

## FSC'S LAW & ECONOMICS INSIGHTS

Issue 06-1

Fisher, Sheehan & Colton, Public Finance and General Economics

January /February 2006

### IN THIS ISSUE

#### **Framing and Documenting a Low-Income "Needs Analysis"**

### NOTE TO READERS

#### ON-LINE DELIVERY

This document presents the bi-monthly electronic delivery of *FSC's Law and Economics Insights*. Previous issues of the newsletter can be obtained at FSC's World Wide Web site:

<http://www.fsconline.com/news/news.htm>

Fisher, Sheehan & Colton  
Public Finance and General Economics  
34 Warwick Road, Belmont, MA 02478-2841  
617-484-0597 \*\*\* 617-484-0594 (fax)  
editor@fsconline.com (e-mail)  
<http://www.fsconline.com>

### **Finding Data to Frame and Document a Low-Income Home Energy "Needs Analysis"**

As natural gas and electric prices continue to spiral, an increasing number of utility stakeholders --government officials and industry staff as well as nonprofit energy service providers-- are taking notice of the affordability impacts that arise for low-income households.

Many persons, however, while they can cite various stories of the adverse impacts of unaffordable energy on particular households, have never had occasion to develop a comprehensive Home Energy Affordability Needs Analysis. Fisher, Sheehan & Colton (FSC) has developed a template of what such a needs analysis should contain. This outline was presented at the Fall 2005 annual energy conference of the National Community Action Foundation (NCAF).

Preparing a comprehensive Home Energy Affordability Needs Analysis consists of the following necessary sections.

#### **#1: HIGH ENERGY BURDENS.**

Unaffordable home energy is documented by demonstrating high home energy burdens. Home energy burdens present home energy bills as a percentage of household income. If a household has an income of \$8,000 and a home energy bill of \$1,600, for example, that household has a home energy burden of 20% ( $\$1,600 / \$8,000 = 0.20$ ). An affordable home energy burden is generally considered to be 6% of gross household income. An affordable water/sewer burden is generally considered to be 2.0% of household income.

Low-income home energy burdens are published annually by Fisher, Sheehan & Colton through its Home Energy Affordability Gap analysis. The Home Energy Affordability Gap publishes information each spring based on actual home energy prices for the preceding year. The Home Energy Affordability Gap published in April 2006, in other words, is based on actual energy prices from 2005. The Home Energy Affordability Gap analysis publishes state-by-state data on home energy burdens, disaggregated by range of Poverty Level.<sup>1</sup> Burdens are calculated for households in six different income ranges: below 50% of the Federal Poverty Level (FPL), 50%-74% FPL, 75%-99% FPL, 100%-124% FPL, 125%-149% FPL, and 150%-185% FPL.

In addition to the state-by-state FSC data on home energy burdens, persons preparing a home energy affordability needs analysis can access home energy burden data through the annual LIHEAP Home Energy Notebook published each year by the federal LIHEAP office. This burden data, presented by Census region, reports home energy burdens, by primary heating fuel type, for the total residential population, the low-income population, and the population of households eligible for LIHEAP assistance.

### **#2: THE PROBLEM IS EXTENSIVE.**

It is frequently difficult to convince policymakers of the extent of the low-income affordability problem. Using data on home energy burdens broken down by Federal Poverty Level, however, it is possible to demonstrate the widespread nature of the problem. Home energy burdens for households with income at or below 50% of the Federal Poverty Level range from 35% to more than 50% of annual income. FSC's Home Energy Affordability Gap presents statewide data on the number of households in

---

<sup>1</sup> A variety of more specific analyses can be obtained on a fee-for-service basis. Home Energy Affordability Gap analyses by state legislative districts, by Congressional districts within a state, and by county within a state, are available.

each range of Poverty Level for which a home energy burden is calculated.

