97	45	8%	$4,350
FRANKLIN	$115	322	10%	$37,184
GARFIELD	$58	22	14%	$1,278
GRANT	$156	77	2%	$11,978
GRAYS HARBOR	$246	109	2%	$26,822
ISLAND	$166	276	12%	$45,680
JEFFERSON	$131	192	12%	$25,184
KING	$374	13,193	20%	$4,931,887
KITSAP	$116	840	9%	$97,400

TABLE J-2. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (8%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITTITAS	$178	324	11%	$57,724
KLICKITAT	$71	123	8%	$8,685
LEWIS	$230	94	2%	$21,574
LINCOLN	$139	58	9%	$8.060
MASON	$117	252	10%	$29,420
OKANOGAN	$195	88	2%	$17,184
PACIFIC	$51	167	9%	$8,487
PEND OREILLE	$194	14	2%	$2,712
PIERCE	$156	3,459	11%	$540,781
SAN JUAN	$120	88	18%	$10,600
SKAGIT	$109	591	13%	$64,629
SKAMANIA	$80	60	11%	$4,780
SNOHOMISH	$126	1,637	10%	$205,914
SPOKANE	$109	3,212	12%	$350,464
STEVENS	$85	276	11%	$23,564
THURSTON	$139	538	6%	$74,672
WAHKIAKUM	$106	19	9%	$2,021
WALLA WALLA	$41	202	5%	$8,202

TABLE J-2. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (8%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
WHATCOM	$145	881	11%	$128,159
WHITMAN	$205	344	9%	$70,656
YAKIMA	$80	1,980	12%	$158,580
STATE		31,563		$7,183,575

TABLE J-3. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (6%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
ADAMS	$135	156	15%	$21,000
ASOTIN	$112	167	10%	$18,708
BENTON	$123	697	11%	$85,618
CHELAN	$86	347	8%	$29,846
CLALLAM	$132	496	12%	$65,576
CLARK	$99	2,200	19%	$218,820
COLUMBIA	$114	49	12%	$5,583
COWLITZ	$58	487	9%	$28,049
DOUGLAS	$113	139	9%	$15,673
FERRY	$115	84	15%	$9,696
FRANKLIN	$134	483	15%	$64,596
GARFIELD	$96	36	23%	$3,444
GRANT	$78	478	10%	$37,452
GRAYS HARBOR	$137	519	9%	$71,142
ISLAND	$181	462	20%	$83,640
JEFFERSON	$132	305	19%	$40,175
KING	$362	15,608	23%	$5,649,972
KITSAP	$139	1,424	16%	$198,568

TABLE J-3. LOW-INCOME HEATING ENERGY BURDEN BY COUNTY (6%)				
COUNTIES		HOUSEHOLDS IN NEED		
	AVG PER HOUSEHOLD SHORTFALL	NUMBER OF HOUSEHOLDS WITH SHORTFALL	PCT OF ALL LOW-INCOME	AGGREGATE LOW-INCOME ENERGY NEED ($$$)
KITTITAS	$191	554	18%	$105,614
KLICKITAT	$99	255	17%	$25,125
LEWIS	$114	532	11%	$60,612
LINCOLN	$136	116	18%	$15,760
MASON	$123	448	18%	$555,000
OKANOGAN	$106	390	11%	$41,520
PACIFIC	$138	167	9%	$23,107
PEND OREILLE	$108	106	12%	$11,488
PIERCE	$167	5,675	17%	$950,545
SAN JUAN	$194	88	18%	$17,080
SKAGIT	$133	994	21%	$132,006
SKAMANIA	$114	98	18%	$11,210
SNOHOMISH	$145	3,021	19%	$437,502
SPOKANE	$136	5,622	20%	$767,184
STEVENS	$109	475	18%	$51,745
THURSTON	$161	1,015	12%	$163,860
WAHKIAKUM	$107	37	18%	$3,943
WALLA WALLA	$131	202	5%	$26,402

WHATCOM	$160	1,487	18%	$237,373
WHITMAN	$208	542	14%	$112,968
YAKIMA	$104	3,427	21%	$355,965
STATE		49,388		$10,252,847

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Adams	$921	$921	$921	$921	$921	$921	$921	$921	$921	$921	$921	$921	$337	$921	$921	$921
Asotin	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725
Benton	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918	$918
Chelan	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655
Clallam	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846	$846
Clark	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Columbia	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735	$735
Cowlitz	$644	$644	$644	$644	$644	$644	$644	$644	$644	$644	$644	$644	$544	$644	$644	$644
Douglas	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678	$678
Ferry	$740	$740	$740	$740	$740	$740	$740	$740	$740	$740	$740	$740	$329	$740	$740	$740
Franklin	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960	$960
Garfield	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776	$776
Grant	$675	$675	$675	$675	$675	$675	$675	$675	$675	$675	$675	$675	$344	$675	$675	$675

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Grays Harbor	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748	$748
Island	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951	$951
Jefferson	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795	$795
King	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935	$935
Kitsap	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874	$874
Kittitas	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870	$870
Klickitat	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839	$839

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Lewis	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716	$716
Lincoln	$809	$809	$809	$809	$809	$809	$809	$809	$809	$809	$809	$809	$337	$809	$809	$809
Mason	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863	$863
Okanogan	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661	$661
Pacific	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767	$767
Pend Oreille	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$655	$337	$655	$655	$655
Pierce	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939	$939

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
San Juan	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722	$722
Skagit	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832	$832
Skamania	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811	$811
Snohomish	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885	$885
Spokane	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797	$797
Stevens	$739	$739	$739	$739	$739	$739	$739	$739	$739	$739	$739	$739	$329	$739	$739	$739
Thurston	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907	$907

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART A)

	$0-1,999				$2-3,999				$4-5,999				$6-7,999			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Wahkiakum	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775	$775

Walla Walla	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810	$810
Whatcom	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849	$849
Whitman	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912	$912
Yakima	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862	$862

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART B)

	$8-9,999				$10-11,999				$12-14,999				$15,000+			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Adams	$0	$574	$921	$921	$0	$0	$572	$921	$0	$0	$0	$0	$0	$0	$0	$0
Asotin	$0	$725	$725	$725	$0	$0	$725	$725	$0	$0	$0	$725	$0	$0	$0	$0
Benton	$0	$60	$918	$918	$0	$0	$918	$918	$0	$0	$0	$489	$0	$0	$0	$0
Chelan	$0	$655	$655	$655	$0	$0	$655	$655	$0	$0	$0	$9	$0	$0	$0	$0
Clallam	$0	$846	$846	$846	$0	$0	$846	$846	$0	$0	$0	$846	$0	$0	$0	$0
Clark	$0	$51	$862	$862	$0	$0	$862	$862	$0	$0	$0	$862	$0	$0	$0	$0
Columbia	$0	$735	$735	$735	$0	$0	$735	$735	$0	$0	$0	$735	$0	$0	$0	$0
Cowlitz	$0	$0	$644	$644	$0	$0	$0	$644	$0	$0	$0	$644	$0	$0	$0	$0
Douglas	$0	$78	$678	$678	$0	$0	$678	$678	$0	$0	$0	$678	$0	$0	$0	$0
Ferry	$0	$64	$740	$740	$0	$0	$560	$740	$0	$0	$0	$740	$0	$0	$0	$0
Franklin	$0	$70	$960	$960	$0	$0	$960	$960	$0	$0	$0	$960	$0	$0	$0	$0
Garfield	$0	$776	$776	$776	$0	$0	$776	$776	$0	$0	$0	$776	$0	$0	$0	$0
Grant	$0	$584	$675	$675	$0	$0	$584	$675	$0	$0	$0	$675	$0	$0	$0	$0
Grays Harbor	$0	$748	$748	$748	$0	$0	$748	$748	$0	$0	$0	$748	$0	$0	$0	$0
Island	$0	$951	$951	$951	$0	$0	$951	$951	$0	$0	$0	$951	$0	$0	$0	$436
Jefferson	$0	$795	$795	$795	$0	$0	$795	$795	$0	$0	$0	$795	$0	$0	$0	$0
King	$512	$935	$935	$935	$0	$267	$935	$935	$0	$0	$216	$935	$0	$0	$0	$935
Kitsap	$0	$874	$874	$874	$0	$0	$874	$874	$0	$0	$0	$874	$0	$0	$0	$634

TABLE K-1. PER HOUSEHOLD ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE (PART B)

	$8-9,999				$10-11,999				$12-14,999				$15,000+			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Kittitas	$0	$138	$870	$870	$0	$0	$32	$870	$0	$0	$0	$870	$0	$0	$0	$0
Klickitat	$0	$839	$839	$839	$0	$0	$839	$839	$0	$0	$0	$839	$0	$0	$0	$0
Lewis	$0	$716	$716	$716	$0	$0	$716	$716	$0	$0	$0	$716	$0	$0	$0	$0
Lincoln	$0	$574	$809	$809	$0	$0	$572	$809	$0	$0	$0	$809	$0	$0	$0	$0
Mason	$0	$863	$863	$863	$0	$0	$863	$863	$0	$0	$0	$863	$0	$0	$0	$0
Okanogan	$0	$148	$661	$661	$0	$0	$44	$661	$0	$0	$0	$661	$0	$0	$0	$0
Pacific	$0	$767	$767	$767	$0	$0	$767	$767	$0	$0	$0	$767	$0	$0	$0	$0
Pend Oreille	$0	$574	$655	$655	$0	$0	$572	$655	$0	$0	$0	$655	$0	$0	$0	$0
Pierce	$0	$939	$939	$939	$0	$0	$939	$939	$0	$0	$0	$939	$0	$0	$0	$0
San Juan	$0	$722	$722	$722	$0	$0	$722	$722	$0	$0	$0	$722	$0	$0	$0	$676
Skagit	$0	$832	$832	$832	$0	$0	$832	$832	$0	$0	$0	$832	$0	$0	$0	$690
Skamania	$0	$811	$811	$811	$0	$0	$811	$811	$0	$0	$0	$811	$0	$0	$0	$0
Snohomish	$504	$885	$885	$885	$0	$257	$885	$885	$0	$0	$204	$885	$0	$0	$0	$885
Spokane	$0	$797	$797	$797	$0	$0	$797	$797	$0	$0	$0	$797	$0	$0	$0	$0
Stevens	$0	$564	$739	$739	$0	$0	$560	$739	$0	$0	$0	$739	$0	$0	$0	$0
Thurston	$0	$907	$907	$907	$0	$0	$907	$907	$0	$0	$0	$907	$0	$0	$0	$380
Wahkiakum	$0	$775	$775	$775	$0	$0	$775	$775	$0	$0	$0	$775	$0	$0	$0	$0

Walla Walla	$0	$810	$810	$810	$0	$0	$810	$810	$0	$0	$0	$810	$0	$0	$0	$0
Whatcom	$0	$849	$849	$849	$0	$0	$849	$849	$0	$0	$0	$849	$0	$0	$0	$620
Whitman	$0	$912	$912	$912	$0	$0	$912	$912	$0	$0	$0	$912	$0	$0	$0	$0
Yakima	$0	$862	$862	$862	$0	$0	$862	$862	$0	$0	$0	$862	$0	$0	$0	$0

TABLE K-2. CUMULATIVE ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE

	HOUSEHOLD SIZE				TOTAL
	1	2	3	4+	
Adams	$179,695	$173,384	$124,891	$244,704	$722,674
Asotin	$405,517	$208,313	$194,426	$358,299	$1,166,555
Benton	$1,601,251	$749,555	$983,319	$1,637,517	$4,971,642
Chelan	$867,312	$519,073	$453,367	$625,993	$2,465,745
Clallam	$797,021	$663,442	$654,537	$1,135,421	$3,250,421
Clark	$2,451,893	$1,299,893	$1,764,721	$2,748,719	$8,265,226
Columbia	$108,245	$42,847	$54,123	$78,929	$284,144
Cowlitz	$1,185,487	$483,057	$596,400	$755,620	$3,020,564
Douglas	$282,084	$181,989	$215,354	$592,105	$1,271,532
Ferry	$81,931	$83,683	$76,765	$84,967	$327,346
Franklin	$564,902	$402,508	$520,198	$1,136,769	$2,624,377
Garfield	$46,723	$19,114	$21,238	$23,362	$110,437
Grant	$947,545	$557,021	$455,545	$774,732	$2,734,843
Grays Harbor	$1,225,808	$838,237	$841,241	$1,159,711	$4,064,997
Island	$911,915	$352,562	$376,292	$447,250	$2,088,019
Jefferson	$345,596	$256,111	$265,368	$336,339	$1,203,414
King	$23,074,887	$12,115,742	$10,169,940	$16,461,581	$61,822,150
Kitsap	$2,047,395	$1,644,949	$1,547,268	$2,211,093	$7,450,705
Kittitas	$897,366	$395,729	$335,445	$562,558	$2,191,098

