STRUCTURING A PUBLIC PURPOSE "DISTRIBUTION FEE"

FOR MISSOURI

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Each of these publications is available from FSC Publications, 34 Warwick Road, Belmont, MA, 02178.

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INTRODUCTION

This report considers a public purpose distribution fee for the State of Missouri. Prepared at the request of the Missouri Department of Natural Resources, the research presents a detailed analysis, using Missouri-specific data, of a charge through which the State may generate revenues for:

- o residential energy efficiency efforts generally;[1] and
- o cost-effective energy affordability assistance, including both cash assistance and low-income energy efficiency investments.

The discussion below will concentrate on documenting: (1) the need for a public purpose distribution fee in the State of Missouri; and (2) the rate implications of various scenarios through which distribution fee revenues might be generated. The discussion is not intended to address the broader issues of how activities such as research and development (R&D) and other "public purposes" might be funded in a restructured electric industry.

Clearly, subsumed within these broader issues are other important discussions. How can a distribution fee be made competitively neutral? On what basis should a distribution fee be imposed? These other issues are considered in the text below. Tables setting forth the data discussed in the text are included in Appendix A.

The Distinction Between Types of Fees Arising in "Restructuring"

One condition that many states are placing on "restructuring" the electric industry today involves the imposition of a "system benefits charge" or a "distribution fee." Different fees have been proposed under different names. While they may seem quite similar, in fact, they serve quite different purposes and are based upon different policy justifications.

On the one hand, there are charges called "system benefits charges." A system benefits charge is designed to fund certain "public benefits" that are placed at risk of being "stranded" in a more competitive industry. These benefits include, but are not limited to, assistance for low-income consumers, renewable energy, research and development, energy efficiency, and the like. On the other hand, there are broader "distribution fees." These fees recognize a need for energy efficiency investments and low-income assistance beyond that currently offered by the electric industry. From the low-income perspective, these fees are predicated upon the observation that a move from a monopoly-regulated to a competitive, market-driven industry fundamentally changes the risks to which low-income consumers are subjected. Whether or not the industry has previously provided "benefits" that may be "stranded" is not the issue. From an energy efficiency perspective, these fees are predicated on the observation that a move to a market-driven industry places the energy efficiency industry at risk of being stymied by past market failures that have still not been remedied.

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[1] Throughout this discussion, the term "energy efficiency" or "energy efficiency investment" is intended to incorporate investments in renewable energy as well.

These fees further recognize that "restructuring" (with competition being increasingly relied upon to replace direct regulation) is coming not only to the electric industry but to the natural gas industry as well. A distribution fee tends to be placed on a broader range of fuel sources than the electric-only system benefits charge. It is intended to represent a device to preserve public programs that may not be recognized by a competitive market more than a means simply to continue the status quo. It is for this reason that the discussion below focuses not simply on what programs currently exist in Missouri, but rather on what the need is for: (1) residential energy efficiency investments generally, and (b) cost-effective affordability assistance.

THE NEED FOR A PUBLIC PURPOSE DISTRIBUTION FEE IN MISSOURI

Given this introduction, the analysis below turns its attention to a consideration of the need for a public purpose distribution fee in Missouri. The need for residential energy efficiency generally is considered first. The need for bill affordability assistance is considered next.

Residential Energy Efficiency Investments

A Missouri distribution fee should help fund investments in energy efficiency for residential consumers generally. Without such funding, the state loses substantial opportunities to contribute to cleaner air, a healthier economy, more affordable housing, and a host of other impacts that benefit all Missouri residents. A need exists for energy efficiency investments for both heating and non-heating residential energy.

The Need for Residential Energy Efficiency Investments

Investments in residential energy efficiency help deliver efficient end-uses to consumers. Energy efficiency recognizes the truism that Missouri households do not seek to consume energy. Instead, what they seek is to have light, hot water and space heating. If these end uses can be delivered using less energy, the needs of Missouri consumers will have been satisfied.

Residential Heating Consumption: It is difficult, if not impossible, to perform a complete inventory of energy inefficient homes in Missouri. To do so is not the purpose of this analysis. It *is* possible, however, to determine whether there is a significant, or an insignificant, number of homes that may even *potentially* benefit from the installation of energy efficiency improvements for home heating purposes. Surrogates for energy inefficiency are used, which include: (1) the age of the home; (2) the presence of physical problems with the home; and (3) the affordability of total shelter costs (which include the costs of all utilities except telephones). For purposes of analysis here, a non-low-income home involves any consumer living above 80 percent of median income as defined by the U.S. Department of Housing and Urban Development (HUD).

