

**MEASURING THE OUTCOMES OF
LOW-INCOME ENERGY ASSISTANCE PROGRAMS
THROUGH A HOME ENERGY INSECURITY SCALE**



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The LIHEAP Committee on Managing for Results in April 1998 as a joint partnership between the states, local agencies, other program stakeholders and OCS. The Committee's task is to collaborate with OCS on developing recommendations on cost-effective performance goals and measures for LIHEAP that will meet the requirements of the Government Performance and Results Act (GPRA) of 1993. In addition, the Committee's task is to enhance management practices through the approach known as "Managing for Results." OCS has awarded NEADA small purchase orders to support the work of the Committee.

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INTRODUCTION

The extent to which an energy assistance program improves the energy self-sufficiency of a low-income household can be captured through the use of the Home Energy Insecurity Scale. Accordingly, the Home Energy Insecurity Scale can be used to quantitatively measure outcomes for home energy assistance programs.

The scale presented below represents a substantive improvement in measuring the outcomes generated by low-income energy assistance programs. Administrators of such programs have long struggled to develop a mechanism to capture the many facets of home energy unaffordability. Some efforts have focused on lowering home energy burdens. A household's "energy burden" is the household bill divided by the household's gross income.¹ This process, however, does not capture the circumstances of a household for whom the receipt of energy assistance results in an *increase* in the home energy burden because he or she is no longer required to cut off all rooms of the home but one. Some efforts have focused on the nonpayment of home energy bills (as well as the disconnection of service and other collection-related problems). This process, however, does not capture the circumstances of a customer that pays his or her bill, but reduces spending on household necessities for food or medicine in order to do so. Some efforts have focused on reductions in energy consumption. This process, however, does not capture the circumstances of a household whose energy unaffordability problems result from a combination of very low incomes (even though usage is very low as well).

The proposed Home Energy Insecurity Scale allows the program manager to capture all aspects of low-income energy affordability. This process of measuring the outcomes of energy assistance programs is based on an evaluation tool involving "scales." A scale is a tool that allows program administrators to place households on a continuum that describes different conditions of household status. By determining where a household falls on a scale at different points in time, the scale allows an agency to quantify the *change* in a household's circumstances.

Consider the federal Low-Income Home Energy Assistance Program (LIHEAP) as one example. A LIHEAP state program administrator could measure the outcome of this energy assistance program by comparing where a LIHEAP recipient falls on the Home Energy Insecurity Scale at two points in time. When the household enters the program, LIHEAP determines the household's level of "energy insecurity." The second determination of "energy insecurity" occurs after the household has participated in LIHEAP for one full year. The change in status revealed by comparing those two measurements represents the "outcome" of the program. If the household's status has improved, the program has generated a positive outcome. If the household's status has not improved, or has deteriorated, the program has not generated positive outcomes.² Additional measurements can be taken, and outcomes tracked, at future points in time as well.

¹ A household with a bill of \$1,200 and an income of \$6,000 thus has an energy burden of 20% ($\$1,200 / \$6,000 = 0.20$).

² We will set aside for the moment the notion that without the program, the status of the household would have deteriorated even more. We further set aside the notion that the improvement in the status of the household could be attributable to some other program alone or in combination with LIHEAP. These issues are common to *all* scales, not merely the Home Energy Insecurity Scale.

The use of scales is important in measuring the outcomes of social service programs because a scale can be used to measure *incremental* change for program participants. Incremental change involves positive changes that fall short of 100% success. The proposed Home Energy Insecurity Scale, for example, has five “conditions of status” where a household might fall. Let’s say, for example, that “1” is the best condition (most self-sufficient) and “5” is the worst (least self-sufficient). The objective of LIHEAP in this illustration is to help make the household energy self-sufficient.

The LIHEAP program might *improve* a household’s energy self-sufficiency by moving the household from “4” to “2” on the Home Energy Insecurity Scale, even if the household never makes it to the highest possible level of self-sufficiency. Within the context of home energy, in other words, moving a household from “in-crisis” to “stable” is a positive development, but one that does not get tracked if the only outcome that gets measured is the number of households that reach the ultimate goal of being “thriving.” Improving a household’s status from “in-crisis” to “stable” is a positive outcome of the program even if the ultimate objective of the program was not realized.

Using the Home Energy Insecurity Scale allows LIHEAP agencies to recognize that self-sufficiency is a continuum rather than a dichotomous state. Instead of asking whether or not a household has *become* self-sufficient, the proposed scale allows agencies to ask whether a household has become *more* self-sufficient. A scale does not present an analysis of outcomes as an either/or proposition.

One particularly well-accepted system of measuring outcomes uses the system of scales developed through the Results Oriented Management and Accountability (ROMA) process.³ ROMA scales represent a system of outcome measurements developed in collaboration with the Office of Community Services in the Department of Health and Human Services as a means to track the outcomes of various social service programs.⁴ Most Community Service Block Grant (CSBG) grantees now use ROMA scales to report program outcomes.⁵ While the Home Energy Insecurity Scale is designed to be used by LIHEAP offices, it has been intentionally structured so that it can also be used along with other ROMA-based scales.

THE INTERNAL STRUCTURE OF THE HOME ENERGY INSECURITY SCALE

Understanding the structure of the Home Energy Insecurity Scale involves understanding two basic tools: thresholds and indicators. The “threshold” tells you where on the scale a household

³ The scale proposed in this paper borrows heavily from other ROMA scales. In particular, work in California, Kansas and Virginia has informed the development of this home energy family scale.

⁴ The ROMA process grew out of the 1994 law reauthorizing the Community Services Block Grant (CSBG) program for Fiscal Years 1995 through 1998. That law required state CSBG offices to report outcomes in the areas of self-sufficiency, family stability, and community revitalization.

⁵ ROMA scales report outcomes at the family level, the agency level, and the community level. A comparison of the attributes of these three levels of scales is presented in Appendix A. This comparison of the three types of scales is presented simply to demonstrate what the *household-level* Home Energy Insecurity Scale is *not* seeking to measure. The attached Home Energy Insecurity Scale does not seek to measure outcomes within an agency. Nor does it measure outcomes for the community as a whole.

falls. The threshold is a conclusion. It represents the determination a program manager reaches about the extent of the energy self-sufficiency of a household. The “indicators” tell you into which threshold each household should be placed. The indicators are specific pieces of information about a household upon which the threshold conclusion is based. These two tools are discussed in more detail below.

The Basic Building Blocks of a Scale: The “Thresholds”

What are “thresholds” generally: As with any scale, the basic building blocks of the Home Energy Insecurity Scale are called “thresholds.” In their simplest form, “thresholds” are the points along a scale. Thresholds are the benchmarks along a scale that mark a household’s condition of status. Every scale, in other words, must have a beginning point and an ending point (or a “top” and a “bottom”). Every scale must *also* have points between the two endpoints that indicate “movement” along the scale. These benchmarks are called the scale’s “thresholds.”

Consider, for example, how scales might be used to measure income. On an income scale, the beginning and ending points are the “richest” and the “poorest” households. The intervening thresholds might be quartiles of income. As a poor household becomes more wealthy (*i.e.*, moves up the scale), it moves from the bottom quartile to the third quartile to the top quartile of income.⁶ At any given point in time, it is possible to determine where the household falls on the scale (from bottom quartile to top quartile). By taking repeated measurements of the household’s placement on the scale, the movement of the household along the scale can be measured and tracked.

The Home Energy Insecurity Scale thresholds: The Home Energy Insecurity Scale uses the same five thresholds as does ROMA.⁷ Each of these thresholds measures the self-sufficiency status of a household at a particular point in time. The same five thresholds are used for all aspects of a household’s well-being (*e.g.*, food and nutrition, housing, employment, energy). The five ROMA thresholds used for the Home Energy Insecurity Scale are:

- Thriving
- Capable
- Stable
- Vulnerable
- In-Crisis

⁶ Another system of measurement that might be viewed as a “scale” involves the annual NCAA college basketball tournament. The “bottom” of the scale would be a tournament participant; the “top” of the scale would be tournament champion. Intervening “thresholds” would be whether a team moves up to being a “Sweet Sixteen” team; then moves up to being an “Elite Eight” team; and then moves up to being a “Final Four” team.

⁷ The use of the same five thresholds as ROMA scales use is simply to facilitate the incorporation of the Home Energy Insecurity Scale into other ROMA data collection.

There is no magic to the actual words used as labels for the thresholds. Indeed, some agencies change the words at times. For example, some say “at-risk” rather than “vulnerable,” while others say “safe” instead of “capable.” The proposed Home Energy Insecurity Scale uses the same terminology developed by the federal CSBG Monitoring and Assessment Task Force (MATF). Using the MATF terminology is intended to promote uniformity in language and application. It also makes clear that the intent is to measure the same things whether the scales being used are for home energy, shelter, food and nutrition, or some other aspect of household well-being.

What the Thresholds Represent: Each of the five thresholds used in the Home Energy Insecurity Scale represents a conclusion as to the level of energy self-sufficiency by a household. The Home Energy Insecurity Scale has been designed to represent the energy-equivalent of other household scales. Whether it involves energy, or housing, or nutrition, the provision of basic household needs by a self-sufficient household involves certain fundamental similarities. Households that fall within the “capable” threshold of the Home Energy Insecurity Scale, in other words, should demonstrate the same basic attributes relative to energy that a household falling into the “capable” threshold of the food and nutrition scale would demonstrate relative to food and nutrition.⁸

The discussion below describes what each threshold on the Home Energy Insecurity Scale represents. The discussion below differs from the discussion later in the text describing specifically how to determine whether a household falls within each threshold. The specific questions to ask a household, along with the way in which the responses to each question should be used to place a household in one threshold rather than another, are discussed in the section below regarding operation of the scale.