TABLE K-2. CUMULATIVE ENERGY SHORTFALL USING NET AVAILABLE RESOURCE TEST (COUNTY-BY-COUNTY) BY HOUSEHOLD SIZE					
	HOUSEHOLD SIZE				TOTAL
	1	2	3	4+	
Klickitat	$501,897	$211,684	$170,713	$246,796	$1,131,090
Lewis	$947,779	$582,010	$621,118	$802,932	$2,953,839
Lincoln	$ 121,066	$65,281	$54,371	$134,362	$375,080
Mason	$538,937	$431,841	$435,296	$649,489	$2,055,563
Okanogan	$818,044	$293,621	$328,443	$650,570	$2,090,678
Pacific	$408,679	$301,132	$270,404	$356,442	$1,336,657
Pend Oreille	$148,960	$85,869	$100,236	$141,944	$477,009
Pierce	$7,519,978	$5,481,498	$6,195,156	$9,338,287	$28,534,919
San Juan	$147,995	$80,392	$43,850	$69,083	$341,320
Skagit	$1,120,878	$672,527	$708,506	$1,206,682	$3,708,593
Skamania	$173,196	$58,821	$62,089	$99,772	$393,878
Snohomish	$3,241,860	$2,778,390	$2,902,262	$4,891,092	$13,813,604
Spokane	$6,785,999	$4,193,386	$3,871,636	$4,938,325	$19,789,346
Stevens	$543,907	$334,452	$267,302	$444,944	$1,590,605
Thurston	$1,705,390	$1,426,959	$2,073,317	$2,746,486	$7,952,152
Wahkiakum	$59,675	$22,733	$28,417	$40,178	$151,003
Walla Walla	$913,267	$559,744	$524,392	$889,699	$2,887,102

Whatcom	$1,976,802	$1,345,451	$1,366,905	$1,988,706	$6,677,864
Whitman	$986,527	$770,183	$592,782	$925,951	$3,275,443
Yakima	$15,218,041	$2,147,578	$2,107,361	$5,171,882	$24,644,862
State Total	$81,901,449	$42,830,764	$42,311,993	$67,109,290	$234,153,496

APPENDIX L: SURVEY OF WASHINGTON STATE ENERGY CRISIS HOUSEHOLDS

1. The Survey Tool

The survey consisted of thirteen questions. It was essential that the survey remain short since it was administered as part of the intake process of selected Legal Services Corporation and Community Action Agency offices (discussed below). Ten of the survey questions were designed to be answered by all survey respondents while four questions, as designated on the survey, were designed to be answered only by those who had lost home heat. The first survey question functioned as a threshold question to screen out those who had not lost home heat or been in danger of losing home heat this year. Questions which duplicated the agencies' own intake questions such as income and household size were separated from the other survey questions, so that the intake worker could easily transfer information from their own intake form. The client, therefore, would not be asked the same question twice within the intake process.

2. Survey Administration

The following Legal Services Corporation offices and Community Action Agencies administered the survey.

- Lewis, Mason, and Thurston County CAC, Lacey
- Pierce County Community Action Program, Tacoma
- Evergreen Legal Services, Yakima
- Evergreen Legal Services, Seattle
- The Opportunity Council, Bellingham
- Evergreen Legal Services, Everett
- Chelan Douglas Community Action Council, Wenatchee
- Spokane Neighborhood Assistance Program, Spokane
- Evergreen Legal Services, Vancouver

These agencies were selected so that survey respondents would be regionally diverse. Regional diversity is important because certain fuel sources are more prevalent in some regions than in others.

Prior to the survey administration an FSC staff member thoroughly discussed the survey tool and methodology with either the individual who would be supervising survey administration or those who would be actually administering the survey in each of the eight community groups. In some cases, if distance permitted, FSC staff met in person with the community group staff members that were administering the survey. The discussion was followed up by written instructions to the survey administrators. Part way through the month of June, FSC staff contacted each of the survey administrators to make

sure that no difficulties had been encountered in administering the survey. Each agency reported that survey administration was proceeding smoothly.

In seven agencies the survey was administered to clients during the intake process. After the client explained their reason for calling or visiting the agency, and the client's eligibility for services was verified, the client was then asked "Have you lost heat in your home or received a shutoff notice within the last 12 months?" If the client responded affirmatively, the individual was then asked if he or she would mind answering a few more questions, with the assurance that participation or nonparticipation in the survey had no bearing on receipt of services. Each client who agreed to complete the survey was then asked if they paid their own heating bill (question 2.). All of the responses included in the following analysis are of people who pay their own heating bill.

Two of the community groups administered the survey in a slightly different manner, in order to avoid overburdening intake staff in their offices. One legal services office after asking the first question took the phone numbers of those who were willing to complete the survey and had their legal intern call back later on. One of the Community Action Agencies, rather than administering the survey during the intake process, relied on their list of clients who had received shutoff notices this past winter and utilized this group of individuals for the survey pool.

During the first week of July, completed surveys were returned to FSC offices. All data entry and statistical analysis were conducted by FSC staff.

SHUTOFF SURVEY

1) Have you lost heat in your home or received a shutoff notice within the last 12 months? Yes No

If **No**, STOP.

If **Yes**, please continue with survey.

==========

2) Do you pay your own heating bill? Yes No

3) What is your primary fuel source for home heating?

a) electricity b)gas c)oil d)propane
e) wood f)other

4) Has your heating utility service been shutoff or have you run out of fuel oil, wood or propane within the last

a) six months b) year
c)received shutoff notice but didn't lose utility service **(skip to 9)**

5) If you have lost heat in your home, during what month did you loose it?_____ _____

6) How long did you go without heat?_____

7) What was the reason that you lost heat? **(rotate answers)**

a) broken furnace b) couldn't afford c) forgot to pay bill
d) temporary emergency e) other_____

8) What did you use for heating while your utility service was off?

a) kitchen stove b) portable electric heater c) portable propane heater d) fireplace e) other_____ f) nothing

9) How did you resolve the shutoff or shutoff notice problem? (circle as many as apply)
a) entered into payment plan with utility company
b) received LIHEAP Crisis Assistance
c) received money from a fuel fund (Warm Neighbor, Project Help, etc)

d) received money from a local church (Salvation Army)
e) moved
f) borrowed money from friends or family
g) put bill in someone else's name
h) paid in full with your own funds
i) shutoff not resolved
j) not sure which program received money from
k) other

==========

10) Monthly household income_____

11) Do you receive

a) food stamps b) AFDC c) SSI d) unemployment
e) CEAP f) General Assistance

12) What is your age?_____
13) How many people live in your household?_____

INSTRUCTIONS FOR SURVEY ADMINISTRATORS

Thank you for helping to administer this survey. It will give us some very important information on people who have their utility service shutoff or who have run out of funds to buy fuel oil or wood. Please administer the survey for the entire month of June.

Here are a few pointers about the survey.

1) The first question is intended to screen out people who have not had home heating problems within the last 12 months. So, please ask the first question of everyone and then only continue with the survey if they answer "yes" to the first question.

If the client answers "Yes" to survey question one, please read the following:

> I have a few survey questions regarding home heating bills, which have nothing to do your request for assistance. Do you have few minutes to answer a couple of questions?

If client says "yes", please continue with survey.

If client says "no", please thank them and end conversation.

2) If for question 4 the client answers c) received shutoff notice..., please skip to question 9.

3) For question 7 please rotate the answers. For example, sometimes begin with "forgot to pay bill" and other times begin with "couldn't afford," etc..

4) If you have any questions or problems with the survey, please call Adrienne Quinn (206)459-8004.

APPENDIX M: SURVEY OF STATEWIDE ELECTRIC PRICES

TABLE M-1A. PACIFIC POWER, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES		
Basic Charge = $3.75/month		
		Effective Rate with BPA Credit
Rate ($/kWh), 1st 600 kWh	$0.04285	$0.03916
Rate ($/kWh), More than 600 kWh	$0.05460	$0.05091
SOURCE: Pacific Power		

TABLE M-1B. PUGET POWER, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES		
Basic Charge = $5.00/month		
	Winter	**Summer**
Rate ($/kWh), 1st 600 kWh	$0.054182	$0.054182
Rate ($/kWh), More than 600 kWh	$0.067809	$0.06226
SOURCE: Puget Power		

TABLE M-1C. WASHINGTON WATER POWER, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES	
Rate ($/kWh), 1st 600 kWh	$0.03819
Rate ($/kWh), 601-1300 kWh	$0.04600
Rate ($/kWh), More than 1300 kWh	$0.05550
SOURCE: Washington Water Power Company	

TABLE M-1D. CLARK PUBLIC UTILITIES, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES	
Basic Charge	$6.40/month
Rate ($/kWh) (flat)	$0.0420
SOURCE: Clark Public Utilities	

TABLE M-1E. COWLITZ COUNTY PUD, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES	
Basic Charge	$6.50/month
Rate ($/kWh) (flat)	$0.0281
SOURCE: Cowlitz PUD	

TABLE M-1F. LEWIS COUNTY PUD, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES	
Basic Charge	$0.21/day
Rate ($/kWh) (flat)	$0.0384
SOURCE: Lewis County PUD	

TABLE M-1G. TANNER ELECTRIC COOPERATIVE, OCTOBER 12, 1993 RESIDENTIAL ELECTRIC RATES	
Basic Charge	$12.00/month
Rate ($/kWh) (flat)	$0.055
SOURCE: Tanner Electric Cooperative	

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
Adams	Big Bend Electric Coop.	6,000	12	0.036				1986		$779.22
Adams	Washington Water Power Co.	247,863	3	0.03819	600	0.046	601-1300	1990		$811.08
Benton	Benton Rural Electric Assoc.	9,403	Refused to Disclose							$0.00
Benton	PUD of Benton County	32,354	8	0.0387				1990	no base chg	$778.86
Benton	Richland Energy Service Dept.	15,110	12	0.03958				1991	33% discount	$842.35
Chelan	Cashmere Light Dept.	1,712	5.65	0.013	1000	0.0185	over 1000	1992		$328.23
Chelan	PUD of Chelan County	29,978	5.65	0.0153	1000	0.0185	over 1000	1989	no base chg	$355.83
Clallam	Port Angeles Light Dept.	9,062	9.05	0.0368					10%-20% discount	$757.94
Clallam	PUD of Clallam County	20,104	8.82	0.046				1991	rate varies	$917.51
Clark	Clark Public Utilities	108,000	6.4	0.0367				1983?		$724.37
Columbia	Columbia Rural Electric Assoc.	2,584	16	0.039	3000	0.035			no base chg	$880.16
Columbia	Pacific Power and Light	88,319	3.75	0.03596	600	0.04771	over 600	1983		$679.51

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
Cowlitz	PUD of Cowlitz Co.	38,600	0	0.025				1991		$441.13
Douglas	Town of Waterville	520	4	0.0225				1983		$445.01
Douglas	PUD of Douglas County	12,425	4	0.013						$277.39
Douglas	Town of Coulee Dam Light Dept.	585	3.25	0.0344				1993		$645.99
Ferry	PUD of Ferry County	2,527	9	0.0445				1986	no base chg	$893.20
Franklin	PUD of Franklin County	15,252	7.5	0.0143				1993	10%-30% discount	$342.32
Garfield	Pacific Power and Light	88,319	3.75	0.03596	600	0.04771	over 600	1983		$679.51
Grant	PUD of Grant County	31,924	7	0.0179				1993		$399.85
Grays Harbor	PUD of Grays Harbor	35,051	14	0.0382				1992	10%-20% discount	$842.04
Jefferson	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
King	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
King	Seattle City Light Dept.*	327,682	2.86	0.0334	480	0.0575	over 480	1993	0.0168/0.0288	$740.49
King	Tanner Electric	2,199	12	0.055				1993		$1,114.48

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
	Cooperative									
Kitsap	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Kittitas	PUD of Kittitas County	2,035	10	0.045				1991		$914.03
Kittitas	City of Ellensburg	5,396	4.07	0.0428				1991	0.0392	$770.96
Kittitas	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Klickitat	PUD of Klickitat County	8,559	10.6	0.0421				1988	5%-40% discount	$870.05
Lewis	PUD No. 1 of Lewis County	22,141	6	0.0358				1991		$703.69
Lewis	City of Centralia Light Dept.	7,860	4.6	0.0286				1988		$559.85
Lincoln	Lincoln Electric Coop, Inc.	1,945	15.5	0.1025	0-200	0.0586	nxt 1000	1991		$1,994.61
Lincoln	Washington Water Power Co.	247,863	3	0.03819	600	0.046	601-1300	1990		$811.08
Mason	PUD No.3 of Mason County	22,253	10.04	0.039				1985	no base chg	$808.64
Mason	PUD No. 1 of Mason County	3,933	11	0.045				1991		$926.03
Okanogan	Nespelem Valley Elec. Coop.	1,347	12	0.042				1992		$885.09

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
Okanogan	Okanogan County Electric Coop	1,732	12	0.042	2000	0.038	over 2000	1988		$885.09
Okanogan	PUD of Okanogan County	17,408	7.25	0.0213						$462.84
Pacific	PUD No. 2 of Pacific County	13,226	10	0.0361				1991	5%-20% discount	$756.98
Pend Oreille	PUD of Pend Oreille County*	6,234	9.5	0.0205	over 50			1987		$463.42
Pierce	City of Fircrest	2,204	19.55	0.046	500	0.034	over 500	1993		$906.53
Pierce	Eatonville Power & Light Co.	625	6	0.04005				1991		$778.68
Pierce	Ruston Electric Utility	400	6	0.039				1991		$760.16
Pierce	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Pierce	Ohop Mutual Light Co.	2,282	9	0.0475				1993	no base chg	$946.14
Pierce	City of Milton	2,165	4	0.037				1982	30% discount	$700.87
Pierce	Elmhurst Mutual Power & Light	10,438	7	0.0325				1991		$657.46
Pierce	Tacoma City Light	127,566	5.5	0.0348				1992	yes	$680.05
Pierce	Parkland Light & Water Co.	3,500	7	0.035				1985		$701.58
Pierce	Peninsula Light Co.	19,026	9.75	0.04284				1992		$872.91