In addition, the number of persons by Poverty Range can be obtained from the U.S. Census Bureau's American FactFinder. The most recent data through American FactFinder is from the 2000 Census. In addition to obtaining statewide data through the Census Bureau, however, data can be obtained for geographic areas down to the Census tract level (*i.e.*, State, county, place, Census block, Census tract). Table P88 in the American FactFinder presents data on the number of persons by ratio of income to Federal Poverty Level.

### **#3: PROBLEMS ARE STATEWIDE.**

One common misperception of poverty issues generally, and of home energy affordability problems in particular, is that the problem is primarily urban in nature. The FSC Home Energy Affordability Gap analysis, however, documents that home energy unaffordability problems are statewide in nature.

In an FSC analysis of the Affordability Gap in Michigan, performed by state legislative district, for example, FSC reported that: "the Michigan Home Energy Affordability Gap is not exclusively an urban problem. An additional 26 state legislative (House) districts have an aggregate Home Energy Affordability Gap of equal to or greater than \$10 million but less than \$15 million, while 28 more have an aggregate Affordability Gap of between \$7 million and \$10 million."

Similarly, in a county-county Affordability Gap analysis for Arkansas, FSC found: "the counties with the largest Affordability Gaps include Brenton (\$21.686 million), Pulaski (\$47.875 million), and Washington (\$25.783 million). These counties are not surprising, since they have the largest populations of low-income households. . . Other counties having an aggregate Home Energy Affordability Gap of more than \$10 million include Craighead (\$14.088 million), Crittenden (\$10.459 million),

Garland (\$12.507 million), Jefferson (\$14.058 million), Mississippi (\$11.666 million), and Sebastian (\$16.368 million).”

#### **#4: NOT SIMPLY UTILITY BILLS.**

Frequently, the focus of low-income energy advocates on the prevention of, or consequences from, utility shutoffs (*i.e.*, gas and electric) leads to a failure to adequately document the Home Energy Affordability Gap facing customers of bulk fuels (*e.g.*, fuel oil, propane, kerosene). A needs analysis should document the needs of these non-utility customers.

The proportion of households using different fuel sources as their primary heating fuel can be captured from U.S. Census data. Table HCT10 from the America FactFinder will provide, for all levels of geographic areas (*e.g.*, state, county, place, Census block, Census tract) the number of occupied housing units broken down by primary heating fuel both for homeowners and for tenants (along with totals).

A needs analysis can also track fuel oil and propane prices on a state level. During the winter heating months (October through April), the U.S. Department of Energy’s Energy Information Administration (DOE/EIA), as an appendix to its Weekly Petroleum Status Report, publishes its Winter Fuels Report, a weekly state-by-state report of fuel oil and propane prices. This DOE data can be accessed at: [www.eia.doe.gov/oil\\_gas/petroleum/data\\_publication/s/weekly\\_petroleum\\_status\\_report/wpsr.html](http://www.eia.doe.gov/oil_gas/petroleum/data_publication/s/weekly_petroleum_status_report/wpsr.html).

By examining previous issues, year-to-year data can be compared.

#### **#5: MORE THAN UTILITY SHUTOFFS.**

A low-income energy needs analysis should avoid falling into the trap of equating the concepts of "unaffordability" and "inability-to-pay" with the concept of "bill nonpayment." It is now well-established both that: (1) an inability-to-pay does not necessarily lead to nonpayment; and that,

conversely, (2) actual bill payment does not necessarily imply an *ability* to pay.

The needs analysis should document that *many* consumer responses exist to an inability-to-pay home energy bills, only one limited set of which involves *not* paying the bill. Some consumer responses represent an unacceptable degradation in a low-income consumer's quality of life.

All too frequently, a low-income customer is faced with an immediate need (*i.e.*, bill payment by a date certain) with the available constructive responses to an inability-to-pay unable to deliver assistance either in the form, the time period, or the magnitude necessary to meet that need. Given the immediate consequences of failing to address the short-term nonpayment crisis, the customer is pushed into a variety of negative actions that should be documented in a needs analysis.