The thresholds that comprise the Home Energy Insecurity Scale indicate the following about a household:⁹

- A *thriving* household is one that has achieved generally accepted standards of well-being. The thriving household can engage in the full range of home energy uses of its choice without outside assistance and without financial strain. As soon as data collection reveals that a household decides to forego desired energy uses, the household is no longer considered to be “thriving.” As soon as evidence of “financial strain” appears, a household is no longer considered to be “thriving.” Payment problems are one, but only one, specific type of household strain. A thriving household does not need outside assistance to help pay its home energy bills.¹⁰

⁸ Formulations of the five thresholds for non-energy uses are summarized in Appendix B. These formulations are presented as illustrations of what others have done to implement a household-level scale. The Home Energy Insecurity Scale assistance programs is then presented in Appendix C.

⁹ Again, these attributes are consistent with the attributes of a household found to fall within the same thresholds on other scales.

¹⁰ The term “outside assistance” is used instead of “public assistance” or “government assistance.” “Outside assistance” covers a broader range of help, including assistance from friends and families, assistance from local fuel funds, and the like.

- A *capable* household is secure, even though not having achieved the full range of generally accepted standards of well-being. A capable household may have arrears because it cannot afford to pay its energy bills, but does not have such arrears more than occasionally. Those arrears that a capable household experiences never place the household's continuing energy service at risk. A capable household never experiences an adverse impact on basic household necessities because of its energy bills, and no more than occasionally foregoes some energy use wanted for comfort or convenience because it cannot afford the energy bill.¹¹ A capable household no more than occasionally experiences financial strain because of its energy bills and does not have need to access outside help to pay energy bills.
- A *stable* household does not face significant threats and is unlikely to be in immediate crisis. The stable household may have a need to access outside assistance to pay current energy bills, but this need does not arise more than "sometimes." It may have more than occasional arrears. Nonetheless, a stable household does not experience routine arrears in combination with the threatened loss of continuing energy service. A stable household never experiences an actual discontinuance of service. Nor does a stable household ever forego basic non-energy household necessities in order to pay its home energy bill. A stable household may on infrequent occasion need to engage in temporary or inappropriate actions because it lacks money to pay its home energy bills, but it does not do so regularly. Such an action might include, for example, not heating/cooling part of the home; turning off the hot water entirely; leaving home for all or part of the day in order to turn off the heating/cooling; or using an appliance to heat the home when that appliance is not intended for such purposes.
- A *vulnerable* household is one that is not in immediate danger, but that may avoid this danger only through temporary or inappropriate solutions. A vulnerable household may occasionally face energy choices that require it to compromise not merely on comfort and/or convenience, but on basic household energy needs such as heating and/or hot water.¹² The household may not only have arrears, but it may have arrears of sufficient age or magnitude to result in the threatened loss of home energy service. A vulnerable household may also infrequently experience the actual discontinuance of service, but does not experience a frequent or regular loss of service. The vulnerable household may occasionally, but not frequently, engage in temporary or transitional actions to reduce energy use (*e.g.*, turning temperature down to unsafe levels; using temporary heating fuels; turning heat down or off and leaving home during day; closing off rooms for periods of time), or may experience adverse effects on the provision of basic household needs in order to pay the home energy bill (*e.g.*, reduce food or medicine consumption). These impacts, however, while they may occur in "some months," do not happen "nearly every month." A household that may routinely need to access outside assistance to help pay its energy bills is

¹¹ If the household "routinely" foregoes energy used for comfort and/or convenience, it is not "capable," but only "stable."

¹² An earlier version of the Home Energy Insecurity Scale survey allowed the household to determine what energy uses were for "basic household necessities. The more recent versions, including the version made a part of this paper, limits those "basic necessities" to heating/cooling and hot water.

considered “vulnerable.” This dependence places a household in the “vulnerable” threshold irrespective of whether the household experiences other adverse home energy insecurity impacts.

- An *in-crisis* household faces immediate needs that threaten the household’s physical and/or emotional safety. An in-crisis household may experience recurring periods of going without home energy service. In the alternative, this household may either routinely engage in energy use choices that compromise basic household needs (*e.g.*, hot water, heating); routinely engage in temporary or transitional actions; or routinely engage in energy bill payment strategies that adversely affect the provision of basic household needs (*e.g.*, food, medical care). Note the three alternative conditions that might place someone in the “in-crisis” threshold: (1) the household goes without energy; *or* (2) the household has energy, but has to routinely compromise on its energy use for basic household necessities; *or* (3) the household does not compromise on its energy use, but in order to maintain that energy use, must compromise on *non-energy* basic necessities. Any one of these attributes places a household “in-crisis.”

The specific thresholds that comprise the Home Energy Insecurity Scale are presented in Appendix C along with their basic attribute. The specific factual findings that go into concluding whether a household is in one threshold rather than another -- these findings are known as “indicators” -- are discussed below.

The Factual Inputs that Go into a Scale: The “Indicators”

What are indicators generally: The basic pieces of factual information that are collected and used to determine which threshold best describes a household are called “indicators.” The indicators used in a scale have no significance ascribed to them standing alone. They are facts about a household. They may be collected by survey, by observation, or by a review of program application forms. The Home Energy Insecurity Scale is based upon survey data.

The most important task in implementing the thresholds that underlie the Home Energy Insecurity Scale involves ensuring that a household can fit into only *one* of the thresholds when data are collected. Each threshold must be defined so that a household either fits, or it does not. Conversely, if a household does *not* fit into one threshold, the household *must* fit into another.

The choice on which threshold a household fits into can be determined by the presence or the absence of some household attribute. If Attribute A is present, for example, the household is “capable,” and if not, the household is *not* “capable.” If Attribute B is missing, the household is “vulnerable,” and if not, the household is *not* “vulnerable” but must be something else. The piece of information that is used to determine where a household fits on the scale is called an “indicator.” Each threshold in the Home Energy Insecurity Scale has more than one indicator associated with it.

Application of the principles above would appear to dictate that development of a scale involves a mechanistic application of indicators. A mechanistic approach to scaling allows evaluators to

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Application of the principles above would appear to dictate that development of a scale involves a mechanistic application of indicators. A mechanistic approach to scaling allows evaluators to have confidence that two people looking at the same household with the same data would reach the same conclusion about into which threshold the household should be placed. Creating a mechanistic scale does not allow for anyone to make a “wrong” decision about where the household falls.

Having said this, however, dealing with people is rarely so neat. There will always be situations where a household does not fit clearly into any one level of the scale (*i.e.*, they have some attributes that are associated with one threshold, but other attributes that are associated with a different threshold). While the implementation of the Home Energy Insecurity Scale has been made as objective as possible, the actual use of the Home Energy Insecurity Scale (as with any scale) must balance the “science” of scales with some “art.”

Defining the indicators: The Home Energy Insecurity Scale is based on five basic categories of indicators. These indicators can serve two alternative functions. On the one hand, the presence of an indicator can mean that, irrespective of any other indicator, the household is *included* within a certain threshold. If a household has had home energy service discontinued for nonpayment in more than one or two months, for example, that household will be classified as being “in-crisis.” On the other hand, the presence of an indicator can mean that, irrespective of any other indicator, the household is *excluded* from a certain threshold. If a household has received energy assistance, for example, irrespective of any other data, that household will *not* be classified as “thriving.”

A variety of factors have been used to select not only the general categories of home energy indicators, but the specific indicators within each category as well. These factors include but are not limited to:

- The indicator enables one to know about the selected condition,
- The indicator is defined in the same way over time,
- The indicator is easily understood and accepted by stakeholders,
- The indicator is supported by available data, and
- The indicator is important to most people (both political supporters and skeptics).

was constrained in the energy the household “wanted” to use. A more intense constraint involves whether reductions in energy use were to “uncomfortable or inconvenient levels.” An even more intense constraint involves turning hot water heating or space heating/cooling off entirely because of the lack of money.

- **Constraints on household necessities.** Different questions explore different levels of impact that home energy bills have on the provision of household necessities. On the one hand, the involuntary discontinuance of energy service due to nonpayment was considered to be an adverse impact on the provision of household necessities. On the other hand, households are asked the extent to which, if at all, they reduce their expenditures on household necessities such as food or medicine because there was not enough money to pay for these *and* the home energy bill.
- **Nonpayment of energy bills.** Again, different questions explore different levels of intensity of the response. Households were asked whether they ever did “not pay your home energy supplier because there was not enough money for the home energy bill.” A more intense nonpayment issue is raised by the question of whether the household ever had its supplier of electricity or heating energy threaten to disconnect electricity or home heating fuel service, or discontinue making heating fuel deliveries, because the household could not afford to pay a past-due energy bill. An even more intense response involves the *actual* disconnection of service (or discontinuance of deliveries).
- **Financial strain.** The presence of “strain” is measured through a variety of questions, including the extent to which, if at all, a respondent “worried whether [his or her] home energy bill would become overdue before [he or she] could get money to pay it.”

