URA EXHIBIT NO. _____

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Division's Annual Review and Evaluation of the Electric Lifeline Program, HELP	**)**	**Docket No. 03-035-01**
In the Matter of: HELP, Electric Lifeline Program Evaluation	**)**	**Docket No. 04-035-21**

REBUTTAL TESTIMONY OF

DR. HUGH GILBERT PEACH

ON BEHALF OF

SALT LAKE COMMUNITY ACTION PROGRAM
AND
CROSSROADS URBAN CENTER,
COLLECTIVELY
UTAH RATEPAYERS ALLIANCE

OCTOBER 12, 2005

Rebuttal Testimony of Dr. Hugh Gilbert Peach

QUALIFICATIONS

Q. Please state your name and address.

A. My name is Hugh Gilbert Peach and my address is H. Gil Peach & Associates LLC, 16232 NW Oakhills Drive, Beaverton, OR 97006.

Q. Please state your credentials.

A. My qualifications in terms of academic credentials and experience are provided in my original testimony in this docket and are incorporated here by reference.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Salt Lake Community Action Program and Crossroads Urban Center.

PURPOSE OF REBUTTAL TESTIMONY

Q. What is the purpose and structure of your rebuttal testimony?

A. The purpose of this rebuttal is to address certain points advanced by Mr. Mecham/Light and Truth in direct testimony of September 16, 2005.

Specifically, Mr. Mecham appears to accept only two findings in the Quantec evaluation of HELP conducted by Dr. Sami Khawaja: a) that the HELP program

provides benefits to low-income recipients (Page 17, lines 412-424), and b) the ratepayers test for HELP considered as a "stand alone" program produces a Benefit to Cost ratio (B/C ratio) of 0.82 and therefore does not pass the ratepayers test as a "stand alone" program (Page 29, line 765 to Page 30, line 778).

- I intend to show that Mr. Mecham's analysis is faulty in several regards, and is, in fact, fatally flawed, and therefore should be dismissed in whole.

- On the other hand, Dr. Khawaja's analysis is in conformance with currently accepted scientific method and well within conventional standards of practice in this subject-matter area, and is fundamentally sound in all areas discussed herein that Mr. Mecham has contested.

Beyond this, I want to rebut Mr. Mecham's narrow definition of the concept of "public interest" and define a broader, more commonly accepted view of the term.

NARROWING THE ISSUES

Q. Does Mr. Mecham dispute the Dr. Khawaja's Quantec evaluation as a whole?

A. No.

Q. Please explain.

A. The Quantec study covers several evaluation areas, including a descriptive analysis of the HELP program, a process evaluation, and an impact evaluation including a benefit to cost analysis of cost-effectiveness. Mr. Mecham has not raised substantive or technical objections to the descriptive analysis portion of the Quantec evaluation or to the process evaluation component of the Quantec evaluation. Mr. Mecham asserts "Quantec is not objective" (Page 38: lines 1025-1026) but without providing any grounding for this assertion with regard to the descriptive analysis and process evaluation analysis contained in the study.

Q. Do the set of technical issues contested by Mr. Mecham lie solely within the impact evaluation portion of the study?

A. Yes, the set of technical issues contested by Mr. Mecham are narrowed to the area of the impact evaluation. They do not rise to the level of the evaluation as a whole.

Q. Please list the principal technical objections to the impact evaluation area of Dr. Khawaja's Quantec evaluation of HELP as set forth by Mr. Mecham.

A. Mr. Mecham contests:

(1) The method of the study, specifically what Mr. Mecham terms "sampling." (Page 24, lines 646-648; Page 29:757-763).

(2) The use of the HEAT program in the study analysis, specifically the Benefit to Cost ratios for "HEAT and HELP" in combination (Page 29, lines 749-755).

(3) The study's analysis which results in findings regarding attribution of the program (Paul F. Mecham, Direct Testimony, Page 24, lines 620-622; Page 38, lines 1022-1023; Page 40, lines 1064-1065).

(4) The study's analysis of "moves" (Paul F. Mecham, Direct Testimony, Pages 32-34, lines 847-887), shutoffs (Page 26, lines 675-683), and arrearage (Pages 25-26, lines 665-673).

(5) The use of the analytic constructs of "energy burden," "equity," and "societal." (Page 34: lines 889-916).

"SAMPLING"

Q. **What is the importance of what Mr. Mecham terms "sampling" to Mr. Mecham's argument as a whole?**

A. The "sampling" issue underlies *all* of Mr. Meacham's alternative analysis and results of what he terms "total" program data, and all of the empirically-based technical issues that Mr. Mecham has raised with Dr. Khawaja's Quantec evaluation study benefit to cost ratio findings. If Mr. Mecham is wrong in his understanding of method (both of his own method and of the method used by Dr. Khawaja), *all* of the grounding that supports his own "total" analysis and the elements of Dr. Khawaja's analysis disappears.

Q. Is there any validity in Mr. Mecham's contesting of the method of the Quantec study in the area that Mr. Mecham terms "sampling?"

A. No, none whatsoever. Mr. Mecham's analysis in this area and his critique of Dr. Khawaja's method of case selection, which Mr. Mecham terms "sampling" reveals complete misunderstanding and is totally without merit.

Q. Please explain.

A. Mr. Mecham's "sampling" critique is at the root of all of his quantitative assertions regarding Dr. Khawaja's analysis. These quantitative assertions, in turn appear to be the only potential technical grounding for his assertion that "Quantec is not objective." (Page 38, lines 1025-1026). But Mr. Mecham's grounding for this assertion, insofar as it is based in his critique of what he terms "sampling" is faulty.