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
Pierce	Alder Mutual Light Co.	157	8	0.039						$784.16
Pierce	Town of Steilacoom	2,431	7.5	0.03785	4000	0.04	over 4000	1993		$757.86
Pierce	Lakeview Light & Power Co.	7,787	3	0.0295				1983		$556.53
San Juan	Orcas Power and Light Company	8,562	20	0.05	3000	0.0612	over 3000	1993		$1,122.25
Skagit	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Skamania	PUD of Skamania	4,130	8.25	0.039				1991	$150 rebate (max)	$787.16
Snohomish	PUD No. 1 of Snohomish Cnty.	204,581	**no base	0.0455					up to 10% discount	$802.85
Spokane	Modern Electric Water Co.	7,600	4	0.0371	600	0.0431	over 600	1992		$765.30
Spokane	City of Cheney Light Dept.	2,940	7.75	0.0468	2000	0.0443	2001 to 9000	1991		$918.79
Spokane	Inland Power & Light Co.	23,293	12	0.0495				1991		$1,017.43
Spokane	Vera Water & Power*	6,189	6.3	0.0397	100 - 1000	0.0313	over 1000	1991		$681.05
Spokane	Washington Water Power Co.	247,863	3	0.03819	600	0.046	601-1300	1990		$811.08
Stevens	City of Chewelah Light Dept.	1,200	7	0.0471	1300	0.0495	over 1300			$919.99

TABLE M-2. RESULTS OF FSC SURVEY OF WASHINGTON ELECTRIC UTILITIES (SUMMER 1993)

County	Electric Company	No. of total Customers	Summer 1993 Basic Charge ($/Mo.)	Rate ($/kWh)	No. of kWh	Rate ($/kWh)	No. of kWh	Last Rate Increase	Elderly Rate	Yearly Cost, Summer 1993 (1470 kWh/month)
Stevens	Washington Water Power Co.	247,863	3	0.03819	600	0.046	601-1300	1990		$811.08
Thurston	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Wahkiakum	PUD No. 1 of Wahkiakum County	1,772	8	0.044						$872.38
Walla Walla	Pacific Power and Light	88,319	3.75	0.03596	600	0.04771	over 600	1983		$679.51
Whatcom	Puget Sound Power & Light Co.*	745,524	4.55	0.05313	600	0.05977	next 400	1992		$1,072.35
Whatcom	Blaine City Light	2,065	4	0.05				1993		$930.25
Whatcom	City of Sumas	448	5	0.0484				1991		$914.02
Whitman	Washington Water Power Co.	247,863	3	0.03819	600	0.046	601-1300	1990		$811.08

* Winter rate shown is different from summer rate.
Source: Utility Companies

APPENDIX N: DATA SOURCES AND DISCREPANCIES

This Appendix elaborates upon the availability and replicability of the data sources cited in the preceding report. Specific sources of documents are presented where practicable. Replicability of data involves the likelihood that subsequent data of like kind will become available on a semi-regular or regular basis. This determination is often difficult to make, especially in the case of academic studies, which are less likely to be replicated on a regular basis than are federal or state government studies based upon statistics which are collected annually or periodically.

In addition, this Appendix will summarize discrepancies or gaps in the data that the authors have identified as impeding the validation of models, assumptions, and estimates utilized in the data sources, and in this report.

CHAPTER 2: THE POOR OF WASHINGTON STATE

Chapter 2 Sources

1. Bureau of the Census, *Summary Tape File 3A. 1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, 1990.* May 1992.
   Available on CD-ROM from the United States Department of Commerce, Bureau of the Census, Washington, D.C., 20233-0001. (301) 763-4100. Use of this CD-ROM requires an IBM-Compatible PC with a CD-ROM and Microsoft CD-ROM drivers. The search and retrieval software is on the CD-ROM, and has menu-driven and command-line modes. Data is programmed in dBase, and can be printed or saved to disk. Contains data from the 1990 census only. Updated every decade. Supplemented yearly by regional Current Population Surveys (CPS).

2. Mayfield and Lovin, *Cost of Living in 1991 for Low-Income Families in Washington State.* December 1991.
   Annual. Uses the market basket approach to generate cost-of-living estimates. Washington State Department of Social and Health Services (DSHS). 1115 Washington St. SE, P.O. Box 45000, Olympia, WA 98504-5000. (206) 753-7039.

3. U.S. Congress House Committee on Ways and Means, *Overview of Entitlement Programs: 1991 Green Book.* Washington, D.C.: USGPO, May 1991.
   Published annually since 1981. Contains data for all states on need, benefits, etc. Often the first source in which such data is published. Available at Government Bookstores, Government Document Repositories, and from the GPO.

4. U.S. Congress House Committee on Ways and Means, *Overview of Entitlement Programs: 1993 Green Book.* Washington, D.C.: USGPO, July 1993.

Published annually since 1981. Contains data for all states on need, benefits, etc. Often the first source in which such data is published. Available at Government Bookstores, Government Document Repositories, and from the GPO.

Chapter 2 Data Discrepancies

Summary population and housing data from the census tapes (CD-ROM) is tabulated in a useful format, however, the summary nature of the data makes it impossible to generate within-class frequency distributions. For example, the number of households earning below $5,000 in any county is available, but it is not possible to tell from the data what the distributions of earnings are below $5,000. One cannot tell if many or few households earn $1,000, for example. Thus this report took the class midpoints as representing all members of the class. This approach is widely used in estimations, but it fails to adequately represent the extremes in the data sets.

An extensive look at health data for Washington State was conducted to determine if health data could be relevant to the general assessment of the poverty status of the poor. Although many general data were available on poverty-related health issues such as infant mortality, no income-specific data on Washington state was found.

There was little county-specific data available on tax burdens for the poor in Washington State.

CHAPTER 3: ENERGY USE OF THE POOR

Chapter 3 Sources

1. Bureau of the Census, *Summary Tape File 3A. 1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, 1990.* May 1992.
   Available on CD-ROM from the United States Department of Commerce, Bureau of the Census, Washington, D.C., 20233-0001. (301) 763-4100. Use of this CD-ROM requires an IBM-Compatible PC with a CD-ROM and Microsoft CD-ROM drivers. The search and retrieval software is on the CD-ROM, and has menu-driven and command-line modes. Data is programmed in dBase, and can be printed or saved to disk. Contains data from the 1990 census only. Updated every decade. Supplemented yearly by regional Current Population Surveys (CPS).

2. *Conservation Monitor*, "Electric Loads Slightly Outpace Power Council's Medium Forecast". July/August 1993.
   A Northwest periodical. Available in libraries.

3. Energy Information Administration, Washington D.C. *Household Energy*

Consumption and Expenditures, 1990. February 1993.
Annual regional statistics; Government Printing Office, Washington, D.C. (202) 783-3238.

4. Northwest Power Planning Council, *1991 Northwest Conservation and Electric Power Plan*, Vol. II, Part 1. 1991.
Available from the NWPPC. (503) 222-5161.

5. Oak Ridge National Laboratory, Oak Ridge, Tennessee. *Evaluation of the Bonneville Power Administration Low-Income Weatherization Program*. July 1988.

6. U.S. Department of Commerce, Bureau of Economic Analysis, *BEA Regional Projections to 2040, Volume I: The States*. October 1990.
Available in Depositories of Government Documents, such as those at local universities and other designated libraries.

7. U.S. Department of Energy, Energy Information Administration. *Household Vehicles Energy Consumption, 1988.* Feb. 1990
Annual regional statistics; Government Printing Office, Washington, D.C. (202) 783-3238.

8. Washington State Department of Community Development, *Washington State Low-Income Weatherization Assistance Plan*. March 1993.
Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

9. Washington State Department of Community Development, *Washington State Plan for the 1993 Low-Income Home Energy Assistance Program.* September 1992.
Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

10. Washington State Energy Office, *Washington State Energy Use Profile, 1960-1990.* July 1992.
This publication will be updated in 1994 with data through 1992. Available from WSEO, 809 Legion Way SE, P.O. Box 43165, Olympia WA 98504-3165. (206) 956-2230.

11. Washington State Office of Financial Management, *1991 Population Trends For Washington State.* August 1991.
OFM produces a variety of annual population and economic statistics. 300 Insurance Bldg., P.O. Box 43313, Olympia, WA 98504-3113. (206) 753-5459.

Chapter 3 Data Discrepancies

State and/or county level estimates of the energy consumption and expenditure patterns of households with incomes under 125% of the federal Poverty Level in Washington State were noticeably lacking. Regional data was available, but was often based upon samples and not full data sets. Washington data could not be extracted from it.

Data on consumption and expenditures by type of household (single vs. multi-family) was unavailable.

State-level transportation costs for low-income groups was not available.

Estimates of the number of households built or weatherized to current standards varied widely. Estimates of the number of low-income households reached by utility-funded programs are not available.

CHAPTER 4: ENERGY NEEDS OF THE POOR

Chapter 4 Sources

1. Auch *et al.*, *A Policy Study for the Washington State Low-Income Home Energy Assistance Program: Final Report*, Washington State Department of Community Development. 1992.
   906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

2. Barua *at al.*, *Energy Needs and Costs of Low-Income Households: A Preliminary Profile of Delaware LIHEAP Clients,* Center for Energy and Urban Policy Research. Newark: Delaware, University of Delaware. 1987.

3. Betson, D. *Alternative Estimates of the Cost of Children from the 1980 - 1986 Consumer Expenditure Survey,* Madison, WI: Institute for Research on Poverty. 1990.

4. Buckley, J. and Maggiore Jr., A. *Low-Income Energy Assistance Programs: A Profile of Need and Policy Options.* Fuel Oil Marketing Advisory Committee of the U.S. Department of Energy. 1980.

5. Bureau of Consumer Services, Pennsylvania Public Utilities Commission, *Final Report on the Control of Uncollectible Accounts in Pennsylvania,* Feb. 1992.

6. Colton, R., *Energy and Poverty in North Carolina*, Boston: National Consumer

Law Center. 1991.
11 Beacon St., Boston, MA 02108. (617) 523-8010

7. Colton, R., *Defining and Measuring Low-Income Energy Needs in Selected U.S. Cities*, Yellow Springs, OH: Antioch University. 1993.

8. Colton, R., *Percentage of Income Payment Plans as an Alternative Distribution of LIHEAP Benefits: Good Business, Good Government, Good Social Policy*, Boston, National Consumer Law Center. 1991.
11 Beacon St., Boston, MA 02108. (617) 523-8010

9. Colton, R., *The Percentage of Income Payment Plan in Jefferson County Kentucky*, Boston: National Consumer Law Center. 1991.
11 Beacon St., Boston, MA 02108. (617) 523-8010

10. Heiserman, O., *Iowa Affordable Heating Payment Program: Pilot Project Evaluation*, Iowa Department of Human Rights. 1990.

11. Hoffman, W.L., *Providing Energy Assistance to the Poor: Choices Relevant to Design of Future Programs*, Washington, D.C.: The Urban Institute. 1979.

12. Jensen, D., *Elderly Out-of-Pocket Health Care Expenses*, Washington, D.C.: American Association of Retired Persons. 1993.

13. The Conservation Company, *Evaluation of Philadelphia Electric Company's Customer Assistance Program: November 1 1985 to October 31, 1986*, Philadelphia: Philadelphia Electric Company. 1987

14. Ward, S. *Ready for Winter?: Final Report of the Blue Ribbon Commission on Energy Policy for Maine's Low-Income Citizens*, State of Maine Executive Department. 1990

15. Washington State Department of Social and Health Services (DSHS), *Cost of Living in 1991 for Low-Income Families in Washington State.* December 1991.
1115 Washington St. SE, P.O. Box 45000, Olympia, WA 98504-5000. (206) 753-7039.

Chapter 4 Data Discrepancies

Data on the amount of energy bills is much more readily available than data on the amount of the bill that is paid. Data is also lacking on the extent to which energy bills are treated either as fixed or as marginal payments within households.

County low-income population income estimates use the LIHEAP population as a proxy for the income distribution of all low-income households. Direct data is lacking on the income distributions of low-income households within income ranges. Range midpoints are assigned as best estimates of income distributions.

Raw data are not widely used in this study, which relies mostly upon highly disaggregated averages. Averages fail to represent the extremes (e.g.. extremely high energy bills in a very cold winter), which is where many instances of dire need arise.

Systematic county-by-county data on household expenses is lacking.

CHAPTER 5. ENERGY PRICE TRENDS

Chapter 5 Sources

1. Bonneville Power Administration, *1992 Resource Program. 10 Year Plan*, October 1992.
   This is a planning document describing goals for resource acquisition, which includes residential conservation programs. BPA has its own library and public information office in its Portland Headquarters building (503) 230-3000. For publications call 1-800-841-5867.

2. Bonneville Power Administration, *Conservation Resource Energy Data- 1993. The Red Book*, March 1993.
   Provides historical conservation data in terms of average megawatts (aMW) saved. BPA has its own library and public information office in its Portland Headquarters building (503) 230-3000. For publications call 1-800-841-5867.

3. Bonneville Power Administration, *Bonneville Power Administration 10-Year Financial Plan*, January 1993.
   A 10-year plan for making Treasury payments. BPA has its own library and public information office in its Portland Headquarters building (503) 230-3000. For publications call 1-800-841-5867.

4. Bonneville Power Administration, *Bonneville Power Administration Annual Report*, 1992.
   Annual report of capital and expense data. BPA has its own library and public

information office in its Portland Headquarters building (503) 230-3000. For publications call 1-800-841-5867.

5. Bonneville Power Administration, *Bonneville Power Administration FY 1994 Budget Submission to Congress*, January 1993.
Function-by function budget submission. BPA has its own library and public information office in its Portland Headquarters building (503) 230-3000. For publications call 1-800-841-5867.