HUD data shows that roughly one-in-six Missouri units of housing that are affordable to households living above 80 percent of median income were constructed before 1940. Moreover, of the total of roughly 550,000 units affordable at that income level, nearly 90,000 have some type of "physical problem" under HUD's definitions. Finally, nearly 55,000 households living above 80% of median income pay more than 30 percent of their income for shelter costs; roughly 5,000 pay more than 50 percent. This data is set forth in Table 1 (pages 1 - 3 respectively).[1]

Residential Non-Heating Consumption: Focusing attention only on heating bills generally results in inadequate attention being devoted to the impacts of *electric* policy on residential consumers. This focus is misplaced. As shown in Table 2, electric *non*-heating consumption represents roughly 45 percent of residential usage and nearly 70 percent of residential bills. What happens to the price of electricity is thus important to residential consumers. An energy efficiency policy focused exclusively on home heating would address less than half of the energy dollars consumed in the state of Missouri.

Solar Hot Water and Domestic Space Heating: In addition to considering space heating and non-space heating separately, energy efficiency programs should consider the potential for investing in renewable energy for Missouri consumers. There is little question but that electricity is one of most expensive fuels to use for space heating and domestic hot water heating in the State of Missouri. According to 1995 Department of Energy (Energy Information Administration) data, the 1993 price of electricity in Missouri --the last year for which data is available-- was roughly $21.29/mmBtu. In contrast, the 1993 price for natural gas was $5.35/mmBtu and the price for LPG was $7.29/mmBtu.

Despite these relatively high prices, a substantial number of Missouri households use electricity for space and domestic hot water heating while a negligible number of consumers rely upon distributed technologies such as solar. On the one hand, as of the time of the 1990 Census, nearly one-in-five (18%) of all Missouri consumers use electricity for space heating. On the other hand, only three-hundredths of one percent (520) used solar energy for space heating.

Statewide figures are not available for fuel use for hot water. Regional data from the U.S. Department of Energy's *Residential Energy Consumption Survey* indicates that for the Census division of which Missouri is a part (West North Central), one-in-four (24.6%) of all households use electricity for their domestic hot water heating.

Without quantifying precisely how big the potential for increased penetrations of solar space and domestic water heating, it is possible to conclude that the market has barely been tapped. There is substantial potential for an expansion of distributed technologies in

[2] All Tables are set forth in Appendix A.

Missouri.

Advantages to Residential Energy Efficiency Investments

Funding residential energy efficiency investments in the State of Missouri will generate substantial benefits for all sectors of the state. In addition to generating environmental benefits such as cleaner air and water, energy efficiency will promote economic development, increase housing affordability, and reduce the risk of insurable events.

Well designed energy efficiency programs have been shown to produce substantial economic benefits for local and state economies. Electric and gas utilities are poor performers in terms of their ratios of: (1) in-state jobs to sales, and (2) sales to in-state income generation. By comparison, the industry that does most of the home energy efficiency work --the maintenance and repair construction industry-- has almost four times the jobs-to-sales ratio of the utility industry, and a 20 percent higher ratio of in-state income generation per dollar of sales. In addition, energy efficiency programs produce additional economic benefits in terms of jobs in proportion to the extent that they are designed to be cost effective.\1\ It is not surprising that the *Missouri Statewide Energy Study* concluded that energy efficiency would "sustain more employment opportunities than either the continued current level of energy use or the development of new energy supplies."\1\

In addition to these economic impacts, state investment in energy efficiency tends to protect households against "insurable events." In August, 1996, Lawrence Berkeley Laboratory released findings showing that energy efficiency investments in housing often lead to the correction of conditions that place buildings at risk. Such conditions include fire, carbon monoxide poisoning, and the like.\1\

Finally, energy efficiency investments can promote the affordability of homeownership in Missouri. A study of how energy efficiency investments affect the affordability of first time

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\3\ Thus, for example, if an energy efficiency measure has a cost/benefit ratio of 1.10, it returns $110 of benefits for every $100 of expenditures. Additional economic activity and jobs will be associated not only with the $100 of expenditures, but with the $10 savings as well.

\4\ ***Missouri Statewide Energy Study -- Volume 1: Summary Report***, Environmental Improvement and Energy Resource Authority, Jefferson City, MO, 1992, page I-9.