Each question provides the household an opportunity to indicate whether a statement about the indicator is true within a four-step frequency scale. At their root, each of the indicators is based on whether, within the twelve months preceding the survey, the indicated circumstance is not true, is true infrequently, is true occasionally, or is true frequently (or nearly always). Appendix D presents the Home Energy Insecurity Scale Survey that serves as the basis for generating the factual data on each indicator. Appendix E presents the decision rules for determining the classification of a household based on the presence or absence of indicators as revealed by the Survey. Appendix F summarizes the relationship between the thresholds, the indicators, and the questions of the Home Energy Insecurity Scale survey. The operation of the survey and the decision rules is discussed in more detail below within the text describing the operation of the Home Energy Insecurity Scale.

The indicators identified above allow the Home Energy Insecurity Scale to be used in diverse circumstances while maintaining some uniformity of design and application. The Scale treats the person using air conditioning in Tucson the same as the person using heating in Minneapolis. It treats the farmer using propane to heat in Iowa the same as the apartment dweller using electricity to heat in Manhattan. It treats the two-parent household with ten children the same as the widowed retired grandmother the same as the single disabled 25 year old person.

HOW TO USE THE HOME ENERGY INSECURITY SCALE

Using the Home Energy Insecurity Scale involves three steps:

- Data collection from energy assistance recipients.
- Scaling the respondents, which involves using the collected data to determine which threshold is applicable to each individual respondent. and
- Repeating the data collection and scaling process a second time to determine the movement (if any) of the participants on the Home Energy Insecurity Scale.

Each of these steps is separately considered below.

Collecting Indicator Data

Indicator data is collected using the Home Energy Insecurity Scale survey presented in Appendix D. The eleven (11) questions used in the Home Energy Insecurity Scale have been adapted from the survey used by the Food Assistance and Nutrition Research Program of the U.S. Department of Agriculture (USDA) to measure “food insecurity” in the United States.¹³

The food insecurity survey provides an ideal model for the Home Energy Insecurity Scale. The USDA characterizes its food security inquiry as follows:

Food security can be thought of as lying along a continuum from complete food security to severe hunger. Each household’s food security status is assessed by a series of 18 questions (10 for households without children) that ask about behaviors and experiences known to characterize households having difficulty in meeting their food needs. The questions. . .ask about conditions in the past 12 months and cover a wide range of severity, from having worried about whether food would run out to going a whole day without eating because there was not enough money for food.¹⁴

The parallels between food insecurity and home energy insecurity make the use of the USDA questions an excellent model for use in developing the Home Energy Insecurity Scale. As with the USDA food questions, the home energy questions ask about conditions in the past 12 months

¹³ For a discussion of the ongoing study of food insecurity, see generally, Mark Nord and C. Philip Brent (September 2002). *Food Insecurity in Higher Income Households*, U.S. Department of Agriculture, Food and Nutrition Service, Alexandria (VA); Gary Bickel et al. (2000). *Guide to Measuring Household Food Security, Revised 2000*, U.S. Department of Agriculture, Food and Nutrition Service, Alexandria (VA); William Hamilton, et al. (1997). *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*, U.S. Department of Agriculture, Food and Consumer Service, Office of Analysis and Evaluation, Alexandria (VA); William Hamilton et al. (1997). *Household Food Security in the United States in 1995: Technical Report*, U.S. Department of Agriculture, Food and Consumer Service, Office of Analysis and Evaluation, Alexandria (VA).

¹⁴ *Food Insecurity in Higher Income Households*, at 21.

and cover a wide range of severity, from having worried about whether home energy would run out to having home energy service disconnected or discontinued because there was not enough money for energy.

In addition, as with the USDA food insecurity questions, the Home Energy Insecurity Scale is concerned only about energy problems associated with resource constraints. USDA states about its food insecurity scale:

Each question specifies lack of resources as the reason for the behavior or experience (“because we couldn’t afford more food,” or “because there wasn’t enough money for food.”) This is to ensure that the measure does not register as food deprivation any behavior associated with dieting to lose weight, fasting for religious reasons, or undergoing food shortages for any reason other than resource constraints.¹⁵

Likewise, home energy experiences can vary based on personal preferences. Some people prefer it cold in their housing units, while others have a high tolerance for heat. These decisions are often based on lifestyle or personal taste rather than on resource constraints. The data collection questions for the Home Energy Insecurity Scale are limited to behavior and experience associated with a lack of resources. As with the USDA questions, these questions specify that the experience or behavior is related to observations that “because there wasn’t enough money” or “because we could not afford” it.

Using the Data to Scale Survey Respondents

Once the Home Energy Insecurity Scale surveys have been completed, the responses must be reviewed to determine where on the Home Energy Insecurity Scale a respondent falls. The process of scaling involves an iterative classification of all respondents. The process of classification is intended to use a top-down iteration. A top-down process begins by reviewing the entire population of survey respondents. All respondents found to exhibit the indicators demarcating a “thriving” household are removed from the population. The remaining population is considered again, with all respondents found to exhibit the indicators demarcating a “capable” household then removed. The process of classification continues until all households are appropriately classified.

Appendix E presents the classification process based on the Home Energy Insecurity Scale survey included with this analysis. A “no” in the Column Marked “indicator decision” means that a household cannot be part of the threshold for which screening is currently occurring. The “basis for the decision” indicates the specific question and response that forms the factual basis for making that decision.

Consider, for example, the screening for “thriving” households. Question 2 of the Survey asks: “Our home energy bill became due and (I/we) didn’t have money to pay it without somebody’s help. Was that often true, sometimes true, or never true for (you/your household) in the last 12

¹⁵ *Food Insecurity in Higher Income Households*, at 21.

months?” Since one indicator of a “thriving” household is the fact that the household does not receive outside assistance to pay for home energy bills, if the household responds either “often true” or “sometimes true,” the household cannot be characterized as “thriving.” A “thriving” household, in other words, must have “never true” as the response to Question #2 in the survey. In screening for “thriving” households, all households who mark “often true” or “sometimes true” are removed from consideration. To illustrate, assume that Respondent 1001 is removed from consideration as a “thriving” household because of his/her response of 2a (“always true”) or 2b (“sometimes true”) with respect to the need to use outside assistance.

For everyone else not removed at this point, answering “never true” to the question about whether the respondent needs outside assistance to help pay his or her home energy bill does not, unto itself, *make* those respondents “thriving.” The response “never true” merely keeps the remaining households in the pool of potentially “thriving” households pending application of additional indicators.

The next step, therefore, is to screen the remaining respondents relative to Question 4. Question 4 of the survey asks: “(I/we) reduced our energy consumption to uncomfortable or inconvenient levels because (I was/we were) running out of money to pay our home energy bill. Was that often true, sometimes true, or never true for (you/your household) in the last 12 months.” Since one indicator of a “thriving” household is that the household has a full range of energy choices, if the household responds either “often true” or “sometimes true,” the household cannot be characterized as “thriving.” A “thriving” household, in other words, irrespective of their use of outside assistance, must have “never true” as the response to Question #4 in the survey. In screening for “thriving” households, assume a Respondent 1002 (who marks “often true” or “sometimes true” for Question 4) is added to the group of program participants responding “often true” or “sometimes true” to Question 2 as having been removed from consideration as a “thriving” household.

This process of screening continues through the entire set of indicators for the entire population. At the end of the process, the evaluator will have two sets of survey respondents. One set will involve households that cannot be considered “thriving.” For each of those households, the person doing the classification will have one disqualifying “thriving” indicator cell marked “no” along with the question and response that serves as the factual basis for that decision.¹⁶ In our example above, for the “thriving” threshold, Respondent 1001 will be marked “no” with a reference to either response 2a or response 2b. For the thriving threshold, Respondent 1002 will not be classified based on any reference to Question 2, but will be marked “no” with a reference to either response 4a or 4b. The staffperson doing the classification should be able to prepare a report that allows any other person to trace the threshold classification decision for each survey respondent back to the specific question and response that serves as the basis for the decision.

¹⁶ Since the Home Energy Insecurity Scale does not require multiple disqualifying indicators to be present, once a household is disqualified for a given threshold, that household is removed from further consideration with respect to that threshold. A household thus should not have more than one disqualifying indicator recorded.

“Thriving” Threshold Classification Basis for Home Energy Insecurity Scale			
Program Participant	Decision	Decision Basis	Conclusion
1001	No	Q-2a	Not thriving: receives outside assistance
1002	No	Q-4b	Not thriving: energy use constraints present

Once all “thriving” households have been identified, the process begins anew with all households classified as “thriving” removed from the population of respondents. The remaining population of respondents determined to be not “thriving” is screened for indicators relative to the “capable” threshold. Unlike the thriving household (which may not experience arrears),¹⁷ a “capable” household may have an arrears so long as those arrears are infrequent. Any household reporting more than an infrequent arrears in response to Question 7 is thus found not to be “capable.” A “capable” household, in other words, may have “no” or “in only 1 or 2 months” as a response to the statement “did you ever not pay your home energy supplier because there wasn’t enough money for the home energy bill.” The “capable” household may not have “some months” or “almost every month” marked in response to this question.