6. National Association of Regulatory Utility Commissioners, *Residential Electric Bills, Winter 1991-92*. October, 1992.
NARUC produces this winter electric bill survey on an annual basis. NARUC, P.O. Box 684, Washington D.C., 20044-0648. (202) 898-2200.

7. National Association of Regulatory Utility Commissioners, *Residential Electric Bills, Summer 1992*. April, 1993.
NARUC produces this summer electric bill survey on an annual basis. NARUC, P.O. Box 684, Washington D.C., 20044-0648. (202) 898-2200.

8. National Association of Regulatory Utility Commissioners, *Residential Gas Bills, Winter 1991-92*. October, 1992
NARUC produces this natural gas winter bill survey on an annual basis. NARUC, P.O. Box 684, Washington D.C., 20044-0648. (202) 898-2200.

9. Northwest Energy News, *Mid-life Crisis. The Bonneville Power Administration Faces the Future*. July/August, 1993. Available from the Northwest Power Planning Council. (503) 222-5161.

10. Public Law 96-501. Section 7: Rates.
The Pacific Northwest Electric Power Planning and Conservation Act. Available in public or university law libraries, or from the Northwest Power Planning Council. (503) 222-5161.

11. The Business Journal. July 19-25, 1993.
Interview with Randy Hardy, BPA Administrator.

12. Washington State Energy Office, *Washington State Energy Use Profile, 1960-1990*. July 1992.
This publication will be updated in 1994 with data through 1992. Available from WSEO, 809 Legion Way SE, P.O. Box 43165, Olympia WA 98504-3165. (206) 956-2230.

13. Washington State Office of Financial Management, *Washington State 1991 Data*

Book, 1991.
OFM produces a variety of annual population and economic statistics. 300 Insurance Bldg., P.O. Box 43313, Olympia, WA 98504-3113. (206) 753-5459.

14. Washington Utilities and Transportation Commission, *Annual Statistics of Electric Companies, 1982 - 1991* (January 1993).
The WUTC produces this statistical volume containing company-specific data for investor-owned utilities on an annual basis. The volume contains data from a rolling ten year period. 1300 S. Evergreen Park Dr. SW, P.O. Box 47250, Olympia, WA 98504-7250 (206) 586-1177.

15. Washington Utilities and Transportation Commission, *Annual Statistics of Gas Companies, 1982 - 1991* (January 1993).
The WUTC produces this statistical volume containing company-specific data for investor-owned utilities on an annual basis. The volume contains data from a rolling ten year period. 1300 S. Evergreen Park Dr. SW, P.O. Box 47250, Olympia, WA 98504-7250 (206) 586-1177.

Chapter 5 Data Discrepancies

County by county data on utility prices were only available by contacting every residential utility supplier in the state. This was an exhaustive process, but yielded a significantly clearer picture of the geographic distribution of utility prices that was otherwise available. The drawback to these data are that they will only show prices at one point in time.

Yearly energy costs were calculated using an estimated average consumption. No county level data existed on low-income consumption distributions, *e.g.*, it could not be determined how many low-income households had bills two standard deviations above the mean.

Assessing the potential consequences of BPA policies exposed large data gaps, primarily because BPA has no idea what its financial situation will be in the near future. It is trying to reorganize into a more businesslike entity, with the outcome still in question, even among BPA staff. They have no dedicated budget item for low-income residential conservation, so one has to analyze less specific data, such as overall conservation budgets.

Statistics for usage of wood as home heating fuel is difficult to obtain because much wood is available for the price of a cutting permit in Washington's National Forests, as well as from private holdings.

Data on fuel oil consumption, prices and expenditures was virtually non-existent. It was

impossible to find, calculate or derive a state-specific per household consumption level for households using fuel oil as their primary heating source. Accordingly, it was not possible to determine a per household fuel oil energy bill for Washington households. The data was not simply a lack of *low-income* data, as was true for the utilities, but a lack of residential data generally.

CHAPTER 6: CRISIS NEEDS OF THE POOR

Chapter 6 Sources

1. *1992 Tacoma Light Division Low-Income Assistance Programs Annual Report*, February 10, 1993.
   3628 S. 35th St., P.O. Box 11007, Tacoma, WA 98411 (206) 383-2471

2. Appendix L of this report contains the main instrument for the collection of the data in chapter 6, the FSC crisis survey developed by Adrienne Quinn.

3. Diego Ribadeneira, *BCH Study Illustrates Poor's Painful Choice*, The Boston Globe, September 8, 1992.

4. *Efficient, Inexpensive Space Heaters Also Pose Deadly Danger*, Washington Post, January 20, 1989.

5. Market Trend Research, Inc., *Investor Owned Utility Group Collection Customer Study, Executive Summary*, 1989.

6. Select Committee on Aging, U.S. House of Representatives, *Deadly Cold: Health Hazards Due to Cold Weather*, 1984.
   Government Printing Office, Washington, D.C. (202) 783-3238.

7. U.S. Bureau of the Census, *General Population Characteristics, Washington*, 1990.
   United States Department of Commerce, Bureau of the Census, Washington, D.C., 20233-0001. (301) 763-4100.

8. Washington Utilities and Transportation Commission, *Your Rights and Responsibilities As A Residential Gas Or Electric Customer*, 14 (undated).
   1300 S. Evergreen Park Dr. SW, P.O. Box 47250, Olympia, WA 98504-7250 (206) 586-1177.

Chapter 6 Data Discrepancies

Chapter 6 was specifically researched in order to eliminate data discrepancies. The

survey tool and results do so. It should be noted, however, that the survey only sampled that part of the low-income population in Washington that were provided crisis assistance through social service agencies. Although this sample was not a comprehensive, random sample, the sample is explicitly assumed to represent the entire low-income population.

CHAPTER 7: LOW-INCOME ENERGY ASSISTANCE PROGRAMS

Chapter 7 Sources

1. National Association For State Community Services Programs, *Community Services Block Grant Statistical Report 1990.*

2. Puget Sound Power and Light Co., *1993 Guidelines Puget Sound Power & Light Energy Assistance*.
   P.O. Box 97034, Puget Power Bldg., Bellevue, WA 98009-9734 (206) 454-6363

3. Washington Natural Gas Co., *Washington Natural Gas Energy Assistance Funds.* (206) 622-6767.

4. Washington State Department of Community Development, *Washington State Plan for the Low-Income Home Energy Assistance Program 1993*, 1993.
   Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

5. Washington State Department of Community Development, *Washington State Plan for the Low Income Home Energy Assistance Program 1992*, 1992.
   Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

6. Washington State Department of Community Development, *HHS Leveraging Resource Report 1992*, 1992.
   906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

7. Washington State Department of Community Development, *State of Washington Department of Community Development Fuel Fund Survey.* 1991.
   906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

8. Washington State Department of Social and Health Services, (DSHS), *Income Assistance, Social Services, and Medical Assistance (Blue Book)*, March 1993.
   1115 Washington St. SE, P.O. Box 45000, Olympia, WA 98504-5000. (206) 753-7039.

9. Washington State Department of Social and Health Services, (DSHS), *Manual F*, 1992.
1115 Washington St. SE, P.O. Box 45000, Olympia, WA 98504-5000. (206) 753-7039.

Chapter 7 Data Discrepancies

Data is lacking upon the number of eligible households who seek energy assistance in Washington, but who are denied benefits due to lack of funds.

LIHEAP recipient income in household sizes greater than 4 persons is not possible to disaggregate by family size with the available data.

Data is lacking on the number and amount of emergency grants by county which can be used by low-income households for energy emergencies.

Data is lacking on private fuel funds, including those administered by the Salvation Army. Moreover, comprehensive data on the actual aggregate dollars provided locally though institutions such as churches is not available.

Data was not available from DSHS on the number of CEAP clients served in January and February, 1992.

CHAPTER 8: WEATHERIZATION

Chapter 8 Sources

1. Brandis, P. and Hossein Haeri, M., *The Persistence of Energy Savings Over Time: Two and Three Years After Participation in a Retrofit Program*, in *Proceedings of the 1989 Energy Program Evaluation Conference*, Argonne National Laboratory, 1989.
Available in Depositories of Government Documents, such as those at local universities and other designated libraries.

2. Bureau of the Census, *Summary Tape File 3A. 1990 Census of Population and Housing, Summary Social, Economic and Housing Characteristics, 1990.* May 1992.
Available on CD-ROM from the United States Department of Commerce, Bureau of the Census, Washington, D.C., 20233-0001. (301) 763-4100. Use of this CD-ROM requires an IBM-Compatible PC with a CD-ROM and Microsoft CD-ROM drivers. The search and retrieval software is on the CD-ROM, and has menu-driven and command-line modes. Data is programmed in dBase, and can be

printed or saved to disk. Contains data from the 1990 census only. Updated every decade. Supplemented yearly by regional Current Population Surveys (CPS).

3. Gregory, P., *Durability of Fuel Savings for Single-Family Households: Ohio Home Weatherization Assistance Program (HWAP) Program Years 1985 and 1986*, in *Proceedings of the 1989 Energy Program Evaluation Conference*, Argonne National Laboratory, 1989.
Available in Depositories of Government Documents, such as those at local universities and other designated libraries.

4. Institute for Public Policy and Management, University of Washington, *Closing the Gap: Housing Needs in Washington State,* October 1990.
(206) 543-0190.

5. Northwest Power Planning Council, *1991 Northwest Conservation and Electric Power Plan*, Volume II, Part 1.1991.
Available from the NWPPC. (503) 222-5161.

6. Oak Ridge National Laboratory, *National Impacts of the Weatherization Assistance Program in Single Family and Small Multi-Family Dwellings*, ORNL/Con-326, Draft: March 1993.

7. Oak Ridge National Laboratory, *Evaluation of the Bonneville Power Administration Low Income Residential Weatherization Program*, July 1988.
Available in Depositories of Government Documents, such as those at local universities and other designated libraries.

8. Sumi, D., and Coates, B., *Persistence of Energy Savings in Seattle City Light's Residential Weatherization Program*, in *Proceedings of the 1989 Energy Program Evaluation Conference*, Argonne National Laboratory, 1989.
Available in Depositories of Government Documents, such as those at local universities and other designated libraries.

9. U.S. Department of Energy, Energy Information Administration, *Housing Characteristics 1987*, May 1989.
Annual regional statistics; Government Printing Office, Washington, D.C. (202) 783-3238.

10. U.S. Department of Energy, Energy Information Administration, *Housing Characteristics 1990,* May 1992.
Annual regional statistics; Government Printing Office, Washington, D.C. (202) 783-3238.

11. Washington State Department of Community Development, *Washington State Low-Income Weatherization Assistance Plan, 1990*, March 1990.
Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

12. Washington State Department of Community Development, *Washington State Low- Income Weatherization Assistance Plan, 1991*, April 1991.
Annual. 906 Columbia St. SW, P.O. Box 48300, Olympia, WA 98504-8300. (206) 753-2200.

Chapter 8 Data Discrepancies

Data is lacking on the number of homes that have been weatherized with funding with utility dollars. While every utility except Puget Power has indicated that there was almost a complete duplication of homes served between CTED programs and their programs, Puget Power was either unable or unwilling to provide data on the number of units served is program.

Data is lacking on the average Btu saved in each weatherized home per year. This limits understanding of the impact that WAP is having upon client populations.

Data is lacking on the number of households in Washington State remaining to be weatherized. This is complicated by the constantly increasing number of homes in Washington.

Data is lacking on what the estimated savings per home would be for those households weatherized outside of WAP.

Data is lacking on the lifespan of weatherization measures and materials.

APPENDIX O: A SPECIAL ASSESSMENT OF UTILITY ALLOWANCES

Appendix O Sources

1. 55 *Federal Register* 40044 (Oct. 1, 1990) (order setting final FMRs for FY 1991).
   Published daily. Records new governmental regulations. Available in libraries and Depositories of Government Documents.

2. 56 *Federal Register* 49024-01 (Sept. 26, 1991). (order setting final FMRs for FY 1992).
   Published daily. Records new governmental regulations. Available in libraries and Depositories of Government Documents.

3. Colton and Saunders, "CHAS: The Energy Connection," 49 *Journal of Housing* 35 1992.

4. Pittman, K., *Local Housing Authorities and Assisted Housing in Washington A Report to the Committee on Housing, Washington State House of Representatives*, November, 1992.
   This research and publication is periodically updated on an irregular basis.

5. U.S. Department of Health and Human Services, *Annual LIHEAP Report To Congress: Fiscal Year 1991*, November, 1992.
   Annual. Available in libraries and Depositories of Government Documents.

6. U.S. General Accounting Office, *Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. I)* (March 1991); *Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. II)* (March 1991).
   Available in libraries and Depositories of Government Documents.

Appendix O Data Discrepancies

1991 LIHEAP data was not available from CTED.

Data is lacking on the distribution of primary heating fuels for Section 8 rental properties.

Utility allowance data was not available from all PHAs.

Data on average county heating bills is not available adjusted for disparities in costs between heating fuels.

Winter 1990-91 natural gas bill data was not available for PUDs or municipal utilities.

The U.S. Department of Housing and Urban Development (HUD) maintains little data on Public Housing Authority (PHA) utility allowances. What data is maintained is incomplete. HUD states that any comprehensive data must be obtained directly from the relevant PHAs.