Mr. Mecham's fundamental mistake in this area is his assertion that "Something is wrong…" (Page 25, line 661) if what he terms "sample" data differs from what he terms "total" data. It might initially seem that this could be true, since a good sample is a microcosm of a whole population from which it is drawn and a good sample will reflect the population.

However, in actual practice it is typical in the analysis associated with low-income studies for only a subset of data to meet the conditions required for an objective analysis. Many records in the population are typically not usable in a careful analysis. There are both errors in the utility records and incomplete records.

Q. **What is the inherent problem in a "total" analysis, such as Mr. Mecham's, that does not carefully inspect cases for admission to the analysis?**

A. One of the basic problems in scientific method is to insure the right things are being studied and compared. Mr. Mecham did not carry out the careful work that is required for this step in analysis. Dr. Khawaja followed conventional scientific method in this subject-matter area and completed this step correctly. Mr. Mecham's analysis is equivalent to carrying out a chemical analysis with dirty test tubes, or a physics analysis without proper inspection and controls for intervening effects.

It is a self-evident fact that there are many powerful determinative forces in addition to HELP and HEAT that operate on low-income families.

(1) With utility billing and payment data, for example, there is inherent high seasonality so it is essential for individual case records to be whole (or nearly whole). Partial records reflect seasonality, and can lead to distortions in overall results. It is usual for comparisons of "total" data taken from two sources to exhibit many kinds of differences of this sort. Inspection of cases and setting rules for both the participants and the comparison cases helps rule out the effects of these kinds of external factors so that the program effects can be studied. Since about the end of the 1970s, and with the exception of some positive reforms introduced by the first Bush administration, life has become harder for low and moderate income families. All of the programs designed to assist low-income

families that we study now are weaker in effect than they would have been thirty or forty years ago because the problems are getting worse.

(2) As a second example, it is simply a fact of life that until the goals of the Housing Act of 1949 [42 U.S.C. 1441 et seq.] and reaffirmed in the Housing and Urban Development Act of 1968 for the provision of "decent, safe, sanitary, and affordable living environments for all Americans" is materially accomplished, low-income families will continue to "churn" through housing arrangements, and so also through utility customer relationships. Yet, for many years now, we have been losing affordable housing.

It is not like we set forth a problem like HELP in a lab where we can control conditions. By analogy, it is not like a person swimming across a quiet lake; it is like trying to swim against a strong and rising current.

Q. Is there another problem inherent in Mr. Mecham's analysis of "total" data, without careful examination of case records?

A. Yes, the "HELP and HEAT" combination requires time to work and demonstrate effects. By analogy, in evaluation of medical treatment programs, such as I have performed for the Health Department in New York City, it is often necessary to allow the working of time over a course of treatment before assessing effects. It would be unthinkable to carry out such program evaluation without careful sub-setting of cases to be permitted into the treatment group and the comparison group.

Q. What is the consequence of these problems for Mr. Mecham's quantitative analytic conclusions?

A. In order to perform analysis, including comparisons, complete or virtually complete records are required. If the population as a whole is analyzed without careful inspection of the case records to determine which cases to include in the analysis, all of these errors will be contained in the analysis so that what Mr. Mecham terms the analysis of "total" data will be inherently flawed. Mr. Mecham's findings based on his "total" data method are for this reason fatally flawed and should be disregarded in whole.

Q. Was Quantec's method actually a "sampling" approach as described by Mr. Mecham?

A. No. Mr. Mecham just thought it was, but he was wrong. As noted in the rebuttal testimony submitted by Dr. Khawaja, "Quantec conducted its analysis on the entire census of the participants. Only participants that had missing data were excluded." This means that Quantec employed the full population of participants *at the time of the evaluation.* This first step in the case selection method used by Quantec corresponds exactly to Mr. Mecham's description of what he terms "total" data. So, to this point, the Quantec study employed the method that Mr. Mecham asserts is valid. The difference between Mr. Mecham's analysis of "total" data and the Quantec analysis is that Dr. Khawaja went on to a second step – which is a requirement of any serious evaluation and a standard and accepted part of evaluation method – by inspecting the cases and using the subset that met the requirements of the analysis.

Q. Mr. Mecham asserts that "The sample and the total group are presumed to be statistically the same. A confirmation of the sample's accuracy could be gotten by surveying the total group." Is this correct?

A. No, it is not. As someone who has taught introductory statistics, and a past president of the Oregon Chapter of the American Statistical Association, I can characterize this as the way we introduce the relation of samples and populations to students new to the area of sampling, before they experience the rigor of real scientific work. It is a first essential way to understand the relationship of a sample to the population from which it is drawn. In actual practice of professional and scientific work, the initial characterization may or may not apply, depending on the subject-matter area and the specific characteristics of the population from which a subset is drawn. Mr. Mecham is making assumptions about the Quantec analysis using images taken from introductory theory of random sampling (Page 25, lines 650-654). He is flat wrong in this. Dr. Khawaja is *not* using the theory of random sampling. He begins, like Mr. Mecham with what we term in statistical practice as "a full census sample" or a "near census sample" which represents the total population of participants at a certain point in time. The difference in method hypothesized by Mr. Mecham is purely an illusion. The actual difference is that Dr. Khawaja carefully inspects the cases and uses those that will permit an objective analysis. Mr. Mecham makes the error of assuming the whole of a database is sound without inspecting the individual cases to assure uniformity and comparability of cases admitted to the analysis. Typically, in analysis of low-income data many cases have to be excluded. Simply including all cases and

doing simple summaries incorporates a plethora of errors in the analysis, and this is Mr. Mecham's method of analysis.