As with the screening for thriving households, having set aside those households that are not capable due to the application of one indicator, the remaining households are screened for the next indicator. In screening for “capable” households, the next indicator happens to involve constraints on energy use. A “capable” household may have some constraints on energy use, but, if so, may not have constraints on energy use needed for basic household necessities. As a result, a household that answers “yes” in response to Question 6 is determined to be not “capable.” Only if the household responds “no” to Question 6 (“in the last 12 months. . .did you ever leave your home for all or part of the day because there wasn’t enough money for the home energy bill, or, did you ever turn off your hot water because there wasn’t enough money for the home energy bill?”). Only if the household responds “no” to Question 6, will the household remain in the pool that will be further screened to determine whether it is “capable.”

After screening for all attributes of a “capable household” has been completed, and the population of “capable” households has been identified and removed from the population of respondents, the screening process begins anew for those respondents that remain. The next level of screening is for attributes relating to whether a household is “stable.” The process then continues. Once the population of “stable” households has been identified and set aside, the next level of screening is for attributes relating to whether a household is “vulnerable.” Finally, the last screening step is to determine those households meeting the screens for “in crisis.”

It is important to apply indicators to the appropriate population and in the appropriate order. The population of survey respondents narrows as each threshold is filled through the previous screens. To screen for “vulnerable,” in other words, necessarily implies that screening for “thriving,” “capable” and “stable” has already occurred. It would be inappropriate to screen for

¹⁷ Remember, the survey is limited to resource constraints. As a result, arrears that may have arisen because someone forgot to pay or some such thing are not captured by the survey. The survey specifically asks “in the last 12 months. . .did you ever not pay your home energy *supplier because there wasn’t enough money for the home energy bill?*”(emphasis added).

“vulnerable” without having previously screened out the respondents who fall within thresholds that are above “vulnerable.”¹⁸

This process of screening allows the program manager to make definite decisions about each household. As the MATF Scales Handbook explains it:

These types of scales lead a case manager in decision making by creating a path with continual forks in the road. The case manager must either turn right or left: they cannot go both ways at the same time.

The screening process is the path. Each screening step represents one of the forks in the road. At each fork, a household responding to the Home Energy Insecurity Scale survey must remain either “in” or “out” of the threshold for which screening is occurring at that particular time. The household cannot be both “in” and “out,” and it cannot be neither. At the end of the screening process, having applied each indicator, each respondent will have been classified into a threshold. Each set of responses will allow such classification to result in one, and only one, threshold to be applicable to each respondent.

Placing the Data Into Usable Reports¹⁹

Data collection for the Home Energy Insecurity Scale requires agencies to periodically gather information. Because the scale defines outcomes in terms of the *change* in self-sufficiency status, it will require agencies to gather information on each household twice: (1) first to measure initial conditions (to establish a base line of data); and (2) second, to determine to what extent, if at all, household situations have changed.

The agency should take its first measurement at the time a household applies for its energy assistance grant (looking retrospectively at the twelve months prior to the receipt of assistance) and then again twelve months after assistance is provided (looking at the twelve months following the receipt of assistance).

The additional data collection requirements will increase burdens on agencies, particularly the field staff who will most likely have the primary responsibility for data collection. Data collection should be performed for a selection of program participants each year.²⁰

The measurements are then combined and presented on a two-dimensional matrix using a table like that below. The columns of the table correspond to the beginning level of each household tracked. The rows represent the ending levels of those households. As a result, each cell of the table represents all of the possible changes that might occur to households.

¹⁸ One alternative way to view this is that the indicators for any given threshold incorporate all indicators for all thresholds above it.

¹⁹ This discussion of the operation of the Home Energy Insecurity Scale is largely taken from the discussion of the operation of the Kansas ROMA scales, which the Home Energy Insecurity Scale most closely mirrors.

²⁰ While it is necessary to have two measurements for each survey respondent, it is *not* necessary to have the same respondents year after year.

Home Energy Insecurity Scale Matrix						
	Beginning Status					
		Thriving	Capable	Stable	Vulnerable	In-Crisis
Ending Status	Thriving	1	2	3	4	5
	Capable	6	7	8	9	10
	Stable	11	12	13	14	15
	Vulnerable	16	17	18	19	20
	In-Crisis	21	22	23	24	25

In the table, agencies would simply record the number of households experiencing each type of change in the cells of the table. For example, if a household was assessed as “vulnerable” at the first contact, but was deemed to be “capable” at the second contact, it would fall in Cell #9 (corresponding to Beginning Status (column 4) and Ending Status (row 4)).

An example of recording data is presented in Appendix G, using purely hypothetical data. Agencies would simply record the number of households experiencing each type of change in the cells of the table. Appendix G simply reports the following outcomes for the hypothetical energy assistance program underlying that report:

- 2 program participants began the program in the “capable” threshold, but moved up to “thriving” by the end of the year.
- 3 program participants began the program in the “stable” threshold and remained in the “stable” threshold at the end of the year.
- 2 program participants began the program in the “vulnerable” threshold, but moved up to the “stable” threshold by the end of the year.
- 5 program participants began the program in the “vulnerable” threshold and remained in the “vulnerable” threshold at the end of the year.
- 4 program participants began the program in the “vulnerable” threshold, but moved down to the “in-crisis” threshold by the end of the year. and
- 6 program participants began the program in the “in-crisis” threshold, but moved up to the “stable” threshold by the end of the year.

A separate report can be kept for households that are tracked over a multi-year period. In these cases, the beginning assessment may have been made in a previous program year.²¹

Summary

No question exists but that many issues presented by the Home Energy Insecurity Scale will need to be worked out during implementation. As specific issues arise, and are resolved, the scale will be modified. So, too, there will likely be a need to revisit the scale as evaluators and analysts begin to take data developed through the Home Energy Insecurity Scale and assess what lessons are to be found. The objective at this point, as with the ROMA scales, is to create a language to communicate with.²² Defining the thresholds and creation of the scale is the first step in what is likely to be a multi-year process.²³

TESTING THE HOME ENERGY INSECURITY SCALE

The design of the Home Energy Insecurity Scale involved a period of limited field testing of the scale in ten states throughout the country.²⁴ During February through April 2003, community action agencies in New Hampshire, Massachusetts, West Virginia, Pennsylvania, Kentucky, Ohio, Missouri, Montana, Oregon and Washington²⁵ administered the Home Energy Insecurity Scale survey to a total of 90 households in their respective agencies.²⁶ This field testing of the survey found that it takes about 10 – 15 minutes to administer.

The purpose of the testing was not to obtain the substance of the results, but rather to pilot the survey and screening process described above using real information. Nonetheless, the ten states were chosen to generate responses from a variety of respondents and situations: big states and small states; rural areas and urban areas; natural gas, electricity, and fuel oil heating areas; East

²¹ Because one condition of “thriving” is non-receipt of public assistance, LIHEAP recipients will, by definition not be “thriving.” Application of the Home Energy Insecurity Scale outside the LIHEAP context will have this column available.

²² We adopt the MATF reasoning: “We must accept that the evolving ROMA process is likened to creating a language to communicate with. We’re looking for common denominators and similarities. Everybody knows what a car is. Some people use a car for transportation. Some people use their cars to raise income. Some use a car for entertainment; others use it to live in. Whatever it is used for, we still recognize a car when we see one.”

²³ The next steps in the development of this Scale involve testing it on a broad scale within either the LIHEAP population served in a particular year or in a REACH project. The outcomes of the 2002 Georgia REACH project will be evaluated in part using the Home Energy Insecurity Scale. Testing the incorporation of the Home Energy Insecurity Scale into ROMA scales, whether or not involved directly with LIHEAP, is necessary as well.

Moreover, the data developed through the Home Energy Insecurity Scale is expected to serve as an increasing basis for academic inquiry into home energy insecurity in the United States, just as the U.S. Department of Agriculture’s food insecurity survey has prompted more extensive analysis of hunger. Without question, as these academic, policy and programmatic studies are performed, the scale will become more sophisticated.

²⁴ Before field testing the survey, a number of experts in ROMA scales provided reviews and comments on the proposed scale. Gratitude is expressed to the reviewers listed in Appendix H for their timely and insightful comments..

²⁵ Gratitude is expressed to the Community Action Agency personnel (and their staff) identified in Appendix I for their assistance in the testing process.

²⁶ Five of those surveys were excluded from this analysis as incomplete leaving 85 surveys that were used in the scaling process.

vs. West areas; North vs. South areas. In addition, both LIHEAP and non-LIHEAP recipients were included in the respondents. Again, however, the discussion below is not presented to establish the accuracy of the substance of the information contained within the results. The testing was performed simply to pilot the survey and scaling process and to illustrate its operation.

Classifying the Population as a Whole

The 84 completed responses from these ten states were scaled using a top-down approach. As was discussed above, the top-down approach simply means that the responses were screened to determine the thresholds for each respondent beginning with “thriving” and continuing down through “in-crisis.”

“Thriving” households: Of the 85 respondents in the test group, none were classified as “thriving.” The receipt of outside assistance to help pay home energy bills (Question 2) was the most common disqualifying indicator.²⁷ Of the 85 respondents, 74 were determined to be not “thriving” because of the receipt of outside assistance. Nine (9) more were disqualified as a thriving household because of constraints on their energy use (Question 3 or Question 4). One had received a notice of disconnection.

As a result of the screening for “thriving” households, all 85 respondents remained in the pool to be screened for whether they fall into the “capable” threshold.