APPENDIX O: A SPECIAL ASSESSMENT OF ASSISTED HOUSING UTILITY ALLOWANCES

Some low-income housing analysts advocate a closer connection between persons interested in assessing "affordable housing" and persons interested in "affordable energy."[277] As one planning publication recognized, for example, arguments have been advanced that state and local Comprehensive Housing Affordability Strategies (CHAS) should address energy issues "because utility payment problems of low-income households are directly related to the quantity and quality of affordable housing.* * *."[278] The CHAS process "could be used to bring utility industry representatives and low-income advocates together to reduce energy costs among low-income households and to improve the supply of affordable low-income housing."[279]

OVERVIEW OF ASSISTED HOUSING

Amount of Assisted Housing in Washington State

Assisted housing is one area where the interconnection between housing and energy affordability is particularly clear. For purposes here, "assisted housing" will be defined to include Section 8 housing (both certificates and vouchers).[280]

Public Housing Authorities provide a significant amount of assisted housing to low-income households in Washington State. According to a study done by the Office of Program Research for the state House of Representatives in November 1992, the supply of assisted housing units managed by local housing authorities in Washington State reached 43,175 in 1992. This supply represents an increase of 11.9 percent over the 1989 supply of 38,576 units.[281] Of these units, 20,931 are Section 8 units.

The Subsidized Utility Allowance Process

277. *See e.g.*, Colton and Saunders, "CHAS: The Energy Connection," 49 ***Journal of Housing*** 35 (1992).

278. 8 ***Journal of Planning Literature*** 78 (Aug. 1993), *citing*, Colton and Saunders, *supra* note **Error! Bookmark not defined.**.

279. *Id.*

280. Public Housing supplied through Public Housing Authorities (PHAs) should be included here as well where tenants pay their own utility bills. Data from PHAs regarding which Public Housing units were master metered, and which were individually metered (and thus tenant paid), however, were not available.

281. Kenny Pittman, ***Local Housing Authorities and Assisted Housing in Washington A Report to the Committee on Housing, Washington State House of Representatives***, at 2 (November 1992).

The purpose of providing affordable housing is served through the provision of rental subsidies and a "subsidized utility allowance." Under Section 8, a property owner is permitted to set a rent not to exceed a HUD-determined "fair market rent."[282] A Section 8 subsidized utility allowance is provided that varies depending on fuel source, type of housing and the like. The subsidized utility allowance, when summed with the rental subsidy, is intended to reduce the total shelter costs of program participants to 30 percent of income.[283]

The operation of this 30 percent limit can be shown by example. If a Section 8 household has an annual income of $4,000, the household will be required to pay no more than 30 percent of that income ($1200 a year or $100 a month) toward her shelter costs. The 30 percent limit is "enforced" in two ways. First, limits are set on the contract rent[284] that a landlord may charge for a Section 8 dwelling. The contract rent plus the subsidized utility allowance may not exceed the Fair Market Rent for the region in question. If the shelter costs *do* exceed the fair market rent, the property is not eligible to be certified as a Section 8 unit. Given a Fair Market Rent of $500, and an $85 subsidized utility allowance, in other words, if the landlord seeks a rent of $430 (thus making total shelter costs $515), the landlord may not participate in Section 8.[285]

Second, the household is, at least presumably, held harmless against all utility bills (except telephones). Each local Public Housing Authority (PHA) is directed to develop a

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282. "Section 8 of the United States Housing Act of 1937 (42 *U.S.C.* 1437f) authorizes a housing assistance program to aid lower income families in renting decent, safe, and sanitary housing. Assistance payments are limited by fair market rents (FMRs) (or payment standards based on FMRs in the Housing Voucher Program) established by HUD for different areas. In general, the FMR for an area is the amount that would be needed to rent privately owned, decent, safe, and sanitary rental housing of a modest (non-luxury) nature with suitable amenities." Section 8(c) of the Act requires the Secretary of HUD to publish FMRs "periodically, but not less frequently than annually, to be effective on October 1 of each year." 56 ***Federal Register*** 49024-01 (Sept. 26, 1991).

283. The same type of subsidized utility allowance is established for tenant-paid utilities in Public Housing.

284. "Contract rent" is defined by federal regulation to include "the total amount of rent specified in the Housing Assistance Payments (HAP) contract as payable to the owner by the Family, and by HUD or the PHA on the Family's behalf." 24 ***C.F.R.*** §813.102 (1992).

285. HUD regulations regarding its "existing housing" program define "fair market rent" as: "The rent, including utilities (except telephone), ranges and refrigerators, and all maintenance, management, and other services, which would be required to be paid in order to obtain privately owned, existing, decent, safe, and sanitary rental housing of modest (non-luxury) nature with suitable amenities." 24 ***C.F.R.*** §882.102 (1992). HUD regulations for "new construction" provide, pursuant to a definition of fair market rent, that "the contract rent plus any utility allowance for the unit must not exceed the Fair Market Rent in effect at the time of processing." 24 ***C.F.R.*** §880.204 (1992).

subsidized utility allowance such that the sum of the Section 8 tenant's uncovered utility bill and contract rent will be no more than the 30 percent limit. In fact, however, under Section 8, the rental subsidy *plus* the subsidized utility allowance are paid entirely to the landlord. According to the U.S. General Accounting Office:

> Utilities are individually metered when utility consumption is measured for each housing unit and the assisted household pays its bill directly to the utility company. Here, a utility allowance is provided as a reduction in the amount that the household would pay to equal 30 percent of adjusted income. For example, if 30 percent of a household's income is $250 per month and the allowance for reasonable utility costs is $100 per month, then the household pays the PHA or the Section 8 landlord $150 per month for shelter cost and retains the $100 to pay utility costs.[286]

As can thus be seen, notwithstanding the subsidized utility allowance, the tenant is then merely *assumed* to devote her $100 payment in this case to her utility payment. Moreover, the actual utility bills are merely assumed to be no more than the $100 subsidized utility allowance. It is because of these two assumptions that an examination of subsidized utility allowances is appropriate for an assessment of low-income energy needs in Washington state.

THE MAGNITUDE OF SUBSIDIZED UTILITY ALLOWANCE PAYMENTS VS. EAP/ECIP PAYMENTS

While energy vendors --including both fuel oil vendors and public and private utilities-- devote substantial efforts to seeking adequate funding and rational administration of the federal fuel assistance program --known as the Low Income Home Energy Assistance Program (LIHEAP)-- (known in Washington State as EAP/ECIP) similar efforts do *not* seem to be expended on ensuring adequate funding and rational administration of the Section 8 subsidized utility allowance program. The failure seems odd.

In Washington State, while the Section 8 program is not as big as the EAP/ECIP program in numbers of households served, it is a not insubstantial energy benefit program. While the EAP/ECIP program served roughly 71,000 households in 1991,

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286. U.S. General Accounting Office, ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. I)*** (March 1991); ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. II)*** (March 1991).

for example, the Section 8 program served roughly 21,000 households. As Table O-1 indicates, the number of households served by EAP/ECIP outstrips the number of households receiving Section 8 subsidized utility allowances in each county of the state.[287]

The *dollar value* of the Section 8 program, however, is more significant. In 1991, Washington State distributed $16,270,944 in heating assistance and $4,249,258 in crisis assistance.[288] Average per household EAP/ECIP benefits in Washington State in FY 1991 were $205 for heating assistance and $168 for crisis assistance. In contrast, average subsidized utility allowances ranged from $40 to $50 *a month* for heating assistance (for all 12 months of the year) and *an additional* $25-30 a month for non-heating assistance (for all 12 months). The aggregate dollars paid in Section 8 allowances, in other words, far outstrips the aggregate dollars paid in EAP/ECIP. This is especially significant given the fact that there are fewer than one-third the number of Section 8 households than EAP/ECIP households (21,000 vs. 71,000). Some counties, however, do not have Public Housing Authorities, and some other counties which do, do not have PHAs which administrate Section 8 units.

287. Since 1991 EAP/ECIP data was not available from CTED, 1992 CTED was used where available. Four counties did not have data broken down by county for 1992 either. For those four counties --Adams, Clallam, Jefferson and Lincoln-- 1993 was used instead.

288. ***Annual LIHEAP Report To Congress: Fiscal Year 1991***, at Table C-3, p. 62, U.S. Department of Health and Human Services (Nov. 1992).

Section 8 subsidized utility allowances for gas heating in two bedroom single family homes were used as the basis for making this comparison of dollars of benefits. Reliance upon natural gas as a heating fuel will somewhat understate the prevalence of Section 8 subsidized utility allowances, since as Table O-2 indicates, natural gas allowances are almost (but not quite) universally the lowest among those allowances provided for natural gas, electricity, fuel oil and LPG heating fuels. Non-heating -- including domestic hot water heating-- is assumed to be electric for all households in this comparison. Table O-3 sets out the PHA used for each county in this analysis[289] and the sources of the data used for each PHA relied upon. A $0 in the Section 8 subsidized utility allowance benefit column means that no PHA exists in the county. An "n/a" means that a PHA exists but that PHA did not provide subsidized utility allowance data for this study.[290]

289. Some counties have more have one PHA. In such cases, only one was chosen for comparison purposes here.

290. Some allowances provided were not for the year requested. While HUD regulations "require" subsidized utility allowances to be recalculated on a year-by-year basis, this requirement is routinely ignored. ~~It is not clear whether this is the cause for the provision of older allowances in response to requests for~~ information for this study.

TABLE O-1. SECTION 8 PROGRAM VS. EAP/ECIP IN WASHINGTON STATE (NUMBERS OF HOUSEHOLDS AND DOLLARS OF BENEFITS)

County in which Public Housing Authority Located	Section 8		EAP/ECIP	
	No. of Households	Benefit Dollars (Gas Heat/Electric Non-Heat)	No. of Households	Benefit Dollars
Adams	0	n/a	274	$63,822
Asotin	0	$0	438	$76,964
Benton	679	$521,472	1,077	$202,757
Chelan (1992 data only)	254	$164,592	829	$126,014
Clallam	148	$134,976	798	$159,413
Clark	1,113	$801,360	3,779	$592,535
Columbia	0	$0	132	$24,483
Cowlitz	712	$198,904	1,339	$168,230
Douglas	0	$0	361	$54,582
Ferry	0	n/a	139	$33,585
Franklin	265	n/a	737	$140,278
Garfield	0	$0	57	$12,874
Grant (1987 data only)	241	$141,708	1,220	$212,146
Grays Harbor	178	$115,344	1,444	$250,446
Island	150	$95,400	657	$136,081
Jefferson	0	$0	413	$76,257
King	6,272	$4,892,160	18,597	$3,896,369
Kitsap	1,188	$969,408	1,985	$350,771

TABLE O-1. SECTION 8 PROGRAM VS. EAP/ECIP IN WASHINGTON STATE (NUMBERS OF HOUSEHOLDS AND DOLLARS OF BENEFITS)

County in which Public Housing Authority Located	Section 8		EAP/ECIP	
	No. of Households	Benefit Dollars (Gas Heat/Electric Non-Heat)	No. of Households	Benefit Dollars
Kittitas	0	n/a	818	$201,408
Klickitat	0	$0	360	$71,099
Lewis	0	$0	1,442	$236,944
Lincoln	0	$0	190	$46,794
Mason	165	n/a	633	$114,151
Okanogan	0	$0	899	$176,583
Pacific	0	$0	482	$79,615
Pend Oreille	0	$0	316	$61,123
Pierce	3,730	$2,730,360	8,065	$1,307,760
San Juan	0	$0	196	$42,015
Skagit	326	$133,008	1,403	$268,422
Skamania	0	$0	136	$20,670
Snohomish	2,001	$1,512,756	4,907	$935,638
Spokane (1989 data only)	1,524	$1,188,720	8,330	$1,899,879
Stevens	0	$0	718	$165,707
Thurston	603	$578,880	1,565	$334,556
Wahkiakum	0	$0	57	$10,931

Walla Walla	119	n/a	518	$88,698
Whatcom (1992 data only)	701	$521,544	2,302	$415,892
Whitman	0	$0	845	$194,914
Yakima	486	$367,416	5,247	$1,152,903

TABLE O-2. COMPARISON OF 1991 HEATING UTILITY ALLOWANCE BY FUEL TYPE

County in which PHA Located	Natural Gas	Electricity	Fuel Oil	LPG
Adams	n/a	n/a	n/a	n/a
Asotin	0	0	0	0
Benton	$30	$38	$65	none listed
Chelan (1992 data only)	$31	$19	$46	$89
Clallam	none listed	$30	$42	$47
Clark	$24	$33	$43	none listed
Columbia	0	0	0	0
Cowlitz	n/a	n/a	n/a	n/a
Douglas	0	0	0	0
Ferry	n/a	n/a	n/a	n/a
Franklin	n/a	n/a	n/a	n/a
Garfield	0	0	0	0
Grant	$35	$12	$50	$75
Grays Harbor	$25	$24	$48	$57
Island	$28	$45	$46	n/a
Jefferson	0	0	0	0
King	$32	$52	$45	none listed
Kitsap	$36	$46	$54	$68
Kittitas	n/a	n/a	n/a	n/a
Klickitat	0	0	0	0

TABLE O-2. COMPARISON OF 1991 HEATING UTILITY ALLOWANCE BY FUEL TYPE				
County in which PHA Located	**Natural Gas**	**Electricity**	**Fuel Oil**	**LPG**
Adams	n/a	n/a	n/a	n/a
Lewis	0	0	0	0
Lincoln	0	0	0	0
Mason	n/a	n/a	n/a	n/a
Okanogan	0	0	0	0
Pacific	0	0	0	0
Pend Oreille	0	0	0	0
Pierce	$26	$29	$48	$60
San Juan	0	0	0	0
Skagit	$35	$48	$51	$64
Skamania	0	0	0	0
Snohomish	$32	$46	$92	$80
Spokane (1989 data only)	$37	$58	$51	none listed
Stevens	0	0	0	0
Thurston	$32	$51	$58	$67
Wahkiakum	0	0	0	0
Walla Walla	n/a	n/a	n/a	n/a
Whatcom (1992 data only)	$31	$51	$60	$73
Whitman	0	0	0	0
Yakima	$29	$36	$31	none listed