The needs analysis should document that bill payment and bill affordability are not synonymous terms. Quite simply, it is possible for a person to pay an unaffordable bill. Indeed, it is possible for a person to make continuing, full and timely payments of an unaffordable bill. Merely because a bill has been paid does not mean that it is affordable. This conclusion is subject to objective verification.

Using a survey such as that developed for the federal LIHEAP office as part of the Home Energy Insecurity Scale can serve as the basis for this documentation.<sup>2</sup> Such a survey can demonstrate:

- *What types of sacrifices in comfort and convenience have low-income households made to manage energy bills?*

---

<sup>2</sup> Roger Colton (2003). *Measuring the Outcomes of Low-Income Home Energy Assistance Programs through a Home Energy Insecurity Scale*, U.S. Department of Health and Human Services, Administration for Children and Families: Washington D.C.

- *What types of unsafe practices and unhealthy situations have low-income households experienced in order to manage energy bills?*
- *What types of nonenergy sacrifices have low-income households experienced in order to manage energy bills?*
- *What is the overall status of low-income recipient households in terms of the energy insecurity scale?*

The Iowa “LIHEAP Survey” is a good example of how to incorporate such questions into a needs analysis.<sup>3</sup>

#### **#6: HOUSEHOLD BUDGETING.**

It is important in a needs analysis to show that the unaffordability of home energy is not simply a budgeting problem by low-income households. There is, instead, an absolute mismatch between household income and expenses that cannot be remedied by the mere provision of budget counseling (or budget billing).

Such a demonstration can be made through use of the Family Resource Simulator developed by the Center for Children in Poverty at the Columbia University School of Public Health. The Family Resource Simulator tracks total household resources and expenses. At varying income levels for a household, the Family Resource Simulator also calculates the Resources after Expenses (R/A/E) for the household.

A comparison of total resources with total expenses, which allows a computation of Resources After Expenses (R/A/E), can be presented for varying communities and varying household (using different household composition and assumptions).

---

<sup>3</sup> Joyce Mercier, Cletus Mercier and Susan Collins (June 2000). *Iowa’s Cold Winters: LIHEAP Recipients’ Perspective* Iowa, Department of Human Rights: Des Moines (IA).

Different family compositions and different assumptions can be used. The number of parents and number of children can both be used as variables. The work status of each parent can be varied (fulltime, part-time, not working). The public benefits accessed by the family can be varied, as can the type of day-care, the type and cost of medical insurance, and the cost of housing.

In a recent analysis of Resources After Expenses (RAE) prepared by FSC for presentation to the Federal Communications Commission (FCC) on behalf of the National Association of State Utility Consumer Advocates (NASUCA), FSC analyzed the RAE for 18 different scenarios (looking at different communities in different states using different household compositions). Out of the 18 potential scenarios, in all 18 instances, households with annual income at or below 150% of the FPL had *negative* resources after taking into account basic household expenses. For these households, the Home Energy Affordability Gap is not a matter of household budgeting, it is a matter of a mismatch of household resources and expenses.

#### **#7: PROBLEM IS GETTING WORSE.**

A low-income home energy needs analysis should provide not only a snapshot of need at a particular point in time, but also a picture of needs over time. The fact is that low-income home energy affordability problems are getting worse. The deepening problem can be seen in the following ways.

First, home energy prices continue to escalate. For many urban areas, prices for home heating fuels can be tracked through data reported for the Consumer Price Index. Prices since 1978 are generally available. They can be accessed at the following WWW site for the Bureau of Labor Statistics: <http://data.bls.gov/cgi-bin/dsrv?ap>. In addition, winter bulk fuel prices can be obtained at the statewide level through the *Weekly Petroleum Status Report*. Monthly electric prices (*Electric Power Monthly*) and natural gas prices (*Natural Gas Monthly*) can also be obtained at

the statewide level through these respective Department of Energy/Energy Information Administration publications.