“Capable” households: Of the 85 respondents in the test group, four (4) were classified as “capable.” The primary reason for determining that households could *not* be placed in the “capable” threshold involved the receipt of outside assistance (Question 2) (n=33); the nonpayment of an energy bill on more than an infrequent basis (Question 7) (n=19); and the reduction of energy used below that needed to provide basic household necessities (Question 6) (n=15).²⁸ Other scattered indicators also disqualified households from being classified as “capable,” including five (5) households that received service disconnection notices even though they reported infrequent episodes of nonpayment.

As a result of screening for “capable” households, 81 respondents remained in the pool to be screened for whether they fall into the “stable” threshold.

“Stable” households: Of the 81 respondents remaining in the test pool, seven (7) were classified as “stable.” The primary reason for determining that households could not be placed in the “stable” threshold involved the combined presence of more than occasional arrears (Question 7) *and* at least one notice of service discontinuance (Question 10) (n=31).²⁹ Other common

²⁷ Once a household has been disqualified from a threshold based on one indicator, it is not further tested for other indicators relative to that same threshold.

²⁸ Question 6 now included in the survey presented in Appendix E has been narrowed from the question used in the test. The current question now asks about specific energy uses rather than a general reference to energy needed for household necessities.

²⁹ Only the arrears or only the disconnection notice were insufficient to disqualify a person from being classified as “stable.” It was the combined presence of the two indicators that moved a household out of the “stable” threshold.

reasons for disqualifying households from being classified as “stable” involved reduced household spending on food or medicine (Question 9) (n=24) and frequently finding their energy bill become due and not having money to pay it without outside help (Question 2) (n=10). Other scattered indicators also disqualified households from being considered “stable.”

Two households were classified as “stable” despite the presence of frequent worry about whether his or her home energy bill would become overdue before he or she could get money to pay for it (Question 1). In order for a household to drop to “vulnerable” or “in-crisis,” such frequent worry is required to be combined with some other indicator indicating “vulnerable” or “in-crisis” status.

As a result of screening for “stable” households, 74 respondents remained in the pool to be screened for whether they fall into the “vulnerable” threshold.

“Vulnerable” households: Of the 74 respondents remaining in the test pool, 37 were classified as “vulnerable.” The primary reason for determining that households could not be placed in the “vulnerable” threshold involved their reduction of spending on food or medicine in “almost every month” because there was not enough money to pay for these and the home energy bill (Question 9) (n=22). Other factors that disqualified households from being classified as “vulnerable” involved the actual disconnection of energy service on more than an infrequent basis (Question 11) (n=8) and a reduction of energy use below that needed to provide basic household necessities in “almost every month” (Question 6) (n=7). Other scattered indicators also disqualified households from being considered “vulnerable.”

As a result of screening for “vulnerable” households, 37 respondents remained in the pool to be screened for whether they fall into the “in-crisis” threshold.

“In-crisis” households: The 37 respondents remaining in the test pool exhibited the characteristics assigned to “in-crisis” households. The characteristics placing households in the “in-crisis” threshold are the same characteristics that disqualified them from the “vulnerable” threshold. Fifteen (15) of these households reduced their spending on food or medicine in “almost every month” because they did not have enough money to pay for both the food/medicine and their home energy bill (Question 9). Thirteen (13) of these households reduced their energy use in “almost every month” below that use needed to provide basic household necessities (Question 6). Eight (8) of these households experienced, on more than an infrequent basis, an actual discontinuance of energy service because they “were unable to pay for an outstanding home energy bill” (Question 11).³⁰ Other scattered characteristics of “in-crisis” households existed as well.

Illustrative Threshold Classifications Using Home Energy Insecurity Scale Indicators

To further illustrate the process of using the Home Energy Insecurity Scale survey to identify indicators and scale survey respondents, the discussion below examines the individual responses

³⁰ These households reported the actual discontinuance of energy service either “almost every month” or “some months, but not every month.” A household that reported the actual discontinuance of service “in only 1 or 2 months” was classified as “vulnerable.”

of seven illustrative respondents to the Home Energy Insecurity Scale survey testing discussed above. The full set of survey responses from these seven individuals is presented in Appendix J. The discussion below discusses how those responses were used to apply the Home Energy Insecurity Scale indicators and presents the final threshold classification into which each individual would be placed given those responses.

Respondent #1013: Respondent #1013 is a three-person household (2 adults and 1 child) living in Malta, Ohio. This household received LIHEAP in Fiscal Year (FY) 2003. The household heats with electricity. The household is classified as “vulnerable.” The household is disqualified from being “thriving” because it reports that it is “sometimes true” that it did not have enough money to pay its home energy bill without somebody’s help.³¹ A household receiving outside assistance cannot be thriving. The household is disqualified from being “capable” because it responded “yes” to whether it was ever required to reduce its consumption of energy below that which was needed for household necessities. A “capable” household experiences no adverse impacts on the provision of basic energy. The household is disqualified from being “stable” because it responded “yes” to whether it was ever required to reduce expenses for basic household necessities (such as food or medicine) because there was not enough money to pay for these and the home energy bill. The household was classified as “vulnerable” because it had no indicators indicating “in-crisis” status and because it had more than occasional, but not a frequent, need to reduce its spending on basic household necessities in order to pay its home energy bill.

Respondent #1017: Respondent #1017 is a two-person household (2 adults) living in Summersville, West Virginia. This household did not receive LIHEAP in FY 2003. The household heats with natural gas. The household is classified as “in-crisis.” The household is disqualified from being “thriving” because it reports that it is “sometimes true” that it did not have enough money to pay its home energy bill without somebody’s help. The household is disqualified from being “capable” because it responded “yes” to whether it was ever required to reduce its consumption of energy below that which was needed for household necessities. The household is disqualified from being “stable” because it responded “yes” to whether it was ever required to reduce expenses for basic household necessities (such as food or medicine) because there was not enough money to pay for these and the home energy bill. The household was disqualified from being “vulnerable” because it reported that its need to reduce expenditures on basic household needs such as food or medicine in order to pay the home energy bill was not merely “some months” but was “almost every month.” It was this frequent impact on basic household needs that was the indicator used to classify this household as being “in-crisis.”

Respondent #1026: Respondent #1026 is a two-person household (2 adults) living in Gloucester, Massachusetts. This household received LIHEAP in FY 2003. The household heats with natural gas. This household is classified as “capable.” The

³¹ As discussed in more detail above, once a household is disqualified from a threshold, it is not further screened for other indicators within that same threshold.

household is disqualified from being “thriving” because it reports that it is “sometimes true” that it did not have enough money to pay its home energy bill without somebody’s help. The household reports no other indicator that would disqualify it from being “capable.” It reports never reducing energy use to uncomfortable or inconvenient levels. It is never required to reduce energy use to below that needed for basic household necessities. It exhibits no payment problems, and reports no adverse impacts on household necessities.

Respondent #1032: Respondent #1032 is a one-person household (1 adult) living in Gloucester, Massachusetts. This household received LIHEAP in FY 2003. The household heats with fuel oil. The household is classified as “vulnerable.” The household is disqualified from being “thriving,” from being “capable,” and from being “stable” because it reports that it is “often true” that it did not have enough money to pay its home energy bill without somebody’s help. A household that frequently needs to access outside assistance is, at best, placed in the “vulnerable” threshold. The household was ultimately classified as “vulnerable” because it reported no indicator placing it in the “in-crisis” threshold and because it reported a more than occasional, but not frequent, need to reduce spending on basic household needs such as food and medicine because it did not have sufficient money to pay the home energy bill and buy these necessities.

Respondent #1040: Respondent #1040 is a three-person household (1 adult and 2 children) living in Columbia, Missouri. This household received LIHEAP in FY 2003. The household heats with natural gas. The household is classified as “stable.” The household is disqualified from being “thriving” because it reports that it is “sometimes true” that it did not have enough money to pay its home energy bill without outside help. A household that needs to access outside assistance cannot be classified as “thriving.” The household is disqualified from being “capable” because it reports that it was “often true” that it worried whether the home energy bill would become overdue before it could get money to pay for it. The household was classified as “stable” because it did not have indicators indicating that it was a “vulnerable” household. It did not have consistent arrears. It did not experience adverse impacts on the use of energy for basic household necessities. It did not experience adverse impacts on the provision of household necessities such as food or medicine. It did not more than occasionally experience constraints on energy use needed for comfort or convenience.

Respondent #1042: Respondent #1042 is a two-person household (2 adults) living in Gilford, New Hampshire. This household did not receive LIHEAP in FY 2003. The household heats with fuel oil. The household is classified as “vulnerable.” The household is disqualified from being “thriving” and “capable” because it reports that it is “often true” that it did not have enough money to pay its home energy bill without somebody’s help. The household was disqualified from being classified as “stable” because it reported having more than occasional arrears in combination with having received notices of possible disconnection or discontinuance of home energy service due to the nonpayment of bills. The mere presence of arrears, standing alone, does not mean that a household cannot be considered “stable.” However, when the nonpayment of bills heightens to the receipt of notices of service disconnection or discontinuance, the

household moves from potentially being “stable” to being classified as “vulnerable” instead. This household remained in the “vulnerable” threshold because it did not exhibit further indicators of being “in-crisis.”