TABLE O-3. SOURCE OF UTILITY ALLOWANCE INFORMATION BY COUNTY			
County in which PHA Located	**Data Provided By**	**Geographic Area Used**	**Notes**
Adams			
Asotin			
Benton	HUD	Kennewick	
Chelan	HUD	Wenatchee	1992 data only
Clallam	PHA	County	
Clark	PHA	Vancouver	
Columbia	No PHA		
Cowlitz	PHA	Kalama	Used median utility allowance
Douglas	No PHA		
Ferry			
Franklin			
Garfield	No PHA		
Grant	HUD	Moses Lake	1987 data only
Grays Harbor	HUD	County	
Island	PHA	County	
Jefferson	No PHA		
King	PHA	Renton	
Kitsap	PHA	County	
Kittitas			
Klickitat	No PHA		
Lewis	No PHA		

TABLE O-3. SOURCE OF UTILITY ALLOWANCE INFORMATION BY COUNTY			
County in which PHA Located	**Data Provided By**	**Geographic Area Used**	**Notes**
Lincoln	No PHA		
Mason			
Okanogan	No PHA		
Pacific	No PHA		
Pend Oreille	No PHA		
Pierce	HUD	Puyallup	
San Juan	No PHA		
Skagit	PHA	County	
Skamania	No PHA		
Snohomish	HUD	Everett	
Spokane	HUD	Spokane	1989 data only
Stevens	No PHA		
Thurston	PHA	County	
Wahkiakum	No PHA		
Walla Walla			
Whatcom	HUD	Bellingham	1992 data only
Whitman	No PHA		
Yakima	HUD	County	

THE CONNECTION BETWEEN SUBSIDIZED UTILITY ALLOWANCES AND FAIR MARKET RENTS

Establishing an inadequate subsidized utility allowance for Section 8 households would exacerbate an already critical housing affordability problem in Washington State. As Table O-4 shows, Fair Market Rents, which are one of the primary inputs into determining housing affordability, do not provide any reasonable opportunity for low-income households to procure affordable rental housing in Washington. The Table sets forth the 1991 Fair Market Rents for efficiency, one bedroom, and two bedroom apartments in each area of the state.

The average annual income necessary to pay the FMR, while limiting such expenditures to 30 percent of household income, show that housing is out-of-reach for low-income households. For example, the FMRs for efficiency and one bedroom units should be compared to the fact that 100 percent of Poverty (in 1991) for a one person household was only $6,620. The FMRs for two bedroom units should be compared to 100 percent of Poverty (in 1991) for a two person household of $8,880.

EAP/ECIP data, also, shows the unaffordability of these Fair Market Rents. In 1991, more than 71 percent of all Washington EAP/ECIP recipients had incomes less than $8,000. Nearly 43 percent had incomes less than $6,000 and more than eleven percent had incomes less than $4,000.

The Poverty Level at which a household would need to live in order to pay the FMR while limiting shelter costs to 30 percent of household income further demonstrates the unaffordability gap facing low-income households. As the Poverty Levels indicate, no-one receiving public assistance such as EAP/ECIP, Food Stamps, AFDC, or SSI would be able to afford to pay FMRs in Washington State, while meeting the HUD affordability guidelines. Moreover, Table O-4 shows that it is not simply public assistance recipients who cannot afford to pay the FMRs. Neither could the working poor afford the FMRs either.

The unaffordability of Fair Market Rents is directly tied into inadequate subsidized utility allowances and the energy needs of the poor. Limiting "shelter costs," including home energy, to 30 percent of income is a federally-established standard by which to determine the affordability of housing and energy costs. The Fair Market Rent process is the starting point at which to operationalize this federal standard of affordability. When the shelter burdens of low-income households based on FMRs exceed the HUD-established guideline, a "housing subsidy" is provided to reduce the total shelter costs to the 30 percent level. The housing subsidy and the energy subsidy, however, basically come from the same federal funding source. The rent subsidy and the subsidized utility allowance, in other words, compete with each other for a limited number of dollars. To the extent that FMRs increase further and further beyond levels that are affordable to the

poor, the greater the housing subsidy that is needed to bring the total costs back down to the affordable 30 percent level. As the competition for the limited funds intensifies, the risk increases that allowances will become increasing inadequate as well. Given the inadequacy of existing allowances, this squeeze between rents and utility costs should be of concern to electric and gas utilities, fuel oil dealers, and other energy vendors.

Subsidized utility allowances compete with contract rents in Section 8 housing. Each year, HUD publishes a determination of "Fair Market Rents" in each urban area. The combination of contract rent plus subsidized utility allowances (not actual utility costs) may not exceed this Fair Market Rent. To the extent that subsidized utility allowances are kept artificially low, therefore, the portion of the "Fair Market Rent" that can be committed to area landlords is increased.[291] While Fair Market Rents are set by HUD, subsidized utility allowances are established by each local Public Housing Authority. If a PHA believes FMRs are inadequate to provide contract rents sufficient to attract rental housing to the Section 8 market, the PHA can adjust the subsidized utility allowance component of the FMR downwards --or more likely, fail to adjust it upward over time-- to allow a higher proportion of the FMR to be devoted to the contract rent payments.

Of course, to the extent that *actual* home energy costs exceed subsidized utility allowances, this process of keeping subsidized utility allowances low so as to keep contract rents higher transfers the risk of home energy bills to the low-income tenant who is charged with paying them, adequate allowance or not. Ultimately, therefore, the risk is transferred to the utility or other energy vendor who must carry the resulting arrears, write-off the resulting bad debt, and pay the resulting expenses associated with credit and collection activities.

In sum, unaffordable Fair Market Rents should not simply be the province of those persons concerned with affordable housing. Not only should low-income housing advocates be concerned with FMRs that exceed 30 percent of a household's income, but energy advocates, service providers, energy vendors and the like should be concerned as well.

291. The formula for establishing Fair Market Rents is complex. In sum, however, Fair Market Rents are set at the 45th percentile of recently occupied rental units that meet HUD quality standards. "This means that 45 percent of recently occupied rentals that met HUD standards in a given county were available for a price at or ~~below the Fair Market Rent." Mayfield and Lowin, *supra* note **Error! Bookmark not defined.**, at 14. *See also,*~~ 55 ***Federal Register*** 40044 (Oct. 1, 1990) (order setting final FMRs for FY 1991).

TABLE O-4. AFFORDABILITY OF FAIR MARKET RENTS IN WASHINGTON STATE												
	FAIR MARKET RENT			ANNUAL INCOME TO PAY AT 30% OF INCOME			RENT AS PERCENT OF INCOME AT 100% OF POVERTY (2 person)			MINIMUM WAGE NECESSARY TO AFFORD AT 30% OF INCOME		
	EFF	1 BR	2 BR	EFF	1 BR	2 BR	EFF	1 BR	2 BR	EFF	1 BR	2 BR
METROPOLITAN STATISTICAL AREAS												
Bellingham	$365	$446	$524	$14,600	$17,840	$20,960	49%	60%	56%	$7.60	$9.29	$10.92
Bremerton	$368	$448	$526	$14,720	$17,920	$21,040	50%	61%	57%	$7.67	$9.33	$10.96
Olympia	$381	$462	$544	$15,240	$18,480	$21,760	51%	62%	59%	$7.94	$9.63	$11.33
Richland/Kennewick/Pasco	$305	$371	$436	$12,200	$14,840	$17,440	41%	50%	47%	$6.35	$7.73	$9.08
Seattle	$416	$507	$592	$16,640	$20,280	$23,680	56%	69%	64%	$8.67	$10.56	$12.33
Spokane	$321	$381	$449	$12,840	$15,240	$17,960	43%	51%	48%	$6.69	$7.94	$9.35
Tacoma	$330	$401	$473	$13,200	$16,040	$18,920	45%	54%	51%	$6.88	$8.35	$9.85
Vancouver	$283	$344	$451	$11,320	$13,760	$18,040	38%	46%	49%	$5.90	$7.17	$9.40
Yakima	$335	$406	$478	$13,400	$16,240	$19,120	45%	55%	51%	$6.98	$8.46	$9.96
NON-METROPOLITAN COUNTIES												
Adams	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08
Asotin	$353	$428	$505	$14,120	$17,120	$20,200	48%	58%	54%	$7.35	$8.92	$10.52
Chelan	$329	$399	$472	$13,160	$15,960	$18,880	44%	54%	51%	$6.85	$8.31	$9.83
Clallam	$355	$431	$508	$14,200	$17,240	$20,320	48%	58%	55%	$7.40	$8.98	$10.58
Columbia	$353	$428	$505	$14,120	$17,120	$20,200	48%	58%	54%	$7.35	$8.92	$10.52
Cowlitz	$259	$315	$370	$10,360	$12,600	$14,800	35%	43%	40%	$5.40	$6.56	$7.71
Douglas	$329	$399	$472	$13,160	$15,960	$18,880	44%	54%	51%	$6.85	$8.31	$9.83
Ferry	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08

TABLE O-4. AFFORDABILITY OF FAIR MARKET RENTS IN WASHINGTON STATE												
	FAIR MARKET RENT			ANNUAL INCOME TO PAY AT 30% OF INCOME			RENT AS PERCENT OF INCOME AT 100% OF POVERTY (2 person)			MINIMUM WAGE NECESSARY TO AFFORD AT 30% OF INCOME		
	EFF	1 BR	2 BR	EFF	1 BR	2 BR	EFF	1 BR	2 BR	EFF	1 BR	2 BR
Garfield	$353	$428	$505	$14,120	$17,120	$20,200	48%	58%	54%	$7.35	$8.92	$10.52
Grant	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08
Grays Harbor	$355	$431	$508	$14,200	$17,240	$20,320	48%	58%	55%	$7.40	$8.98	$10.58
Island	$361	$442	$519	$14,440	$17,680	$20,760	49%	60%	56%	$7.52	$9.21	$10.81
Jefferson	$355	$431	$508	$14,200	$17,240	$20,320	48%	58%	55%	$7.40	$8.98	$10.58
Kittitas	$300	$363	$430	$12,000	$14,520	$17,200	41%	49%	46%	$6.25	$7.56	$8.96
Klickitat	$330	$401	$472	$13,200	$16,040	$18,880	45%	54%	51%	$6.88	$8.35	$9.83
Lewis	$330	$401	$472	$13,200	$16,040	$18,880	45%	54%	51%	$6.88	$8.35	$9.83
Lincoln	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08
Mason	$355	$431	$508	$14,200	$17,240	$20,320	48%	58%	55%	$7.40	$8.98	$10.58
Okanogan	$300	$363	$430	$12,000	$14,520	$17,200	41%	49%	46%	$6.25	$7.56	$8.96
Pacific	$355	$431	$508	$14,200	$17,240	$20,320	48%	58%	55%	$7.40	$8.98	$10.58
Pend Oreille	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08
San Juan	$361	$442	$519	$14,440	$17,680	$20,760	49%	60%	56%	$7.52	$9.21	$10.81
Skagit	$361	$442	$519	$14,440	$17,680	$20,760	49%	60%	56%	$7.52	$9.21	$10.81
Skamania	$330	$401	$472	$13,200	$16,040	$18,880	45%	54%	51%	$6.88	$8.35	$9.83

Stevens	$272	$331	$388	$10,880	$13,240	$15,520	37%	45%	42%	$5.67	$6.90	$8.08
Wahliakum	$330	$401	$472	$13,200	$16,040	$18,880	45%	54%	51%	$6.88	$8.35	$9.83
Walla Walla	$353	$428	$505	$14,120	$17,120	$20,200	48%	58%	54%	$7.35	$8.92	$10.52
Whitman	$353	$428	$505	$14,120	$17,120	$20,200	48%	58%	54%	$7.35	$8.92	$10.52
NOTE: The 30 percent is also intended to cover all utility costs except telephones. Those costs, however, are excluded from this Table.												

THE ADEQUACY OF SUBSIDIZED UTILITY ALLOWANCES

Annual Subsidized Utility Allowances

Nationwide, the subsidized utility allowances provided to Section 8 households fall seriously short of covering actual Section 8 utility bills, according to a recent study by the U.S. General Accounting Office (GAO).[292] The households hardest hit, GAO found, involve those "households with the lowest incomes and the largest disparity between the allowance and their utility expenses* * *."[293] The GAO has documented the prevalent nature of the mismatch between subsidized utility allowances and actual utility costs. According to GAO:

> For Section 8 households, rent burdens averaged about 36 percent of adjusted monthly income--notably different than the statutory amount. * * *[A]bout 70 percent of the Section 8 households paid more than 30 percent of their adjusted income for rent and utilities. Even more striking, 32 percent of the Section 8 households had rent burdens exceeding 40 percent of adjusted income.
>
> On average, those Section 8 households that exceeded 30 percent of adjusted income paid about $43 more in utility expenses than they received in allowances. The total monthly income of the Section 8 households in our review averaged $544 (plus/minus $24). After paying $165 per month (36 percent of adjusted income for rent and utility expenses--the average result we obtained), Section 8 households in our review, on average, had about $379 in disposable income remaining each month to cover other living expenses. Thus, $43 each month for additional utility expenses represents a sizable portion of the households' disposable income.[294]

GAO noted that "invariably, households with very low incomes and high utility allowances risk incurring greater rent burdens than households with high incomes and low allowances when expenses exceed allowances. Therefore, a household's allowance takes on a greater or lesser importance in achieving the 30-percent rent burden amount depending on its income and utility

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292. U.S. General Accounting Office, ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. I)*** (March 1991); ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. II)*** (March 1991).