Second, the Home Energy Affordability Gap is reaching increasingly into higher Poverty Levels. FSC, for example, recently calculated the Home Energy Affordability Gap by state legislative district in Michigan. FSC's data presented the growth in the Affordability Gap between 2004 (actual) and 2006 (projected) disaggregated by Poverty Level. The Michigan analysis found that while the dollar growth in the total Home Energy Affordability Gap was not significantly higher in the top income tier (150-185% of Federal Poverty Level) when compared to the bottom tier, the *percentage* growth in the top tier was much higher. The reason is that spiraling energy prices are finally pushing households at this income level into the "unaffordable" range. While in the past, home energy bills to these households would have been affordable, and thus not contributed to the Home Energy Affordability Gap, at projected prices, they will be *un*affordable and thus contribute to the Gap in a very substantial way. Indeed, FSC found that the percentage growth in the Affordability Gap for both of the top two income tiers was more than 100%. The increasing unaffordability impacts at higher income levels should be documented in the needs analysis.

Finally, FSC's annual Home Energy Affordability Gap tracks the Home Energy Affordability Index for each state. The Index sets 2002 as the base year. An index higher than 100 for any given state indicates that the Affordability Gap for that state has increased since 2002 (a 2005 Index of 132, for example, means that the Affordability Gap increased 32% between 2002 and 2005). An Index of less than 100 means that the Affordability Gap has decreased since 2002. The Index differs from documentation of price increases in that it offsets changes in fuel prices by corresponding changes in income in each year.

## #8: "WORK" IS NOT THE ANSWER.

A low-income needs analysis should document that moving households with poverty level incomes into low wage jobs (*e.g.*, through a Work First program) is not a solution to low-income energy affordability problems. To build such documentation, a needs analysis can again rely on the Columbia University Family Resource Simulator.

One output of the Family Resource Simulator is a chart of total household resources relative to total household income as earned income increases. As total income increases, earned income becomes a larger proportion of total household resources. At different income levels, households begin to lose eligibility for public assistance. A 2-person family, for example, loses eligibility for public health insurance for parents when earned income reaches about \$7,000 annually. The household loses eligibility for Food Stamps with earned income of roughly \$16,000. For Resources After Expenses to remain constant, earned income must increase sufficiently to offset this loss of public assistance (in addition to offsetting the increased expenses associated with employment) (these might include increased childcare, increased transportation expenses, and the like).

An FSC analysis in 2004 found that increasing gross household income from 135% to 150% of the Federal Poverty Level generally yields very little increase in net resources to a household. Net resources take into account several factors. For example, using Atlanta as an illustration, as earned income increases from \$21,000 to \$23,000 for a three-person household (with two parents and one child):<sup>4</sup>

- The amount of public assistance that that household receives will decrease, due to an offsetting \$320 loss in the Earned Income Tax Credit in Georgia.

---

<sup>4</sup> This is roughly equivalent to an increase from 135% to 150% of the Federal Poverty Level (\$20,601 to \$22,890).

- The amount that household must spend on employment-related expenses increased, including an additional \$490 for child care expenses for the Atlanta household.
- The proportion of income devoted to state and federal taxes increased, including an offsetting expense of \$270 for the Atlanta household.

The FSC analysis found that this impact is not unique to Georgia. Using a 3-person household as an illustration, the roughly \$2,000 gain in income recognized by a household moving from 135% to 150% of the Federal Poverty Level yields a gain in net resources of only a few hundred dollars in both Connecticut and Georgia. Indeed, FSC found that a 3-person Philadelphia household actually ends up being *worse off* from the perspective of net resources to meet basic household expenses because of its move from 135% to 150% of the Federal Poverty Level. The 3-person Reading (PA) household is neither better nor worse off because of its increased income. For four communities, each dollar of increased income yielded between \$0.20 and \$0.35 of total net increases in household resources.