Respondent #1044: Respondent #1044 is a five-person household (2 adults and 3 children) living in Pembroke, New Hampshire. This household received LIHEAP in FY 2003. The household heats with natural gas. The household is classified as “in-crisis.” The household is disqualified from being “thriving” and “capable” because it reports that it is “often true” that it did not have enough money to pay its home energy bill without outside help. This household was disqualified from being classified as “stable” because it reported having more than occasional arrears in combination with having received notices of possible disconnection or discontinuance of home energy service due to the nonpayment of bills. The mere presence of arrears, standing alone, does not mean that a household cannot be considered “stable.” However, when the nonpayment of bills heightens to the receipt of notices of service disconnection or discontinuance, the household moves from potentially being “stable” to being classified as “vulnerable” instead. This household was ultimately classified as being “in-crisis” because it reported having a disconnection or discontinuance of home energy service in “almost every month” because of the household’s inability to pay a past-due energy bill. Having more than an infrequent disconnection or discontinuance of service places a household in the “in-crisis” threshold.

Respondent #1065: Respondent #1065 is a four-person household (2 adults and 2 children) living in Bourbon, Kentucky. This household received LIHEAP in FY 2003. The household heats with electricity. The household is classified as “vulnerable.” The household is disqualified from being “thriving” because it reports that it is “sometimes true” that it did not have enough money to pay its home energy bill without somebody’s help. This household was disqualified from being “capable” because it reported that it was “often true” that the household worried whether the home energy bill would become overdue before they could get money to pay for it. The household was disqualified from being classified as “stable” because it experienced a disconnection or discontinuance of home energy service due to the nonpayment of past due bills. A household having experienced an actual disconnection or discontinuance of service can, at best, be classified as “vulnerable.” This household was ultimately classified as being “vulnerable” because it reported no indicator placing it in the “in-crisis” threshold. The household reported only an infrequent (1 or 2 months) disconnection or discontinuance of service. Moreover, the household did not report frequent adverse impacts on either the ability to provide basic energy service or on the provision of basic household necessities.³²

³² This does not mean that the household had *any* impacts on the provision of basic energy needs or basic household necessities. It merely means that, once having been placed in the “vulnerable” threshold because of the disconnection or discontinuance of service due to nonpayment of past-due bills, the only indicators that would have reclassified the household as being “in-crisis” were frequent adverse impacts. These indicators were not present.

SUMMARY AND CONCLUSION

This paper describes the Home Energy Insecurity Scale. This scale represents a household level scale that is consistent with other ROMA-based household level outcome scales. The basic structure of a ROMA scale (thriving, capable, stable, vulnerable, in-crisis) can be directly applied to home energy situations.

It is evident that a ROMA-based household-level Home Energy Insecurity Scale can be developed that will be applicable to a broad array of circumstances. Accordingly, the results of such outcome measurement can be aggregated on an agency, state and national level and can be meaningfully compared across and between those jurisdictions.

Implementation of the Home Energy Insecurity Scale should be piloted on a multi-state basis. This implementation will allow practitioners and analysts alike to take the next step toward creating a national mechanism for measuring the outcomes of various low-income home energy assistance programs.

APPENDIX A

Contrasting Family, Community and Agency Scales			
	Interventions, Strategies, and Activities produce change in:		
Outcome Level	Family	Community	Agency
Monitoring and Assessment Task Force National Goals	<p>#1 Low-income people become more self-sufficient</p> <p>#6 Low-income people, especially vulnerable populations, achieve their potential by strengthening family and other supportive systems.</p>	<p>#2 The conditions in which low-income people live are improved.</p> <p>#3 Low-income people own a stake in their community.</p>	<p>#4 Partnerships among supporters and providers of services to low-income people are achieved.</p> <p>#5 Agencies increase their capacity to achieve results.</p>
Units of Measure	Consumers, clients, individuals, families, enrollees, participants, households.	Wards, boroughs, counties, townships, parishes, census tracts, districts, neighborhoods, territories	Agency, program, employee groups, departments, projects, bargaining units.
Type of Change	Family functioning, attainment, and achievement.	Systems function, systems capacity, or community conditions.	Capacity or performance
Dimensions of Change	Income, education, family functioning, transportation, housing, basic needs, community involvement, substance abuse, child care, health	Public policy, equity, civic capital, service & support systems, economic opportunity.	Governance; partnerships and alliances; compliance; assets and resources; workforce environment; planning, measurement and evaluation; public communications; information and technology management.
Threshold Terminology	Thriving, safe, stable, vulnerable, in-crisis.	Thriving, safe, stable, vulnerable, in-crisis.	Thriving, safe, stable, vulnerable, in-crisis.
Aggregation Entities	Program, agency, state, or national.	Community, state, or national	Agency, state or national.
U.S. Department of Health and Human Services, <i>Community Scales: A Ladder to the Twenty First Century</i> . Washington D.C.: Office of Community Services (1997).			

APPENDIX B

Basic Attributes of Family-Level ROMA Scale (#1 of 3)			
	Well-Being	Self-sufficiency	Future-Oriented
Thriving	Achieved standards of well-being. Strong and healthy family.	Does not receive public assistance.	Plans for future.
Capable	Generally secure. Commitment to improve.	May use public assistance, but use limited.	Goal oriented and proactive.
Stable	Does not face significant threats. Unlikely to face immediate crisis.	Most needs met, but only through routine receipt of government or other assistance.	Some willingness to work toward long-term change.
Vulnerable	Not in immediate danger. But reliance on temporary or inappropriate solutions.	Routinely receives government assistance and relies on temporary or inappropriate solutions to avoid danger.	Unable or unwilling to develop long-term solutions.
In-Crisis	Immediate needs that threaten physical or emotional safety. Unable to meet basic needs.	Lacks knowledge of, or access to, outside assistance.	Unlikely to improve without assistance.

APPENDIX B (continued)

Basic Attributes of Family-Level ROMA Scale (#2 of 3)	
Thriving	Family systems are strong and healthy, fully functional. Family is achieving its own self-determined goals. Has achieved commonly accepted standards of family well-being. Earned income is sufficient to meet current needs, and it enables family to plan and save for future needs.
Capable	Family is strong and has made significant progress in improving its circumstances. It is generally secure as a result of its own efforts. Family is economically self-sufficient as demonstrated by the absence of dependency on traditional federal “welfare” entitlement programs. It has a clear vision of its ultimate goals. Intervention is resource oriented toward further development of the family’s internal resources.
Stable	Family is no longer in danger, is ready and willing to change, and is planning for its future. Family seeks supportive services to assist family in implementing its plans.
Vulnerable	Family is secure from immediate threats to health and safety, but has not yet developed or committed to strategies/plans for long-term growth and change. Continuing safety-net intervention provides platform on which the family can build its plans for improving its circumstances.
In Crisis	Family cannot meet its needs. Unwilling or unable to work toward positive change. Family systems have collapsed or are in immediate danger of collapse. Strong, comprehensive outside intervention is needed to enable the family to move out of danger.
Michael Jones. California Matrix Model, at 2-11, General Guidelines for Defining Matrix/Scale Status Levels. (Revised May 2000).	

APPENDIX B (continued)

Basic Attributes of Family-Level ROMA Scale (#3 of 3)	
Thriving	Choices among acceptable and palatable options
	Adequate resources to exercise available choices
	Permanence
Capable	Fewer choices available. Options are acceptable.
	Resources, sometimes subsidized, available to exercise choice.
	Transitional
Stable	Choices limited but acceptable
	Often subsidy or partial support is required to exercise choice
	Temporary
Vulnerable	Marginally adequate subsidized alternative is available.
	Actively working to improve situation
In Crisis	No viable or acceptable options
	Lack of interest or inability to change situation
	Dangerous
California Matrix Model, at 5-19.	

APPENDIX C

HOUSEHOLD LEVEL HOME ENERGY INSECURITY SCALE FOR HOME ENERGY ASSISTANCE PROGRAMS	
Thriving	A “thriving” household has achieved generally accepted standards of well-being.
Capable	A “capable” household is secure, even though not having achieved the full range of generally accepted standards of well-being.
Stable	A “stable” household does not face significant threats and is unlikely to be in immediate crisis.
Vulnerable	A “vulnerable” household is one that is not in immediate danger, but that may avoid this danger only through temporary or inappropriate solutions.
In Crisis	An “in-crisis” household faces immediate needs that threaten the household’s physical and/or emotional safety.

APPENDIX D
HOME ENERGY INSECURITY SCALE SURVEY

Survey Instructions

Field tests of the survey have found that it is user-friendly. Each survey should take between 10 and 15 minutes to perform. Survey questions, however, may prompt conversations with the client, however. The “conversation making” aspects of the survey are considered to be a good impact of the survey.

1. Read this survey to the client and record the responses. Do *not* simply provide the survey to the client and let the client fill out the survey on his or her own.
2. Circle the appropriate response after each question.
3. Do not leave questions unanswered. If a client responds “I don’t know,” prompt them for an answer.
4. Assure the survey respondent that all responses to the survey will be kept confidential.
5. Record a survey tracking number for each survey that will allow the survey to be matched with a case file or LIHEAP application form. In this way, questions regarding income, household size and the like do not have to be repeated in this survey. That information may instead be obtained from case files.

APPENDIX D
HOME ENERGY INSECURITY SCALE SURVEY

Survey Questions

Survey tracking number: _____

Name of survey respondent: _____

Date: _____

Community of residence: _____ State: _____

Primary heating fuel: _____

Received LIHEAP this program year (if known): _____ yes _____ no

Agency completing form: _____

These questions are about the energy used in your household in the last 12 months, since (current month) of last year and whether you were able to afford the home energy you need.