293. *Id.*, at 22 - 23.

294. *Id.*, at 24 - 25.

expenses."[295] As GAO explained:

> For example, a hypothetical household has an adjusted monthly income of $250, a $10 utility allowance, and a resulting monthly rent (including the utility allowance) of $75 ($250 x 0.3 = $75). If the household's utility expenses were 50 percent more than the allowance, the rent burden would be 32 percent. However, if this same household received a $75 allowance and again consumed 50 percent more than the allowance, the rent burden would rise to 45 percent. On the other hand, if the hypothetical household's adjusted monthly income were $750, with the same allowance and consumption factors as cited above, the rent burden would be 31 percent with a $10 allowance and 35 percent with a $75 allowance.[296]

Section 8 households tend to be amongst the lowest income households on a utility's system. These households, nationwide, have an average annual income of less than $5,400. For a household size of three, this income places them at roughly 50 percent of the Federal Poverty Level.[297]

Even though the GAO report on the inadequacy of Section 8 subsidized utility allowances was not directed specifically toward Washington State PHAs, its findings are disturbing and merit at least an initial examination of subsidized utility allowances within Washington State as part of this examination of energy needs. The goal is to determine whether there is cause for further and closer inquiry.

Tables O-5, O-6 and O-7 below seek to duplicate the relevant parts of the GAO analysis to determine the extent to which, if at all, Washington State Section 8 subsidized utility allowances are inadequate to reduce the shelter burdens of Section 8 tenants to 30 percent of income. Table O-5 presents data assuming natural gas as the primary heating source. Table O-6 presents data assuming fuel oil as the primary heating source. Table O-7 presents data assuming electricity as the primary heating source. The Tables are not additive. Nor do the primary heating bills vary based upon the source of primary heating fuel. The different primary heating fuels are presented in the alternative since no data is available regarding the actual incidence of primary heating fuels for Section 8 rental properties. In each case, the non-heating bill is presumed to be electricity. The respective home energy bills are obtained from the county-by-county estimates

295. *Id.*, at 27.

296. *Id.*, at 27 - 28.

297. 100 percent of Poverty for a family of three in 1991 was $11,140.

developed for the 1992 AFDC standard of needs study for Washington State.[298] Income is assumed to be 50 percent of the federal Poverty Level, the national average Poverty Level for residents of Section 8 housing. Subsidized utility allowances were not available for all PHAs;[299] that data which is available is presented. The "excess" that is reported in the Table is attributable strictly to inadequate subsidized utility allowances. In this report, shelter costs are by definition set equal to 30 percent of the household's designated income.[300]

Subsidized utility allowances routinely "miss" the 30 percent ceiling on tenant-paid shelter costs (including contract rents plus utilities). Of the 21 PHAs providing both gas heating and electric non-heating subsidized utility allowances data, two succeeded in reducing shelter costs, including energy, to 30 percent of household income. In those two instances, the excess of the actual monthly bill over the subsidized utility allowances was $3 (Grant County) and $4 (Wenatchee). In contrast, five of the PHAs left shelter costs (including utilities) at or above 40 percent of income (Island County: 45%; Skagit County: 43%; Kitsap County: 42%; Mason County: 41%; Anacortes: 41%). Nine PHAs left shelter costs at between 35 and 40 percent of income, well in excess of the federally-established maximum.

Fuel oil heating Section 8 households would at first appear to fare much better with their subsidized utility allowances. Of the 21 PHAs providing complete fuel oil data (oil heating and electric non-heating), nine left shelter costs below 30 percent, with another two being at 30 percent. Two PHAs left fuel oil households with shelter costs in excess of 40 percent of income (Island County: 41%; Skagit County: 40%), and only three left tenants with shelters costs at or above 35 percent of income. The remainder fell in the 30 - 35 percent range. This result, however, may arise from the use of average bills as a county heating bill. The average county heating bills are not varied to reflect the disparities in costs between different heating fuels. To the extent that lower cost energy (such as natural gas) is part of the average, therefore, the "fuel oil" heating bill is artificially lowered and the higher subsidized utility allowances associated with the higher stand alone cost of fuel oil heating will appear to cover a greater part of those bills.[301]

Finally, electric heating customers present somewhat mixed results. Of the 22 PHAs providing complete subsidized utility allowance data for electric heating customers, only three had shelter costs in excess of 40 percent of household income (Island County: 41%; Skagit County: 41%;

298. Both the home energy bills and the subsidized utility allowances, therefore, assume three person low-income households living in two bedroom units.

299. Some Washington PHAs refused to provide information on subsidized utility allowances.

300. Thus, the equation for calculating the excess is: (income x .30) + (actual energy costs - subsidized utility allowance).

301. *See*, Table 3-3 *supra* for a ranking of heating fuels by level of expense on a per-mmBtu basis.

Kitsap County: 40%). In addition, six had shelter costs in the 35 - 40 percent range, and only three fell at or below 30 percent of income. The rest, while not exceeding the federally-established maximum to the extent of natural gas heated homes, still were above the 30 percent limit.

In sum, the best available information indicates that annual subsidized utility allowances do not accurately match actual annual home energy bills in Washington state. As a result, Section 8 households are billed in excess of the 30 percent of income shelter costs established by federal law for these federally assisted housing units. Most disturbing, of course, are those households who are billed more than 40 percent of their income toward housing and energy, notwithstanding the federal housing and utility assistance. Substantial additional numbers of Washington State households face combined burdens in excess of 35 percent, significantly above the federal limits.

TABLE O-5. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING
NATURAL GAS AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)

PUBLIC HOUSING AUTHORITY	COUNTY	AVG MONTHLY INCOME	HOME ENERGY BILL	UTILITY ALLOWANCE (natural gas heating)	EXCESS MONTHLY BILL OVER ALLOWANCE	EXCESS UTILITY + SHELTER AS PCT OF INCOME
Clallam Co.	Clallam	$464.17	$90	$29	$61	43%
Grays Harbor Co.	Grays Harbor	$464.17	$71	$54	$17	34%
Mason Co.	Mason	$464.17	$79	$29	$50	41%
Thurston Co. (92 only)	Thurston	$464.17	$89	$32	$57	42%
Anacortes (92 only)	Skagit	$464.17	$97	$48	$49	41%
Bellingham/Whatcom Co.	Whatcom	$464.17	$97	$31	$66	44%
Island Co.	Island	$464.17	$96	$28	$68	45%
Sedro-Wolley	Skagit	$464.17	$97	$	$97	51%
Skagit Co.	Skagit	$464.17	$97	$35	$62	43%
Bremerton	Kitsap	$464.17	$92	$33	$59	43%
Everett	Snohomish	$464.17	$82	$75	$7	32%
King Co.	King	$464.17	$83	$59	$24	35%
Kitsap Co.	Kitsap	$464.17	$92	$36	$56	42%
Pierce Co. (90 only)	Pierce	$464.17	$89	$65	$24	35%
Puyallup	Pierce	$464.17	$89	$69	$20	34%
Renton	King	$464.17	$83	$78	$5	31%
Seattle	King	$464.17	$83	$	$83	48%
Snohomish Co.	Snohomish	$464.17	$82	$50	$32	37%
Tacoma	Pierce	$464.17	$89	$55	$34	37%

TABLE O-5. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING NATURAL GAS AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)						
PUBLIC HOUSING AUTHORITY	**COUNTY**	**AVG MONTHLY INCOME**	**HOME ENERGY BILL**	**UTILITY ALLOWANCE (natural gas heating)**	**EXCESS MONTHLY BILL OVER ALLOWANCE**	**EXCESS UTILITY + SHELTER AS PCT OF INCOME**
Kittitas Co.	Kittitas	$464.17	$108	$	$108	53%
Sunnyside (88 only)	Yakima	$464.17	$85	$43	$42	39%
Wenatchee (92 only)	Chelan	$464.17	$50	$54	$-4	29%
Yakima	Yakima	$464.17	$85	$63	$22	35%
Ferry Co.	Ferry	$464.17	$101	$	$101	52%
Grant Co. (87 only)	Grant	$464.17	$46	$49	$-3	29%
Othello	Adams	$464.17	$82	$	$82	48%
Spokane (89 only)	Spokane	$464.17	$100	$65	$35	38%
Asotin Co.	Asotin	$464.17	$82	$	$82	48%
Kennewick	Benton	$464.17	$94	$64	$30	36%
Pasco	Franklin	$464.17	$94	$	$94	50%
Richland	Benton	$464.17	$94	$61	$33	37%
Walla Walla	Walla Walla	$464.17	$82	$	$82	48%
Vancouver	Clark	$464.17	$71	$52	$19	34%
Kalama	Cowlitz	$464.17	$53	$	$53	41%
Kelso	Cowlitz	$464.17	$53	$	$53	41%
Longview	Cowlitz	$464.17	$53	$	$53	41%

TABLE O-6. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING
FUEL OIL AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)

PUBLIC HOUSING AUTHORITY	COUNTY	AVG MONTHLY INCOME	HOME ENERGY BILL	UTILITY ALLOWANCE (fuel oil heating)	EXCESS MONTHLY BILL OVER ALLOWANCE	EXCESS UTILITY + SHELTER AS PCT OF INCOME
Clallam Co.	Clallam	$464.17	$90	$71	$19	34%
Grays Harbor Co.	Grays Harbor	$464.17	$71	$77	$-6	29%
Mason Co.	Mason	$464.17	$79	$	$79	47%
Thurston Co. (92 only)	Thurston	$464.17	$89	$106	$-17	26%
Anacortes (92 only)	Skagit	$464.17	$97	$	$97	51%
Bellingham/Whatcom Co.	Whatcom	$464.17	$97	$91	$6	31%
Island Co.	Island	$464.17	$96	$46	$50	41%
Sedro-Wolley	Skagit	$464.17	$97	$	$97	51%
Skagit Co.	Skagit	$464.17	$97	$51	$46	40%
Bremerton	Kitsap	$464.17	$92	$114	$-22	25%
Everett	Snohomish	$464.17	$82	$73	$9	32%
King Co.	King	$464.17	$83	$	$83	48%
Kitsap Co.	Kitsap	$464.17	$92	$54	$38	38%
Pierce Co. (90 only)	Pierce	$464.17	$89	$96	$-7	28%
Puyallup	Pierce	$464.17	$89	$102	$-13	27%
Renton	King	$464.17	$83	$96	$-13	27%
Seattle	King	$464.17	$83	$	$83	48%
Snohomish Co.	Snohomish	$464.17	$82	$27	$55	42%
Tacoma	Pierce	$464.17	$89	$80	$9	32%

TABLE O-6. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING
FUEL OIL AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)

PUBLIC HOUSING AUTHORITY	COUNTY	AVG MONTHLY INCOME	HOME ENERGY BILL	UTILITY ALLOWANCE (fuel oil heating)	EXCESS MONTHLY BILL OVER ALLOWANCE	EXCESS UTILITY + SHELTER AS PCT OF INCOME
Kittitas Co.	Kittitas	$464.17	$108	$	$108	53%
Sunnyside (88 only)	Yakima	$464.17	$85	$49	$36	38%
Wenatchee (92 only)	Chelan	$464.17	$50	$69	$-19	26%
Yakima	Yakima	$464.17	$85	$65	$20	34%
Ferry Co.	Ferry	$464.17	$101	$	$101	52%
Grant Co. (87 only)	Grant	$464.17	$46	$64	$-18	26%
Othello	Adams	$464.17	$82	$	$82	48%
Spokane (89 only)	Spokane	$464.17	$100	$79	$21	35%
Asotin Co.	Asotin	$464.17	$82	$	$82	48%
Kennewick	Benton	$464.17	$94	$99	$-5	29%
Pasco	Franklin	$464.17	$94	$	$94	50%
Richland	Benton	$464.17	$94	$96	$-2	30%
Walla Walla	Walla Walla	$464.17	$82	$	$82	48%
Vancouver	Clark	$464.17	$71	$71	$0	30%
Kalama	Cowlitz	$464.17	$53	$	$53	41%
Kelso	Cowlitz	$464.17	$53	$	$53	41%
Longview	Cowlitz	$464.17	$53	$	$53	41%

TABLE O-7. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING
ELECTRICITY AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)

PUBLIC HOUSING AUTHORITY	COUNTY	AVG MONTHLY INCOME	HOME ENERGY BILL	UTILITY ALLOWANCE (electric heating)	EXCESS MONTHLY BILL OVER ALLOWANCE	EXCESS UTILITY + SHELTER AS PCT OF INCOME
Clallam Co.	Clallam	$464.17	$90	$59	$31	37%
Grays Harbor Co.	Grays Harbor	$464.17	$71	$53	$18	34%
Mason Co.	Mason	$464.17	$79	$	$79	47%
Thurston Co. (92 only)	Thurston	$464.17	$89	$99	$-10	28%
Anacortes (92 only)	Skagit	$464.17	$97	$	$97	51%
Bellingham/Whatcom Co.	Whatcom	$464.17	$97	$82	$15	33%
Island Co.	Island	$464.17	$96	$45	$51	41%
Sedro-Wolley	Skagit	$464.17	$97	$	$97	51%
Skagit Co.	Skagit	$464.17	$97	$48	$49	41%
Bremerton	Kitsap	$464.17	$92	$103	$-11	28%
Everett	Snohomish	$464.17	$82	$119	$-37	22%
King Co.	King	$464.17	$83	$	$83	48%
Kitsap Co.	Kitsap	$464.17	$92	$46	$46	40%
Pierce Co. (90 only)	Pierce	$464.17	$89	$72	$17	34%
Puyallup	Pierce	$464.17	$89	$85	$4	31%
Renton	King	$464.17	$83	$109	$-26	24%
Seattle	King	$464.17	$83	$	$83	48%
Snohomish Co.	Snohomish	$464.17	$82	$42	$40	39%
Tacoma	Pierce	$464.17	$89	$58	$31	37%