Q. **You say that Mr. Mecham's analysis has serious methodological problems. Should his quantitative analysis be disregarded entirely?**

A. Yes. I find his quantitative analysis to be neither valid nor accurate, because it incorporates various errors of method as described above. This means that his quantitative analysis is insufficient to contest Dr. Khawaja's evaluation study findings.

"HEAT and HELP"

Q. Mr. Mecham objects to analysis of "HEAT and HELP" together. Is this a sound objection?

A No. HELP was designed in a context in which HEAT was an existing program. HELP was engineered to piggyback on HEAT program processes in order to minimize incremental cost of administration. From a customer perspective and from an evaluator's analytic perspective, it makes no substantive sense to suggest that HELP be analyzed as if it were a "stand alone" program. It is, in material fact, an "add-on" to HEAT, and there is no substantive basis in the logic of the program to treat it separately.

Q. **What is the proper benefit to cost test in the evaluation findings?**

A. There are two parts to this answer, each independent of the other:

- From a public interest perspective, of the tests developed by Dr. Khawaja in the Quantec evaluation, the test modeled on the TRC test and labeled "Societal/TRC" (Quantec evaluation, Page IV-11, Table IV.5: Program Cost Effectiveness, last two columns) is the most relevant test for the program *because it is the most inclusive.* It is still of value, of course, to look at other perspectives, such as the test modeled on the Ratepayer Impact Test and labeled "Ratepayers (Table IV.5: Program Cost Effectiveness, first two columns); or the Participant Test perspective.

- Also, in terms of the program design or "logic of the program" HELP is an "add-on" so the proper test is the "Societal/TRC" test of "HEAT and HELP" together, which the combined program passes with a high benefit notably exceeding the cost of investment in the HELP program (Table IV.5: Program Cost Effectiveness, final column).

Q. **Was Dr. Khawaja's approach to the cost analysis a reasonable approach?**

A. Yes, if a cost-test is desired, a test modeled on a TRC is a reasonable approach. In general, however, when this kind of approach is used, low-income programs may be assigned a lower hurdle rate than 1.00 (for example 0.8).

ATTRIBUTION

Q. Mr. Mecham asserts that there is some problem of attribution in the Quantec study (Page 24, lines 620-622; Page 38, lines 1022-1023; Page 40, lines 1064-1065). Is there a problem of attribution?

A. No, none whatsoever. Dr. Khawaja used a well accepted design originated several decades ago by major leaders in the field of evaluation. This method is part of the central core of standard evaluation methodology, involving a systematic comparison of participants and a comparison group according to prescribed procedures and is well within the boundaries of conventional evaluation practice.

There is no true basis for asserting a problem in attribution in the Quantec study. The "sampling" argument advanced by Mr. Mecham could raise questions about attribution if it were sound, but it is fatally flawed and cannot serve as a basis for technically valid assertions. Without that grounding, Mr. Mecham's whole position falls apart as unsupportable since it has no valid technical grounding.

MOVES, ARREARAGE, SHUTOFFS

Q. Mr. Mecham has contested the Quantec analysis of moves, of arrearage, and of shutoffs. Is he correct in any of these objections?

A. No. I have reviewed Quantec's analysis of each of these measures. In each case, Quantec has used the correct source data and performed an objective evaluation using accepted methods of analysis. Mr. Mecham's counter-analysis using what he terms "total" data is full of errors because he has not inspected the individual cases prior to using them in the analysis and has violated fundamental principles of uniformity and comparability of data required for objective analysis.

ENERGY BURDEN, EQUITY, SOCIETAL

Q Mr. Mecham objects to the analytic concept of "energy burden" and to the use of the concepts of "equity" and "societal" in the Quantec analysis. Do these objections have any merit at all?

A. No. Each of these objections fails a fundamental "straight-face" test. Each of the terms is simply an analytic concept in general use.

"Energy Burden" is a concept defined by the federal government and is a concept that is essential to both understanding low-income issues and to measuring progress in meeting needs for continuation of energy services. Take away the concept and we would lose a significant scientific concept for understanding the essence of the problem that we face in a context of deteriorating real incomes and increasing energy bills. Contrary to Mr. Mecham's assertion, the concept in itself is not socialistic (or for that matter capitalistic) – it is a neutral term that describes an objective situation, that without the term would not be as well understood or measured. If Mr. Mecham wants to get rid of the term "energy burden" he will have to take on several states, the federal government, federal law, and the gas and electric utility industries as the concept is in general use.

To illustrate this, here are four examples (from a federal website) of how four states in different regions of the country describe the targeting of their low-income HEAT-type programs:

(1) Arizona: The state of Arizona's targeting strategy, for both its heating and cooling assistance programs, employs a point system which considers household income, *energy burden*, and energy need.

(2) California: California utilizes a two-step process in determining a household's eligibility for LIHEAP. This process takes into consideration not only a household's gross monthly income, but additional households factors including: *energy burden*, vulnerable populations, and other relevant criteria (determined at the local level by each individual service provider).

(3) Louisiana: Since 1994 the state has structured its benefit payments to take into account *energy burden* and households containing children 5 years old or younger, as well as disabled or elderly individuals (60 years and older).