\5\ Evan Mills (1996). ***Energy Efficiency: No-Regrets Climate Change Insurance for the Insurance Industry***, Lawrence Berkeley Laboratory: Berkeley, CA. Available at: http:\\eande.lbl.gov\CBS\reports.html. A review of the full complement of Lawrence Berkeley Laboratory, Center for Building Science, initiatives on *Energy Efficiency as an Insurance Loss-Prevention Strategy*, can be found at: http:\\eande.lbl.gov\CBS\Climate-Insurance\ci.html.

home ownership[6] found that, in the Census Division of which Missouri is a part, a $3,000 energy efficiency investment made at the time of home purchase, financed at nine percent interest, would yield an effective reduction in the price of the home of 6.0%,[7] and an effective interest rate discount of 0.48%.[8]

As can be concluded, there is a significant potential for investment in energy efficiency and renewable energy in Missouri. In addition, the benefits from making these investments are great.

THE NEED FOR COST-EFFECTIVE ENERGY AFFORDABILITY ASSISTANCE

A Missouri distribution fee seeking to provide cost-effective energy affordability assistance should seek to meet two needs: (1) the need for cash fuel assistance; and (2) the need for energy efficiency improvements. Both of these needs will be considered below.

The Need for Cash Fuel Assistance

Missouri has a significant number of low-income households, most of whom experience unaffordable home energy burdens. A home energy burden is the home energy bill as a percentage of income. In determining the need for fuel assistance, it is appropriate to look at low-income energy burdens. This is the approach now incorporated into the federal statute creating the Low-Income Home Energy Assistance Program (LIHEAP). That statute mandates that LIHEAP benefits be targeted to households who have the lowest incomes and the highest bills in relation to income taking into account household size. Moreover, in 1994, Congress described "highest home energy needs" as taking into consideration energy burdens and defined "energy burden" as "the expenditures of the household for home energy divided by the income of the household."

A consideration of home energy burdens should focus on *total* home energy bills for low-income households. While public policy traditionally has focused attention on home *heating* needs, this policy is too narrow. Instead, two aspects of home energy should be considered: (1) home heating on the one hand; and (2) home electric usage (including home cooling) on the other hand. National figures, as well as state-specific studies by FSC, find that while low-

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[6] Roger Colton (November 1996). ***Energy Efficiency as a Credit Enhancement: Public Utilities and the Affordability of First-Time Homeownership***, Fisher, Sheehan and Colton, Public Finance and General Economics: Belmont, MA.

[7] For the average sales price of a home supported by the state's first time homebuyer program, in order to generate the same dollar savings as a $3,000 investment in energy efficiency, financed at nine percent interest, the original sales price of the home would need to be six percent lower.

[8] In order to generate the same dollar savings as the energy efficiency investment, in other words, the interest rate charged on the home mortgage would need to be reduced by 0.48%.

income heating *consumption* is greater than non-heating consumption, low-income heating *bills* represent a smaller percentage of total low-income energy bills.\1\ Any determination of the need for cash assistance should take both heating and non-heating bills into account.

Home Heating Bills in Missouri

Winter home heating bills in Missouri impose unaffordable burdens on low-income households. Several populations will be used for purposes of demonstrating this conclusion: (a) households who receive LIHEAP benefits; (b) households who receive benefits through Aid to Families with Dependent Children (AFDC);\1\ (c) households who receive Supplemental Security Income (SSI); and (d) households who receive Social Security (retired widows and widowers).\1\

As Table 3 demonstrates, each of these populations of households experiences a winter home heating burden --these figures do not include winter non-heat electric burdens-- which are beyond "affordable" levels. LIHEAP and AFDC recipients both experience winter home heating burdens of from 15 to 25 percent of income. Social Security recipients have burdens which are marginally lower.

These home heating burdens can be compared to the "shelter" burdens which the U.S. Department of Housing and Urban Development (HUD) has defined to be "affordable." According to HUD, if a household faces a *shelter* burden exceeding 30 percent of income, that household is over-extended. Shelter burdens include rent/mortgage payments plus all utility payments other than telephone.\1\ A household that is paying 20 or 25 percent of its income simply toward home heating --again, not taking into account electricity as well-- will not be able to fall below this 30 percent limit.