TABLE O-7. UTILITY ALLOWANCES AND DISPOSABLE INCOME IN SECTION 8 HOUSING
ELECTRICITY AS PRIMARY HEATING FUEL (ELECTRIC NON-HEATING)

PUBLIC HOUSING AUTHORITY	COUNTY	AVG MONTHLY INCOME	HOME ENERGY BILL	UTILITY ALLOWANCE (electric heating)	EXCESS MONTHLY BILL OVER ALLOWANCE	EXCESS UTILITY + SHELTER AS PCT OF INCOME
Kittitas Co.	Kittitas	$464.17	$108	$	$108	53%
Sunnyside (88 only)	Yakima	$464.17	$85	$59	$26	36%
Wenatchee (92 only)	Chelan	$464.17	$50	$42	$8	32%
Yakima	Yakima	$464.17	$85	$70	$15	33%
Ferry Co.	Ferry	$464.17	$101	$	$101	52%
Grant Co. (87 only)	Grant	$464.17	$46	$26	$20	34%
Othello	Adams	$464.17	$82	$	$82	48%
Spokane (89 only)	Spokane	$464.17	$100	$86	$14	33%
Asotin Co.	Asotin	$464.17	$82	$	$82	48%
Kennewick	Benton	$464.17	$94	$72	$22	35%
Pasco	Franklin	$464.17	$94	$	$94	50%
Richland	Benton	$464.17	$94	$67	$27	36%
Walla Walla	Walla Walla	$464.17	$82	$	$82	48%
Vancouver	Clark	$464.17	$71	$61	$10	32%
Kalama	Cowlitz	$464.17	$53	$	$53	41%
Kelso	Cowlitz	$464.17	$53	$	$53	41%
Longview	Cowlitz	$464.17	$53	$	$53	41%

Seasonal Subsidized Utility Allowances

The GAO report should finally give rise for concern to energy vendors who serve Section 8 households on their system on grounds other than the adequacy of *annual* subsidized utility allowances.[302] The GAO report examined how accurately subsidized utility allowances reflected actual utility costs for Section 8 households. According to the 1991 GAO report, approximately 70 percent of Section 8 households "had utility expenses that were higher than their allowances* * *Because the deviations were so great for some households, paying utility bills can pose financial hardships* * *."[303]

Moreover, GAO found, even when *annual* subsidized utility allowances adequately covered *annual* utility expenses, "because allowances are typically the same each month while utility expenses vary, *month-to-month* rent burden fluctuations can create cash flow problems for lower-income households despite an overall 30 percent rent burden."[304] GAO found that within the population of Section 8 households with annual rent burdens equal to 30 percent of income, *monthly* rent burdens varied from 18 percent to 48 percent because of the uneven nature of utility usage throughout the year.

Finally, GAO noted that "month-to-month fluctuations in utility bills can also create payment problems for assisted households, particularly when utilities are individually metered."[305] According to GAO:

> The difficulty arises because allowances remain the same each month, while utility bills vary. As a result, households have to budget so that they will have sufficient funds to pay utility bills in high consumption months when utility expenses exceed allowance amounts. This budgeting may be difficult for lower-income households because, by definition, they have less income to pay

302. U.S. General Accounting Office, ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. I)*** (March 1991); ***Assisted Housing: Utility Allowances Often Fall Short of Actual Utility Expenses (Vol. II)*** (March 1991).

303. *Id.*, at 3.

304. *Id.*, at 18. (emphasis added). Reaching a 30 percent rent burden is the measure of whether subsidized utility allowances accurately cover utility bills. Contract rents (paid to landlords) are, by law, set equal to 30 percent of household income. Hence, if a subsidized utility allowance is accurately set, and thus covers the entire utility bill, the utility bill should add no further burden to the household. However, if the household bears a "rent burden" of 35 percent, that means that the excess utility bill over the subsidized utility allowance equals five percent of the household's income.

305. *Id.*, at 28.

for living expenses than higher-income households.[306]

GAO reported that notwithstanding the federal law which limits Section 8 shelter costs -- including utility bills-- to 30 percent of household income, "approximately 60 percent of these [Section 8] households *never* met the 30-percent amount for any 1 month during our 12-month review period, and fully 93 percent of the households had 3 or fewer months in which the burden equaled 30 percent."[307] Less than one percent of the Section 8 households had rent burdens of 30 percent for 10 or more months of the year.

The analysis set forth below considers the implications in Washington State of these GAO findings regarding the seasonality of bills. The analysis considers the situation where, even when annual allowances are adequate to cover annual bills,[308] the mismatch between monthly subsidized utility allowances and monthly utility expenses results in unaffordable monthly utility bills to these Section 8 households.

The analysis below examines winter natural gas and fuel oil bills and compares those bills to the respective natural gas and fuel oil heating subsidized utility allowance components from the local Public Housing Authorities providing data. For natural gas, each PHA was assigned to a local natural gas distribution utility company. The assignment was based on the counties and cities in which the PHA was located when compared against the counties and cities each utility lists as being within its service territory in its respective tariffs on file with the Washington Utilities and Transportation Commission. Winter 1990 - 1991 bills were obtained for Washington investor-owned utilities from the annual survey of winter residential natural gas bills prepared by the National Association of Regulatory Utility Commissioners (NARUC). Winter bills for PUDs and municipal utilities were not similarly available. That winter 1990-1991 survey presented information for 204 investor owned utilities nationwide.[309] In contrast, fuel oil bills were derived. The county-specific average heating consumption (in millions of Btu) calculated for purposes of this project was escalated by a factor of 1.254 to account for the fact that oil heating involves a greater use of Btus than does an average based on all fuels.[310] The statewide average price of fuel oil per million Btu ($7.90) was multiplied times this county-

306. *Id.*

307. *Id.*, at 30.

308. This is provided by assumption, since it is clear from other sections of this analysis, that annual subsidized utility allowances do *not* adequately cover annual home energy bills.

309. This does not include Nebraska, which does not regulate public utilities at the statewide level.

310. The factor of 1.2540 was obtained from the Energy Information Administration, Residential Energy Consumption Survey. It represents the national ratio of total energy consumption in households with fuel oil as their primary heating fuel (126.4 mmBtu) to total energy consumption in all households (100.8 mmBtu) (126.4 / 100.8 = 1.254).

specific consumption. The total fuel oil home heating bill was then spread equally over a five month heating season to obtain a monthly fuel oil heating cost.

As can be seen, no PHA in Washington State offers a seasonally adjusted natural gas heating subsidized utility allowance. As a result, even if one assumes (for the sake of analysis) that annual gas allowances are adequate, *in every instance* in Washington, those allowances are grossly inadequate for purposes of providing heating assistance *during the heating months*. Similar results are found with fuel oil bills. In all but one case, the fuel oil heating allowances were inadequate to pay for heating bills during the heating months. Only the fuel oil allowance for the City of Everett adequately paid the fuel oil heating bills; similarly, the Snohomish County allowance nearly paid for such bills.

TABLE O-8. PHA UTILITY ALLOWANCES VS. SEASONAL VARIATIONS IN HOME NATURAL GAS HEATING BILLS			
	NATURAL GAS		
	COMPANY	FEB. 1991 RES. HEATING BILL	1991 GAS HEATING UTILITY ALLOWANCE
Housing Authority of the City of Anacortes	Cascade	$76.54	
Housing Authority of Asotin County	Washington Water Power	$54.09	
Bellingham/Whatcom Cnty Housing Auth.	Cascade	$76.54	$31
Housing Authority of Bremerton	Cascade	$76.54	$33
Housing Authority of the County of Clallam			
Everett Housing Authority	Washington Natural Gas	$70.18	$32
Ferry County Housing Authority			
Grant County Housing Authority	Cascade	$76.54	$35
Housing Authority of Grays Harbor Cnty	Cascade	$76.54	$25
Housing Authority of Island County	Cascade	$76.54	$35
City of Kalama Housing Authority	Cascade	$76.54	
Kelso Housing Authority	Cascade	$76.54	
City of Kennewick Housing Authority	Cascade	$76.54	$30
Housing Authority of the County of King	Washington Natural Gas	$70.18	
Kitsap County Housing Authority	Cascade	$76.54	$36
Housing Authority of Kittitas County			
Housing Authority of Longview	Cascade	$76.54	
Mason County Housing Authority	Cascade	$76.54	
Housing Authority of Othello	Cascade	$76.54	
Pasco Housing Authority	Cascade	$76.54	

TABLE O-8. PHA UTILITY ALLOWANCES VS. SEASONAL VARIATIONS IN HOME NATURAL GAS HEATING BILLS			
	NATURAL GAS		
	COMPANY	FEB. 1991 RES. HEATING BILL	1991 GAS HEATING UTILITY ALLOWANCE
Pierce County Housing Authority	Washington Natural Gas	$70.18	$34
Puyallup Housing Authority	Washington Natural Gas	$70.18	$34
Housing Authority of Renton	Washington Natural Gas	$70.18	$37
Housing Authority of Richland	Washington Natural Gas	$70.18	$29
Housing Authority of Seattle	Washington Natural Gas	$70.18	$32
Housing Authority of Sedro-Wolley	Cascade	$76.54	
Skagit County Housing Authority	Cascade	$76.54	$35
Snohomish County Housing Authority	Cascade	$76.54	$23
Housing Authority of Spokane	Washington Natural Gas	$70.18	$37
Housing Authority of Sunnyside	Cascade	$76.54	$17
Housing Authority of Tacoma	Washington Natural Gas	$70.18	$29
Thurston County Housing Authority	Washington Natural Gas	$70.18	$32
Vancouver Housing Authority	Northwest Natural Gas	$60.06	$24
Walla Walla Housing Authority	Cascade	$76.54	
Wenatchee Housing Authority	Cascade	$76.54	$31
Housing Authority of Yakima	Cascade	$76.54	$29

TABLE O-9. PHA UTILITY ALLOWANCES VS. SEASONAL VARIATIONS IN HOME FUEL OIL HEATING BILLS			
	FUEL OIL		
	COUNTY	1991 RESIDENTIAL HEATING BILL	1991 OIL HEATING UTILITY ALLOWANCE
Housing Authority of the City of Anacortes	Skagit	$81	n/a
Housing Authority of Asotin County	Asotin	$84	
Bellingham/Whatcom Cnty Housing Auth.	Whatcom	$84	$60
Housing Authority of Bremerton	Kitsap	$84	$71
Housing Authority of the County of Clallam	Clallam	$78	$42
Everett Housing Authority	Snohomish	$87	$92
Ferry County Housing Authority	Ferry	$102	
Grant County Housing Authority	Grant	$90	$50
Housing Authority of Grays Harbor Cnty	Grays Harbor	$81	$48
Housing Authority of Island County	Island	$75	$46
City of Kalama Housing Authority	Cowlitz	$87	n/a
Kelso Housing Authority	Cowlitz	$87	
City of Kennewick Housing Authority	Benton	$75	$65
Housing Authority of the County of King	King	$84	
Kitsap County Housing Authority	Kitsap	$84	$54
Housing Authority of Kittitas County	Kittitas	$81	
Housing Authority of Longview	Cowlitz	$87	
Mason County Housing Authority	Mason	$75	
Housing Authority of Othello	Adams	$81	
Pasco Housing Authority	Franklin	$72	

TABLE O-9. PHA UTILITY ALLOWANCES VS. SEASONAL VARIATIONS IN HOME FUEL OIL HEATING BILLS			
	FUEL OIL		
	COUNTY	1991 RESIDENTIAL HEATING BILL	1991 OIL HEATING UTILITY ALLOWANCE
Pierce County Housing Authority	Pierce	$75	$65
Puyallup Housing Authority	Pierce	$75	$67
Housing Authority of Renton	King	$84	$45
Housing Authority of Richland	Benton	$75	$46
Housing Authority of Seattle	King	$84	
Housing Authority of Sedro-Wolley	Skagit	$81	
Skagit County Housing Authority	Skagit	$81	$51
Snohomish County Housing Authority	Snohomish	$87	$84
Housing Authority of Spokane	Spokane	$93	$51
Housing Authority of Sunnyside	Yakima	$81	$23
Housing Authority of Tacoma	Pierce	$75	$54
Thurston County Housing Authority	Thurston	$81	$71
Vancouver Housing Authority	Clark	$78	$43
Walla Walla Housing Authority	Walla Walla	$78	
Wenatchee Housing Authority	Chelan	$90	$46
Housing Authority of Yakima	Yakima	$81	$29

SUMMARY AND CONCLUSIONS

In sum, Section 8 subsidized utility allowances provide public assistance that is on the same level of magnitude nationwide as the EAP/ECIP program. Energy vendors, as well as persons interested in both affordable housing and affordable energy, would best serve their own interests, as well as the interests of their low-income customers, by seeking to ensure that these allowances are (1) established at adequate levels, and (2) distributed in a rational fashion.

At present in Washington State, Section 8 subsidized utility allowances are inadequate to serve the function they purport to serve. These allowances are insufficient to reduce household energy costs, when summed with housing costs, to 30 percent of household income. Subsidized utility allowances are particularly inadequate for heating bills in heating months.