(4) New York: New York targets benefits by considering income, household size, *energy burden*, and vulnerable members of households. New York defines "vulnerable" households as those "containing elderly person(s) (age 60 or older), disabled individual(s), and a child or children under 8 years of age."

The definition of energy burden is given by the US Department of Energy (DOE), Weatherization Assistance Program, as follows (The quotation and Figure 1 are from the US DOE Weatherization Assistance Program at http://www.energy.gov/weatherization/reducing.html): "Low-income households spend much more of their income on energy bills than do families with median incomes (see chart). This percentage of income spent on energy is called the "energy burden," and it is substantial for some weatherization recipients. For example, some elderly recipients who lived on fixed incomes pay as much as 35% of their annual incomes for energy bills."

Further, as defined by US DOE, energy burden is *the percentage of income spent on energy*. The term "energy burden" means the expenditures of the household for home energy divided by the income of the household." [Section 2603(2), Low Income Home Energy Assistance Act (46 U.S.C. 8622)]. According to the LIHEAP Clearinghouse, Congressional committee notes further provide the recommendation to use actual bills: "...In addition, the committee urges states to use actual energy bills in determining energy burdens and designing their benefit structures" (House Report 103-483 on H. R. 4250, Committee on Education and Labor).. The committee notes are cited in "State Strategies Based on Household Income, Energy Burden and Heating

Costs," Compiled by the LIHEAP Clearinghouse, February 2002 (http://www.ncat.org/liheap/pubs/510targ.htm).

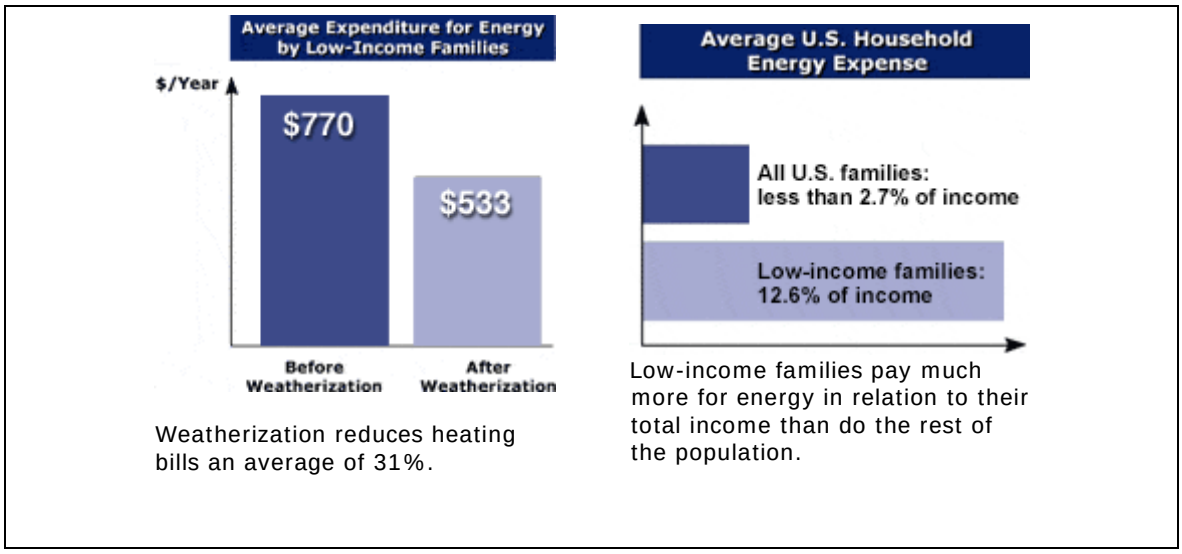

Figure 1: Energy Burden in the US (USDOE).

A household's energy burden for a year is the percentage of household income that is needed to cover the cost of energy. As the federal example shows, the average US family has a mean group energy burden under 2.7% as shown in Figure 1 (Source: Reprinted from Department of Health and Human Services, *LIHEAP Home Energy Notebook for Fiscal Year 2001*, Table 2.1, Page 4).

Similarly, "equity" is a fundamental analytic concept of economics which adds the function of analysis of distribution to the analysis of production, both fundamental areas of general economics. For example, "equity" is introduced on pages 37-38 in what was for several decades the classic text for a one-year college course in

Economics: Paul A. Samuelson & William D. Nordhaus, *Economics*, Sixteenth Edition, Boston: Irwin McGraw-Hill, 1998. (The first edition was published in 1948.).

Finally, "societal" is the name of the "societal" test used in the utility business for over twenty years to denote the theoretical perspective of "society" in contrast to the other analytic tests which denote the "ratepayer" perspective or the "participant" perspective, etc. For example, the "societal test" is introduced on pages 268-269 in Clark Gellings & John H. Chamberlin, Demand-Side Management Planning. Liburn, Georgia: The Fairmont Press, 1993.

Q. Please summarize your testimony to this point.

A. On all points noted within this rebuttal, Mr. Mecham is wrong and Dr. Khawaja's analysis is sound.

- The Quantec evaluation of "HEAT and HELP" together follows accepted scientific analytic practice both as to evaluation design (which employs a classic design), using the logic of the program in selection of an appropriate data analytic method, and uses standard methods accepted throughout federal government, business, and academic practice.

- Mr. Mecham's method of analysis is simplistic and fatally flawed for the reasons discussed above.

- Because Mr. Mecham's method is fatally flawed, his conclusions are unsupported and without value.

- There is no valid analytic grounding for Mr. Mecham's assertions addressed here regarding Dr. Khawaja's findings.