It should not be assumed that low-income households facing substantial energy affordability problems can resolve those problems with modest increases in income. The Family Resource Simulator can help provide documentation of the total Resources After Expenses at various income levels along with an identification of at what income level RAE becomes positive (*i.e.*, resources are greater than expenses).

**#9: TIE TO HOUSING STRUCTURES.**

One component of a low-income energy needs analysis is to report on the energy efficiency needs of low-income households. The energy efficiency needs are largely related to the quality of low-income housing units. Because of the age and quality of the low-income housing

stock, low-income households tend to use more energy on a per square foot basis of housing. Moreover, old and inefficient appliances also tend to increase the energy use of items such as refrigerators, electric appliances and hot water heaters relative to the total population. The relative efficiency (or lack thereof) of low-income households can be obtained by examining the “energy intensity” figures published every three years by the U.S. Department of Energy’s Energy Information Administration (DOE/EIA) in its Residential Energy Consumption Survey (RECS).<sup>5</sup> Energy intensity figures are published at the Census Division level.

Other critical housing data can be obtained at the statewide level (or smaller) from the Census Bureau. The age of housing by tenure (tenant/homeowner) and poverty level can be obtained from Table HCT23 of the American FactFinder. As a general rule, older housing units can be closely associated with less energy efficient units.

Energy inefficient housing units can also generally be associated with units that have housing quality problems. The quality of housing, disaggregated by geographic unit and income, can be obtained down to the Census tract level through the U.S. Department of Housing and Urban Development's (HUD) State of the Cities Data System (SOCDS), Comprehensive Housing Affordability Strategy (CHAS) data base (<http://www.huduser.org/datasets/cp.html>).

**#10: LIHEAP IS NOT THE ANSWER.**

Energy assistance provided through the federal Low-Income Home Energy Assistance Program (LIHEAP) cannot be the answer to low-income

---

<sup>5</sup> Care should be taken in interpreting this data. While low-income energy use tends to be less efficient on a per square foot basis, since low-income households tend to live in smaller housing units, total energy consumption tends to be less than that of higher income households.

affordability problems. Not only does LIHEAP reach only a fraction of the eligible population each year, but LIHEAP also covers only a fraction of the Home Energy Affordability Gap, the difference between home energy bills at an affordable burden and actual home energy bills.

LIHEAP covers a small fraction of the eligibility population each year. Two ways exist to measure the LIHEAP coverage. First, one can document the extent to which LIHEAP covers the eligible population as eligibility is defined by the individual states each year. Federal law provides that states are free to define LIHEAP eligibility so long as the federally-covered population does not have eligibility that is below 110% of the Federal Poverty Level or above 60% of state median income. State eligibility definitions vary widely around the country. The LIHEAP Home Energy Notebook published each year by the federal LIHEAP office reports on the number of households served by the LIHEAP program in each state. The Home Energy Notebook then compares that participation level both to the number of households that would be eligible at the *maximum* income guideline and to the number of households that are eligible at the income guideline actually set by the state.<sup>6</sup>

In addition to documenting the rate at which eligible households are actually served by the LIHEAP program in each state, a needs analysis can document the extent to which a state's LIHEAP allocation covers the state's Home Energy Affordability Gap each year. Since LIHEAP is a federal block grant program, a state receives a fixed allocation of funds each year. That funding allocation remains the same whether or not participation rates increase. The funding allocation also remains the same even if home energy prices increase, thus significantly increasing the unaffordability of low-income home energy burdens.

---

<sup>6</sup> Some, but not many, states set their actual eligibility equal to the maximum eligibility allowed by federal law. In these states, therefore, the numbers would be the same.