I'm going to read you several statements that people have made about their home energy situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months.

Q1. The first statement is "(I/We) worried whether (my/our) home energy bill would become overdue before (I/we) could get money to pay it." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

Q2. Our home energy bill became due, and (I/we) didn't have money to pay it without somebody's help. Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

Q3. (I/We) couldn't afford to heat or cool our home to the temperature we wanted it to be, or to use our water or appliances to the extent we wanted to use them." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

Q4. (I/we) reduced our energy consumption to uncomfortable or inconvenient levels because (I was/we were) running out of money to pay our home energy bill." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

Q5. (I/we) could not use our entire home because we could not afford to heat or cool it. Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

Q6. In the last 12 months, since last (name of current month), did you ever leave your home for all or part of the day because there wasn't enough money for the home energy bill, or, did you ever turn off your hot water because there wasn't enough money for the home energy bill? (respond "yes" if one or the other or both is true). Yes No

Q6a. [IF YES ABOVE, ASK] How often did one or the other of these happen—almost every month, some months but not every month, or in only 1 or 2 months?

Q7. In the last 12 months, since last (name of current month), did you ever not pay your home energy supplier because there wasn't enough money for the home energy bill? Yes No

Q7a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

Q8. In the last 12 months, since last (name of current month), did you ever use your kitchen stove or oven to provide heat because there wasn't enough money to pay your home heating bills? Yes No

Q8a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

Q9. In the last 12 months, did you ever reduce your expenses for what you consider to be basic household necessities because there was not enough money to pay for these and to pay your home energy bill? Yes No

Q9a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

Q10. In the last 12 months, did you have a supplier of your electric or home heating service threaten to disconnect your electricity or home heating fuel service, or discontinue making fuel deliveries, because you could not afford to pay a past-due home energy bill? Yes No

Q10a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

Q11. In the past 12 months, did you have a supplier of your electricity or home heating fuel disconnect or discontinue your energy supply because you were unable to pay for a past-due home energy bill? Yes No

Q11a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

APPENDIX E (page 1 of 5)

**TYING HOME ENERGY INSECURITY SCALE SURVEY
TO HOME ENERGY INSECURITY SCALE INDICATORS**

SCREENING FOR “THRIVING”				
Screening question: Is this household “thriving”?				
Population screening question applied to: total population				
Threshold	Indicator Decision	Basis for Decision	Indicator to Apply	In order presented below, screen respondents as follows:
Thriving	No	If 2a or 2b	Has no need to access outside assistance.	Which respondents answered “never true” (c) to Question 2?
	No	If 4a or 4b	Has no constraint on choice of energy uses.	Of all remaining, which responded “never true” (c) to Question 4?
	No	If 3a or 3b		Of all remaining, which responded “never true” (c) to Question 3?
	No	If 5a or 5b		Of all remaining, which responded “never true” (c) to Question 5?
	No	If “yes” to Q-6		Of all remaining, which responded “yes” to Question 6?
	No	If 8a or 8b		Of all remaining, which responded “yes” to Question 8?
	No	If “yes” to Q-10	Has no energy payment problems.	Of all remaining, which responded “yes” to Question 10?
	No	If “yes” to Q-7		Of all remaining, which responded “yes” to Question 7?
	No	If “yes” to Q-9	Has no financial strain.	Of all remaining, which responded “yes” to Question 9?
	No	If 1(a) or 1(b)		Of all remaining, which responded “often true” (a) or “sometimes” (b) to Question 1?
			Yes	

APPENDIX E (page 2 of 5)

**TYING HOME ENERGY INSECURITY SCALE SURVEY
TO HOME ENERGY INSECURITY SCALE INDICATORS**

SCREENING FOR “CAPABLE”

**Screening question: Is this household “capable”?
Population screening question applied to: total population not previously found to be “thriving.”**

Threshold	Indicator Decision	Basis for Decision	Indicator to Apply	In order presented below, screen respondents as follows:	
Capable	No	2a or 2b	Has no more than occasional need to access outside assistance.	Of all respondents not found to be “thriving,” which responded “often true” (a) to Question 2?	
	No	7a or 7b	No more than occasionally has arrears.	Of all remaining, which responded “almost every” (a) or “some months” (b) on Question 7a?	
	No	If “yes” to Q-6	Has no impact on basic household necessities.	Of all remaining, which responded “yes” to Question 6?	
	No	If “yes” to Q-9		Of all remaining, which responded “yes” to Question 9?	
	No	4a	No more than occasionally foregoes some desired energy used for comfort and/or convenience.	Of all remaining, which responded “often true” (a) to Question 4?	
	No	5a		Of all remaining, which responded “often true” (a) to Question 5?	
	No	8a		Of all remaining, which responded “often true” (a) to Question 8?	
	No	1a	No more than occasionally experiences financial strain.	Of all remaining, which responded “often true” (a) to Question 1?	
	No	3a		Of all remaining, which responded “often true” (a) to Question 3?	
	No	If “yes” to Q-10		Of all remaining, which responded “yes” to Question 10? (see, note 1).	
			Yes		All who remain, if any, after above screens are “capable.”

NOTES

/1/ A household who has experienced a discontinuance of service has a notice of discontinuance imputed to it.

APPENDIX E (page 3 of 5)

**TYING HOME ENERGY INSECURITY SCALE SURVEY
TO HOME ENERGY INSECURITY SCALE INDICATORS**

SCREENING FOR “STABLE”					
Screening question: Is this household “stable”?					
Population screening question applied to: total population not previously found to be “thriving” or “capable.”					
Threshold	Indicator Decision	Basis for Decision	Indicator to Apply	In order presented below, screen respondents as follows:	
Stable	No	If 7a or 7b <i>and</i> “yes” to Question 10	May have consistent arrears, but arrears do not threaten loss of service.	Of all respondents not found to be either thriving or capable, which responded “almost every” (a) to Question 7? Of those who responded (a) to Question 7, which responded “yes” to Question 10? (see, note 1)	
	No	2a	Has more than an occasional need to access outside assistance to pay current energy bills.	Of those remaining, which responded (a) to Question 2?	
	No	If “yes” to Q-9	Has no impact on basic household necessities.	Of those remaining, which responded “yes” to Question 9?	
	No	If “yes” to Q-11		Of those remaining, which responded “yes” to Question 11? (see, note 2)	
	No	6a or 6b	Does not forego basic household energy requirements.	Of those remaining, which responded “almost every” or “some months” to Q-6a?	
	No	5a	No more than occasionally foregoes some desired energy used for comfort and/or convenience.	Of those remaining, which responded “often true” (a) to Question 5.	
	No	8a		Of those remaining, which responded “often true” (a) to Question 8?	
			Yes		All who remain, if any, after above screens are “stable.”

NOTE:
/1/ If a customer reports a threatened discontinuance of service due to nonpayment, a “yes” answer is imputed to Question 7.
/2/ If a customer reports a disconnection of service, a “yes” answer is imputed to Question 10.

APPENDIX E (page 4 of 5)

**TYING HOME ENERGY INSECURITY SCALE SURVEY
TO HOME ENERGY INSECURITY SCALE INDICATORS**

SCREENING FOR “VULNERABLE”				
Screening question: Is this household “vulnerable”?				
Population screening question applied to: total population not previously found to be “thriving” or “capable” or “stable.”				
Threshold	Indicator Decision	Basis for Decision	Indicator to Apply	In order presented below, screen respondents as follows:
Vulnerable	No	11a or 11b	Affirmative indicators of crisis household.	Of those not found to be thriving, capable or stable, which responded “almost every” (a) or “some months” (b) to Question 11?
	No	9a		Of those remaining, which responded “almost every” (a) to Question 9?
	No	6a		Of those remaining, which responded “almost every” (a) to Question 6?
	No	8a		Of those remaining, which responded “almost every” (a) to Question 8?
	No	5a		Of those remaining, which responded “often true” (a) to Question 5?
	Yes	11c		Of those remaining, which responded “only 1 or 2 months” (c) to Question 11?
	Yes	9b or 9c	Faces loss of basic needs, but not frequently, or faces infrequent actual loss of utility service.	Of those remaining, which responded “some months” (b) or “only 1 or 2 months” (c) to Question 9?
	Yes	6b or 6c		Of those remaining, which responded “some months” (b) or “only 1 or 2 months” (c) to Question 6?

	Yes	If 7a or 7b <i>and</i> “yes” to Question 10	Has consistent arrears, and arrears threaten loss of service at least occasionally.	Of those remaining, which responded “almost every” (a) to Question 7?
				Of those who responded (a) to Question 7, which responded “yes” to Question 10? (see, note 1)
	Yes	10a	Faces frequent threat of denial of service for nonpayment.	Of those remaining, which responded “almost every” (a) to Question 10?
	Yes	5b	More than occasionally, but not frequently, faces constraints on basic-needs energy choices.	Of those remaining, which responded “some months” (b) to Question 5?
	Yes	8b or 8c		Of those remaining, which responded “some months” (b) to Question 8?
	Yes	2a	Faces frequent bills that cannot be paid without outside help.	Of those remaining, which responded “often true” (a) to Question 2?
		Yes		

APPENDIX E (page 5 of 5)

**TYING HOME ENERGY INSECURITY SCALE SURVEY
TO HOME ENERGY INSECURITY SCALE INDICATORS**

SCREENING FOR “IN-CRISIS”

Screening question: Is this household “in-crisis”?