- Mr. Mecham's criticism of Dr. Khawaja's methods simply shows a lack of understanding of scientific method and of accepted conventions in this area of practice.

- Once Mr. Mecham's method is assessed and necessarily dismissed, there is nothing in his testimony that remains as a credible scientific basis on which to ground his arguments and assertions. The superstructure of his assertions is completely without credible scientific or technical grounding.

- For these reasons, Mr. Mecham's arguments and conclusions should be rejected in whole. If, at certain points in what has become voluminous testimony, Mr. Mecham advances a good insight here and there, these small truths do not go to the nature of his essentially flawed method.

AN INHERENTLY FAULTY MODEL OF PUBLIC INTEREST

Q. Is there another major argument area in Mr. Mecham's testimony that requires rebuttal?

A: Yes. This is the topic of the public interest. Mr. Mecham fundamentally misunderstands the concept of the public interest.

Q. Please explain.

A. Mr. Mecham notes that the Commission has a mandate in Title 54 of the Utah Code to act in the public interest (Direct Testimony, Pages 6-8, lines 145-195). In this section of his testimony, he emphasizes that the Commission has a duty to serve the public interest (Utah Code 54-4-2 & 54-4a-6) and, further, that charges of public utilities shall be just and reasonable (Utah Code 54-3-1). It is, in fact, just so. The Commission has a duty as specified, in Utah Code, *to serve the public interest*. Further, Utah Code specifies that charges of public utilities *shall be just and reasonable.*

Beyond this initial recitation of general guidelines, however, Mr. Mecham's reasoning in this area is defective. It is defective because in his testimony, Mr. Mecham does not recognize that the "public interest" is a higher level category above the level of individual interests. Thus, he suggests definition of the public interest as "…net benefit to all customers. At an absolute minimum, it is a net positive benefit to over half of the customers or public" (Pages 12-13, lines 301-303).

Q. What is wrong with Mr. Mecham's definition of the public interest?

A. The model of public interest which Mr. Mecham puts forth does not rise to the level of public interest. Instead it is a conception that includes only one form of narrow individualist interest without taking the broader public interest into account.

Q. Please explain.

A. In positing that the public interest must be a net positive benefit to over half of customers or public, Mr. Mecham is dealing in old ideas about a calculus of hedonism. In this model, wants are limitless and each household is separate from all other households with the same discreteness that would obtain in a set of billiard balls. Billiard balls are completely self-contained and interact by bouncing off each other; with billiard balls there is no question of a higher order public interest. In his model, Mr. Mecham is, in fact, expressing the philosophy of Thomas Hobbes. With Hobbes, human beings are only self-centered, self-interested, essentially incapable of empathy, always in competition with each other, and what one gains another loses. In the world as projected by Hobbes, the phrase that is probably most memorable from introductory economics class is that society is the "war of all against all." This is exactly the type of model put forward by Mr. Mecham.

The mathematics of Mr. Mecham's model belongs to a class of models in economic game theory called a "zero-sum" game. The dilemma in this game is that what one wins, another must lose, and there is no higher order concept that permits a gain for

the whole. Because he is using this model, Mr. Mecham is only assessing the HELP program in terms of absolute transfers of dollars and cents. There is no higher order entity in the model above a kind of self-maximizing and extremely self-centered household, as isolated from each other as billiard balls. There is no room for a common good or benefit beyond this calculus of dollar transfers. This lack of understanding of common good that is beyond the mathematics of household transfers brings to mind the Brazilian proverb, "Each to ourself and God for us all, said the elephant as he danced among the field mice." The proverb captures some of the flavor of this model.

Mr. Mecham's arguments follow logically from the (inherently defective) model. Thus, "at an absolute minimum, [the public interest] is a net positive benefit to over half of the customers or public" (Pages 12-13, lines 302-303). This assertion, of course, would mean that this test of public interest would be met only if a numerical minority of households transferred a net increase in pennies to a numerical majority of households! That is the problem of a defective model.

Similarly, Mr. Mecham finds objectionable "…charging 97% of the public customers for HELP" (Page 4, line 212) while helping meet the needs of 3% who are in poverty. Again, note that if we took pennies from the 3% who are in poverty and gave net pennies to the 97%, we would pass Mr. Mecham's (defective) test of public interest. What is telling here about the critical defect of Mr. Mecham's model is that he asserts that HELP, by providing some assistance to 3% of customers who are in need, is

thereby "…defining 3% as a majority" (Page 9, line 208). Yet no rational person would imagine that helping families in need somehow creates a majority.

If Mr. Mecham's underlying model of public interest were all we could reach to as a definition of public interest, we would not be able to see beyond Hobbes' "war of all against all," and in Hobbes' other memorable phrase, the natural life of man would indeed be "nasty, brutish, and short." So long as we have the grace to see beyond that, I think we do not want to go there unless we are ready to see the tree of life uprooted.

Mr. Mecham's model of the public interest is a mathematical model and it operates only below the level of the public interest. Even far below that, it operates only at some sub-level of self-interest, not even cognizant of the higher forms of self-interest built on empathy and the synergies of economic cooperation. We hear about this model in Economics 101 as "Hobbesian," learn it at the beginning of Economic History 101, and leave it behind as soon as we engage the real world.

This model is incapable of reaching to the level of the public interest. For that reason, all of Mr. Meacham' arguments regarding the public interest are fatally flawed and should be disregarded in their entirety.