FSC's annual Home Energy Affordability Gap calculates the "LIHEAP Coverage Ratio" for each state each year. The LIHEAP Coverage Ratio reports the percentage of the heating/cooling Affordability Gap in each state that is paid by each state's LIHEAP allocation. The heating/cooling Affordability Gap excludes electricity usage (other than electricity used for heating and cooling). In addition, the annual Home Energy Affordability Gap tracks, from year to year, the change in the statewide Affordability Gap (in millions of dollars) and compares that change to the change in LIHEAP funding for the state. In this way, an energy needs analysis can track, from year to year, whether the state is "losing ground" or "gaining ground" in providing sufficient assistance to cover the gap between actual and affordable home energy bills.

### **#11: WEATHERIZATION IS NOT THE ANSWER.**

While weatherization is a critical component to any public policy response to unaffordable low-income home energy bills, weatherization and other energy efficiency programs are insufficient to be an exclusive response to unaffordability.

The annual Home Energy Affordability Gap published by FSC can document a need for low-income energy assistance beyond weatherization in two different ways. First, the annual Home Energy Affordability Gap publishes estimated total home energy bills for low-income households each year (given actual prices reported for the previous year). The 2006 Home Energy Affordability Gap, in other words, would publish estimated low-income home energy bills for 2005, given actual 2005 fuel prices.

These low-income bills are then translated into Home Energy Burdens (bills as a percentage of income) by various ranges of Federal Poverty Level (as explained above). This information documents that even if the lowest income households had home energy bills reduced by 30% to 40% or more, the resulting home energy

burden would *remain unaffordable*. A household with income at or below 50% of Federal Poverty Level, for example, whose energy bill is reduced by 40%, may see its Home Energy Burden reduced from 40% to 25%. That Home Energy Burden, however, remains substantially above an affordable level even though the household is operating with a maximum level of efficiency in its energy use.

In addition, the annual Home Energy Affordability Gap analysis reports statewide data on the number of households living with incomes in each range of Federal Poverty Level each year. A needs analysis can compare the number of households needing affordability assistance to the number of households served by the federal Weatherization Assistance Program (WAP) in that state each year. As a general rule, the needs analysis will document that the number of households needing energy assistance run in the tens (or hundreds) of thousands of households with the WAP program being able to reach a fraction of a percent of those households in need.

## SUMMARY AND CONCLUSIONS

A low-income energy needs analysis should not simply document the energy affordability needs of the low-income population. In addition, the needs analysis should set forth a series of recommendations on what states might do to address these low-income energy needs. Implementation of a Universal Service Fund (USF), or a utility-funded Universal Service Program (USP) is the most obvious of recommendations. Other recommendations, however, might include:

- Particular attention by the state's Food Stamp program to keeping the Standard Utility Allowance up-to-date for purposes of calculating the Food Stamp program's Excess Shelter Deduction.
- Creation of a statewide fuel fund to generate crisis assistance through vol-

untary customer donations through all utility customers.

- Regulatory relief from unreasonable or counterproductive fees such as late fees, collection fees and cash security deposits.
- Increased outreach for the Earned Income Tax Credit (EITC).
- Mandatory energy efficiency standards (*e.g.*, Energy Star) for housing newly constructed or rehabbed using public funds such as federal Home Investment Partnership Fund (HOME) dollars or Low-Income Housing Tax Credit (LIHTC) dollars.
- Strict enforcement of federal regulatory requirements that Local Housing Authorities (LHAs) update their utility allowances on an annual basis (or sooner if significant rate increases have been placed into effect).

Information on a variety of low-income energy programs can be obtained by accessing the FSC web site at: [www.fsconline.com](http://www.fsconline.com). The FSC News and FSC Library provides a wealth of information on low-income energy affordability remedies.

Statewide Home Energy Affordability Gap data can also be accessed at the FSC web site.

Fisher, Sheehan and Colton, Public Finance and General Economics (FSC) is a research and consulting firm with its primary offices in Belmont (MA).

FSC specializes in providing economic, financial and regulatory consulting.