Population screening question applied to: total population not previously found to be “thriving” or “capable” or “stable” or “vulnerable.”

Threshold	Indicator Decision	Basis for Decision	Indicator to Apply	In order presented below, screen respondents as follows:
	Yes	11a or 11b		Of those not found to be thriving, capable, stable or vulnerable, which responded “almost every month” or “some months” (b) to Question 11?
	Yes	6a		Of those remaining, which responded “almost every month” (a) to Question 6?
	Yes	9a		Of those remaining, which responded “almost every month” to Question 9?
	Yes	5a	Frequently takes temporary or transitional actions because of inability to afford home energy	Of those remaining, which responded “often true” (a) to Question 5?
	Yes	8a		Of those remaining, which responded “almost every month” to Question 8?
	Yes			All who remain, if any, after above screens are “in-crisis.”

APPENDIX F (page 1 of 2)
CATEGORIES OF INDICATORS FOR HOME ENERGY INSECURITY SCALE

	Threshold	Indicator
Outside Assistance	Thriving	No, if (a) or (b) on Question 2.
	Capable	No, if (a) or (b) on Question 2.
	Stable	No, if (a) on Question 2.
	Vulnerable	Yes, if (a) on Question 2. (see note 1).
	In-crisis	Not used
Financial strain	Thriving	No, if either (a) or (b) on Question 1.
	Capable	No, if (a) on Question 1.
	Stable	Not used
	Vulnerable	Not used
	In-crisis	Not used
Constraint on energy use	Thriving	No, if either (a) or (b) on Questions 3, 4, 5 or 8 or if “yes” on Question 6.
	Capable	No, if (a) on Questions 3, 4, 5 or 8, or if “yes” on Question 6.
	Stable	No, if (a) on Questions 5 or 8 or if (a) or (b) on Question 6.
	Vulnerable	Yes, if (b) on Questions 5, or if (b) or (c) on Questions 6 or 8.
	In-crisis	Yes, if (a) on Questions 5, 6 or 8.

NOTE:

/1/ A “yes” for a “vulnerable” household is contingent on the absence of any “in-crisis” indicator.

APPENDIX F (page 2 of 2)
CATEGORIES OF INDICATORS FOR HOME ENERGY INSECURITY SCALE

	Threshold	Indicator
Household necessities	Thriving	No, if “yes” on Question 9.
	Capable	No, if “yes” on Question 9.
	Stable	No, if “yes” on Question 9.
	Vulnerable	Yes, if (b) or (c) on Question 9. (see note /1/).
	In-crisis	Yes, if (a) on Question 9.
Non-payment of energy bills.	Thriving	No if “yes” on either Question 7 or Question 10.
	Capable	No, if either (a) or (b) on Question 7 or “yes” on Question 10.
	Stable	No, if (a) or (b) on Question 7 <i>and</i> “yes” on Question 10 or if “yes” on Question 11.
	Vulnerable	Yes, if (a) on Question 10, or (c) on Question 11, or both (a) and (b) on Question 7 and “yes” on Question 10.
	In-crisis	Yes, if (a) or (b) on Question 11.
NOTE:		
/1/ A “yes” for a “vulnerable” household is contingent on the absence of any “in-crisis” indicator.		

APPENDIX G
REPORTING MATRIX

ENERGY ASSISTANCE PROGRAM OUTCOMES
(by number of program participants)

		Beginning Status				
		1 (thriving)	2 (capable)	3 (stable)	4 (vulnerable)	5 (in-crisis)
Ending Status	1 (thriving)		2			
	2 (capable)					
	3 (stable)			3	2	6
	4 (vulnerable)				5	
	5 (in-crisis)				4	

NOTE:

Because one indicator of the “thriving” threshold is non-receipt of outside assistance, LIHEAP recipients will, by definition, not be “thriving.” The cells indicating a “thriving” beginning status are thus shaded to indicate their uniform inapplicability to LIHEAP recipients. Because LIHEAP recipients may move to not needing outside assistance within 12 months after having received LIHEAP, the “thriving” row is left available.

APPENDIX H: REVIEWERS

Scott Anglemyer	Kansas Dept. of Commerce & Housing	Sanglemyer@kansascommerce.com
Karen Brown	Colorado Energy Assistance Foundation	kbrown@ceaf.org
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John Burgess	Economic Opportunity Foundation (KS)	jjburgess@eofkck.org
Glenn Cooper	Colorado Dept. of Social Services	glenn.cooper@state.co.us
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Jerry McKim	Iowa Dept. of Human Rights	jerry.mckim@dhr.state.ia.us
Dr. Bruce Wade	Spelman College (GA)	bwade@spelman.edu

APPENDIX I:
PARTICIPATING COMMUNITY ACTION AGENCIES/ASSOCIATIONS

Ralph Littlefield	Community Action Program, Belknap-Merrimack Counties	Concord, NH
Elliott Jacobsen	Action Energy	Gloucester, MA
David Treharne	West Virginia Community Action Directors Association	Parkersburg, WV
Jack Burch	Community Action Council	Lexington, KY
Jack Lavery	Corporation for Ohio Appalachian Development (COAD)	Athens, OH
Ivan Eames	Central Missouri Counties Human Development Corporation	Columbia, MO
Debra Kennedy	Community Action Directors of Oregon	Salem, OR
Chuck Eberdt	The Energy Project: The Opportunity Council	Bellingham, WA
Gene Brady	Commission on Economic Opportunity of Luzerne County	Wilkes-Barre, PA
Jim Morton	Human Resource Development Council VI	Missoula, MT

APPENDIX J
ILLUSTRATIVE SURVEY RESPONSES FROM FIELD TESTING

HOME ENERGY INSECURITY SCALE SURVEY QUESTION	RESPONDENT IDENTIFICATION AND RESPONSES							
	1013	1017	1026	1032	1040	1042	1044	1065
Q1. The first statement is “I worried whether my home energy bill would become overdue before I could get money to pay it.” Was that often true, sometimes true, or never true for you in the last 12 months?	Sometimes	Often	Sometimes	Often	Often	Often	Often	Often
Q2. Our home energy bill became due, and I didn’t have money to pay it without somebody’s help. Was that often true, sometimes true, or never true for you household in the last 12 months?	Sometimes	Sometimes	Sometimes	Often	Sometimes	Often	Often	Sometimes
Q3. I couldn’t afford to heat or cool our home to the temperature we wanted it to be, or to use our water or appliances to the extent we wanted to use them.” Was that often true, sometimes true, or never true for you in the last 12 months?	Often	Often	Sometimes	Often	Never	Sometimes	Often	Sometimes
Q4. I reduced our energy consumption to uncomfortable or inconvenient levels because I was running out of money to pay our home energy bill.” Was that often true, sometimes true, or never true for you in the last 12 months?	Often	Often	Never	Sometimes	Never	Sometimes	Often	Never
Q5. I could not use our entire home because we could not afford to heat or cool it. Was that often true, sometimes true, or never true for you in the last 12 months?	Sometimes	Never	Never	Sometimes	Never	Never	Often	Sometimes
Q6. In the last 12 months, since last (name of current month), did you ever leave your home for all or part of the day because there wasn’t enough money for the home energy bill, or, did you ever turn off your hot water because there wasn’t enough money for the home energy bill? (respond “yes” if one or the other or both is true).	Sometimes	Almost every	No	Sometimes	No	No	1 – 2	No
Q6a. [IF YES] How often did one or the other of these happen—almost every month, some months but not every month, or in only 1 or 2 months?								
Q7. In the last 12 months, since last (name of current month), did you ever not pay your home energy supplier because there wasn’t enough money for the home energy bill?	No	1 – 2	No	Some	1 – 2	Some	Nearly every	Some
Q7a. [IF YES] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?								

<p>Q8. In the last 12 months, since last (name of current month), did you ever use an alternative appliance or fuel to heat or cool your home that was not ordinarily intended to be used for heating or cooling your home because there wasn't enough money to pay your home energy bills?</p> <p>Q8a. [IF YES] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?</p>	1-2	No	No	No	No	No	Nearly ever	Nearly every
<p>Q9. In the last 12 months, did you ever reduce your expenses for what you consider to be basic household necessities (such as food or medicine) because there was not enough money to pay for these and to pay your home energy bill?</p> <p>Q9a. [IF YES] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?</p>	Some	Almost every	No	Some	No	Some	Some	Some
<p>Q10. In the last 12 months, did you have a supplier of your electric or home heating service threaten to disconnect your electricity or home heating fuel service, or discontinue making fuel deliveries, because you could not afford to pay a past-due home energy bill?</p> <p>Q10a. [IF YES] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?</p>	No	Some	No	No	1 – 2	1 – 2	Some	1 – 2
<p>Q11. In the past 12 months, did you have a supplier of your electricity or home heating fuel disconnect or discontinue your energy supply because you were unable to pay for a past-due home energy bill?</p> <p>Q11a. [IF YES] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?</p>	No	No	No	No	No	No	Some	No
THRESHOLD CLASSIFICATION	Vulnerable	In-Crisis	Capable	Vulnerable	Stable	Vulnerable	In-Crisis	Vulnerable