Q. What about Mr. Mecham's grounding of his "net positive benefit" standard in the Scottish Power/PacifiCorp Merger? (Pages 11-12, lines 268-284).

A. This is not relevant grounding. A merger is a completely different phenomenon than assistance to customers in need. Also, the other concerns regarding Mr. Mecham's underlying mathematical model as discussed above still apply.

DEFINITION OF THE PUBLIC INTEREST

Q. Please state a definition of the public interest.

A. According to Webster's Third New International Dictionary "public" refers to "matters of, relating to, or affecting the people as an organized community." That is, matters of a "civic" nature. The "public interest" thus inherently involves more than a numerical assessment of costs and benefits to individuals who make up the public. The "public interest" is a collective concept *at a higher level* than the concept of individual interest.

In this connection the example of the United States Constitution sets a pattern for rule of law that flows through all of our institutions in ways that *provide for majorities* while at the same placing great emphasis on the *protection of minorities*. This fundamental pattern of the American way of life governs us at a level above a simple mathematical calculus of hedonism.

Q. Please state how HELP has served and will serve the public interest.

A. The primary purpose of the HELP program is to alleviate a small portion of the needs of low-income families and households in the payment of household electric bills. I submit that this function – in itself; that is, the existence of such a program – is in the public interest. This is so, fundamentally, because it is in the interest of all of the people to provide some mitigation of needs of those members of the whole who meet the program participation criteria.

To be clear, this is so even though the direct dollar benefits of the program flow to low-income households and are largely paid by moderate, middle, and upper income households. It is in the interest of all of the people that the HELP program exists and that *this is a matter of a higher level – a public level* -- than the twelve cents per month an individual household was assessed to pay for the HELP program. (Or, going forward, the ten cents per month under the proposed Stipulation.)

Just as it is a fundamental principle of the American system that in the long run majorities benefit by the substantial protection of minority interests and rights even at some costs to the majority, it is fundamental to a city or a state that the public as a whole benefits by the existence of certain economic programs, of which HELP is an example.

Q. What about the mathematics? Please state an additional quantitative justification for HELP having been, and looking forward, continuing to be in the public interest.

A. The answer is in the specific findings of the Quantec evaluation (The *Utah HELP: Program Evaluation* prepared by M. Sami Khawaja, Ph.D. and John Willey), and, in particular, as further clarified in the October 2005 Rebuttal Testimony of M. Sami Khawaja, Ph.D.

In the *Utah HELP: Program Evaluation*, page IV-11, Table IV.5: Program Cost Effectiveness, Dr. Khawaja demonstrates that from a societal perspective, HELP by itself has a Benefit to Cost Ratio (B/C Ratio) of 1.27. Note that, from the much narrower perspective of the ratepayer's test, HELP by itself has a B/C Ratio of 0.82. *This is very good for a low-income assistance program because it means that from the narrowest perspective the program returns in benefits eight-two cents for every dollar expended.* However, it must be remembered that the HELP program is not, and never was designed as a "stand alone" program and that a "stand alone" B/C Ratio for HELP is not the relevant test for the program.

The material fact is that HELP was approved by the Public Service Commission in the context of the pre-existing HEAT program in order to simplify administration and cut administrative costs to the minimum. Both programs are of the same type and are essentially similar in fundamental design as payment assistance. HELP effectively adds a small additional dollar benefit to the benefit provided by HEAT and was designed to do just that.

Many states provide for an add-on to their HEAT program, and that is essential because as demonstrated in the Direct Testimony of Hugh Gilbert Peach, Ph.D., page 18, top of page, "Pattern of LIHEAP Funding (1982-2004)" federal funding for HEAT programs in the US is only 51% of the original funding level in real terms, even though the job situation and the income situation for low and moderate income families (and especially families with children) has deteriorated substantially since then. This table is reproduced below.

Pattern of LIHEAP Funding (1982-2004)
(Prepared by Ryan N. Miller using Federal LIHEAP Data and a standard Deflator)

Fiscal Year	Appropriated	Contingency Funds	Total Available	2004 (Constant) Dollars	% of 2004	% of 1982
1982	$1,875,000		$1,875,000	$3,703,692	196%	100.00%
1983	$1,975,000		$1,975,000	$3,673,467	194%	99.18%
1984	$2,075,000		$2,075,000	$3,739,792	198%	100.97%
1985	$2,100,000		$2,100,000	$3,628,811	192%	97.98%
1986	$2,009,700		$2,009,700	$3,352,097	177%	90.51%
1987	$1,825,000		$1,825,000	$2,987,267	158%	80.66%
1988	$1,531,840		$1,531,840	$2,420,275	128%	65.35%
1989	$1,383,200		$1,383,200	$2,099,354	111%	56.68%
1990	$1,443,000		$1,443,000	$2,089,805	111%	56.42%
1991	$1,415,037	$195,177	$1,610,214	$2,212,495	117%	59.74%
1992	$1,500,000	$0	$1,500,000	$1,977,982	105%	53.41%
1993	$1,346,030	$0	$1,346,030	$1,723,251	91%	46.53%
1994	$1,662,392	$300,000	$1,737,392	$2,159,506	114%	58.31%
1995	$1,319,202	$100,000	$1,419,202	$1,719,307	91%	46.42%
1996	$900,000	$180,000	$1,080,000	$1,276,466	68%	34.46%
1997	$1,000,000	$215,000	$1,215,000	$1,394,198	74%	37.64%
1998	$1,000,000	$160,000	$1,160,000	$1,308,836	69%	35.34%
1999	$1,100,000	$175,299	$1,275,299	$1,416,268	75%	38.24%
2000	$1,100,000	$744,350	$1,844,350	$1,994,373	106%	53.85%
2001	$1,400,000	$455,650	$1,855,650	$1,959,562	104%	52.91%
2002	$1,700,000	$100,000	$1,800,000	$1,870,862	99%	50.51%
2003	$1,788,300	$200,000	$1,988,300	$2,034,031	108%	54.92%
2004	$1,789,380	$99,410	$1,888,790	$1,888,790	100%	51.00%

Note: Deflator at http://www.westegg.com/inflation/

With HEAT dollars declining in real terms in an overall trend so that only 51% of what was provided in 1982 is available today, HELP simply puts back some dollars for what – from the household perspective – is a combined dollar benefit. HEAT and HELP together are nicely cost-effective under the societal test and cost-effective under the more narrow ratepayers test. The provisions of the proposed Stipulation will improve these ratios. These provisions come out of the knowledge produced by the Quantec evaluation and provide a kind of "tweaking" or "fine tuning" that will cause all the B/C ratios reported by Quantec to improve in any subsequent evaluations following the next program cycle.

Q. Can you be more specific as to quantitative benefits in the public interest?

A. Yes, the quantitative benefits of HELP can be summarized in five points.

(1) It is in the interest of the whole of the people that the HELP program exists to assist qualifying customers to pay their electric bills. We assert that this would be so, even if the net cost of the HELP program were identical to the gross cost of the program, which it is not, due to cost offsets (benefits). While this statement is not in the form of a quantitative statement, it subsumes all quantitative benefit calculations for the program.

(2) From a societal perspective (the most relevant of the tests from a public interest perspective) the program returns $1.49 in benefits (HELP and HEAT together). That is, if the program total cost was $4,828,268, the program (under the most appropriate

of the tests for "public interest") net cost was much better than zero dollars. In fact, after paying for itself ($4,828,268) it provided a net return of $2,389,963 beyond the investment in the program (Quantec Evaluation Report, Table IV.5: Program Cost Effectiveness, last column).

(3) Even from a ratepayers test perspective – which is not the appropriate test for public interest, the program returns $1.05 in benefits for each dollar spent (HELP and HEAT together) –see Quantec Evaluation Report, Table IV.5: Program Cost Effectiveness, Column 2).

(4) Even from the inappropriate "stand alone" HELP ratepayer test, the program returns $0.82 for every dollar invested while accomplishing its basic purpose, which is in the interest of the whole of the people. That is to say that for every dollar of assistance provided in this important program, more than four-fifths comes back to ratepayers in direct benefits (Quantec Evaluation Report, Table IV.5: Program Cost Effectiveness, Column 1).

(5) To the extent that the needs of low-income customers are not covered up-front by a proactive program to help people, equivalent or higher costs are generated and eventually made up some years later, with interest, by ratepayers. It is in the public interest to have a well thought through and incrementally improved (through the proposed Stipulation) program to maintain social harmony between the electric company and the households it serves by providing a positive pathway for customers,

and especially for qualifying families with children, to pay their way to the extent that they can, while providing some assistance as needed (through the HELP add-on that produces the "HEAT and HELP" combination).

In summary, for assessment of *public interest* it is the societal test rather than the ratepayer test that is the relevant test and because HELP was designed as an add-on to HEAT, it is the combined societal test of HEAT and HELP that is the most relevant of the tests for quantitatively representing the public interest.

BENEFITS TO THE UTILITY

Q. Are there positive benefits to the utility?

A. Yes. HELP in combination with HEAT provides a positive direct and indirect benefit to the utility:

(1) Utilities that do not have universal service programs (of which HELP is an example) do not escape the equivalent of the costs of these programs. In general, we assert that the universal service program (of which HELP is an example) following incremental adjustments of a few evaluation cycles will cost less than the no-program alternative. By running the program, we learned how to adjust it to perform better (as specified in the proposed Stipulation).

(2) The way that Dr. Khawaja has structured the analysis of benefits in the Quantec evaluation, Table IV.5: Program Cost Effectiveness, the benefits in arrears and notices are utility benefits. The benefits in reduction in mobility can be seen as utility benefits or as societal benefits. The Commission approved HELP to operate as an "add-on" to HEAT such that the correct cost-effectiveness analysis is of HELP and HEAT together and that the most relevant test is the combined "HEAT plus HELP" societal test. Please see Dr. Khawaja's Table IV.5: Program Cost Effectiveness in the Quantec evaluation of HELP for quantification of some of the utility benefits.

(3) Beyond this quantification, we assert that in the current economic context of job deterioration and deterioration of real income for low and moderate income families (especially families with children) it is incumbent upon gas and electric utilities with the 'obligation to serve' to provide mitigation, for example through HELP as modified by the proposed Stipulation. This benefit to the utility is of a *higher order* than the level of quantitative benefit because it goes to the role of the utility in the American system to mitigate problems of access to energy in times of rising commodity prices of gas and electricity and declining real incomes and jobs. Behind this value is the promise of America for all families to have basic freedom from fear and to have economic opportunities. In our view this applies particularly to families with children who are most set back by current economic trends. Electricity and gas services are essential to keep households functional and together – the electric company that establishes programs to help impacted families mitigate payment troubles proactively and up-front gains the ethical value from these programs. Doing

the ethical thing has a tangible business value, and, if incrementally adjusted (as in the new proposed Stipulation) will ultimately cost less than the "no program" alternative. The utility that provides a positive pathway for the household to *pay what it can* while receiving some mitigation in bills or through a combination of bill reduction and payment assistance is meeting a deep public obligation essential for the health and welfare of the people as a whole.

NEED FOR THE PROGRAM

Q. Does need figure into Mr. Mecham's Direct Testimony of September 16, 2005?

A. No, the whole area of need for the program is missing from Mr. Mecham's testimony. Yet need is a critical factor to which the Commission should give as much or more weight than to program performance to date. That is, evaluation of the initial HELP program should be a factor in Commission deliberation, but the expansion of need plus the program improvements specified in the proposed Stipulation may be as or more important for the public interest.

Q. Will the coming winter be a difficult one for low-income households in the US?

A. Yes. Here are three key national findings from the current study, "Out in the Cold: How Much LIHEAP Funding Will Be Needed to Protect Beneficiaries from Rising Energy Prices?," by Richard Kogan and Aviva Aron-Dine of the Center for Budget and Policy Priorities, October 6, 2005:

- The Department of Energy projects that home heating prices will average 47.5 percent more this winter than last winter, the largest such increase in more than 30 years.

- Because the spike in prices will increase the number of low-income households in need of assistance, LIHEAP participation is likely to grow by five percent or more.

- To hold LIHEAP beneficiaries harmless for rising home heating prices would require LIHEAP funding of $5.2 billion.

Q. What is the projected LIHEAP (HEAT) shortfall for Utah to deliver services at the level of the previous (2005) winter for the winter of 2006?

A. The Utah shortfall estimate is reported in the "Out in the Cold" report, Table 3, as $22.6 million. This captures the shock of the current energy price escalation.

Note that, in addition to this shortfall in comparison with the winter of 2005 due to the sudden escalation of energy prices, there is also a long-term deterioration in LIHEAP funding in real terms. As shown earlier in the table on Page 27, current funding (that is, the $15 million noted in the table as "Funding for 2005") is only 51% of the 1982 funding in real terms. This separate problem captures the gradual failure of resource allocation in real terms.

Q. Are there other indicators of need?

A. Yes. As noted by Dr. Khawaja in the Quantec evaluation study, there are several non-quantified benefits of HELP, which seen from a "needs" perspective are indicators of needs. The following are findings of a September 2005 national statistical survey of low-income families and energy which may be downloaded from the NEADA website (www.neada.org).

> The National Energy Assistance Directors' Association (NEADA) today released its second annual survey of the effect of rising energy costs on poor families. Among the study's findings: 32% of families in the survey sacrificed medical care, 24% failed to make a rent or mortgage payment – and 20% went without food for at least a day. Of additional concern, 44% said that they skipped paying or paid less than their home energy bill in the past year.

These are statements about what families are giving up to pay gas and electric bills. They are also indicators of non-quantified benefits of HEAT and HELP combined.

The following is a list of other study findings, demonstrating need.

> Other findings included:
> - 94 percent have at least one member who is elderly, disabled, a child under 18, or has a single adult living with one or more children.
> - 82 percent reported an annual income at or below $20,000, and 61 percent have annual income at or below the federal poverty level.
> - households spent an average of 14 percent of their annual income on residential energy.
> - 47 percent have a household member asthma, emphysema, heart disease, or stroke
> - 19 percent have a household member that uses medical equipment requiring electricity, most commonly nebulizers and oxygen machines and 47 percent of those households reported that they went without medical care due to unaffordable energy bills in the past five years
> - 32 percent reported that they did not fill their prescription or took less than their full dose of a prescribed medicine due to energy bills in the past five years. This included 41 percent of households with asthma, emphysema, heart disease, or stroke
> - 16 percent reported that as a result of a home that was too cold, they became ill in the past five years This included 21 percent of households with a serious medical condition and 26 percent of households with medical equipment requiring electricity.

Q. Please summarize your rebuttal testimony.

A. First, the Quantec evaluation study findings are sound for the HELP and HEAT combination. The combination returns a strong net economic benefit after repaying the investment in HELP. Second, HELP was designed as an add-on to HEAT and in the context of declining real HEAT funding. The relevant way to assess HELP is in the combined HELP and HEAT analysis. Third, Mr. Meacham's quantitative analysis does not meet accepted scientific method and conventions of practice for this subject matter area and should be rejected in whole. Fourth, Mr. Meacham did not understand the method of analysis used by Dr. Khawaja in the Quantec evaluation, and this fact causes all quantitative questions contested by Mr. Mecham in Quantec's impact evaluation to be without adequate grounding. There is no legitimate quantitative technical basis to support Mr. Mecham's objections to Quantec results.

Fifth, Mr. Mecham adopted a mathematical model of public interest at variance with standard usage. His model, in fact, is incapable of reaching to the higher level of the public interest over the level of individual interests of individual households. Further, the type of model he posits represents only the lower interests of households, not the higher interests. It is a logical consequence of this defective model of the public interest that Mr. Mecham questions Quantec analytic results. But Mr. Mecham's underlying model is invalid on its face. Sixth, there are strong positive reasons why HELP is in the public interest and in the interest of the utility. Seventh, and finally, there is very strong evidence of need for HELP in this year of dramatically rising

energy prices and fourth decade of declining real incomes for low-income families, and especially for families with children.

For these reasons, I urge the Commission to continue the HELP program with the performance improvements as specified in the proposed Stipulation.

Q. D**oes this conclude your Testimony?**

A. Yes.