The significance of the home heating burdens imposed on low-income households is even more apparent when one considers the full range of incomes at which low-income residents of Missouri live. Most households who qualify for LIHEAP in Missouri by living at or below 150 percent of Poverty live <u>*below*</u> the ceiling rather than <u>*at*</u> the ceiling. Table 4 sets forth the

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\9\ *See e.g.*, Roger Colton, Michael Sheehan, *et al.* (1995). ***An Assessment of Low-Income Energy Needs in Washington State***, Fisher, Sheehan & Colton, Public Finance and General Economics: Scappoose, OR; Roger Colton (1996). ***Home Energy Assistance Review and Reform in Colorado***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

\10\ AFDC is what most people think of as "welfare." Under recent Congressional welfare reforms, the program is now called TANF (Temporary Aid to Needy Families).

\11\ Thus, not included in Social Security are disability recipients.

\12\ Hence, for example, the utility payments would include home heating, electricity, water/sewer, and garbage and/or trash pick-up where appropriate.

actual distribution of winter heating burdens for Missouri LIHEAP recipients. While it is a simple matter of arithmetic that energy burdens as a percentage of income will increase as dollar incomes decrease, the *magnitude* of the burden at the lower income levels is nonetheless stunning. As Table 4 shows, a household with an annual income of $0 to $2000 will have winter heating burdens\1\ of nearly 85 percent; households living with annual incomes of $2000 to $4000 will have winter heating burdens of nearly 30 percent; and households living with annual incomes of $4000 to $6000 will have winter heating burdens of more than 16 percent.

The number of households with these extremely low levels of annual incomes (and thus high heating burdens) is not small. Table 5 shows that amongst the roughly 125,000 Missouri LIHEAP participants, more than 71,000 (roughly 60 percent) live with incomes of less than $6,000.

Non-Heating Home Energy Bills in Missouri

Non-heat electric bills can be just as unaffordable to low-income households as winter heating bills are. As Table 6 shows, non-heating electric bills (500 kWh/month) for Missouri's six largest electric companies impose burdens as a percentage of income ranging from 10 percent to 20 percent of income for public assistance recipients.\1\

The conclusions from this data are several fold *vis a vis* a distribution fee for Missouri. The need for cash fuel assistance is great in Missouri, both in terms of dollars and in terms of the number of households in need. Second, with many of these households, the need for cash assistance cannot be alleviated through reduced bills generated by improvements in energy efficiency. No matter how low the bills go for these households, they will be unaffordable. Third, given the income of these households, virtually *any* energy bill will impose unaffordable burdens. Fourth, the energy problems of these households are not household budgeting problems. There is, instead, an absolute mismatch between household resources and expenses. Finally, given the energy burdens facing low-income households, there will be an inevitable need for a crisis intervention fund to prevent the loss of service due to inability-to-pay.

The Need for Low-Income Energy Efficiency Assistance

In addition to the need for cash fuel assistance to be funded through a distribution fee, a significant number of low-income households in Missouri are in need of energy efficiency

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\13\ Remember, these do *not* include electric bills in addition to heating bills. Taking electric bills into account would drive burdens even higher.

\14\ Again, according to HUD, if total shelter costs exceed 30 percent, a household is financially overextended.

improvements. It is difficult, if not impossible, to quantify the precise number of low-income units in Missouri that are in need of energy efficiency improvements. Some rough estimates can be made, however. In 1995, there were roughly 450,000 low-income households in Missouri.\1\ According to state Weatherization Assistance Program (WAP) officials, Missouri has weatherized roughly 31,000 homes from 1989 through 1997.\1\ Due to decreased funding levels, however, the number of units per year has dropped in recent years. In fact, all weatherization production funded through non-DOE dollars was eliminated in Fiscal Year 1995. By Fiscal Year 1996, the number of low-income units weatherized each year in Missouri had dropped to only 40 percent of its 1989 level (2,593 / 6,040 = 42.9%).

Low-Income Units Weatherized in Missouri:
Total and DOE-Funded

	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total /a/	6,040	3,693	4,051	4,744	2,738	2,615	2,894	2,593	1,346
DOE	2,334	1,223	2,298	2,765	2,238	2,322	2,894	2,593	1,346 /b/

NOTES:

/a/ These totals do not include dollars that did not come through the state weatherization program.
/b/ Some quarterly data missing.

In addition to units weatherized through WAP, there will be some low-income households who live in homes that are newly constructed. Even though Missouri has no state building code, and state analysis of new construction has found substantial energy savings to be found in this new construction,\1\ for ease of analysis here, these homes are excluded from

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\15\ This is a calculated number. In 1990, there were roughly 435,000 households at or below 150% of the federal poverty level in Missouri. According to HUD, Missouri experiences roughly 20,000 new housing units per year authorized by building permits, of which approximately 15 percent (3,000/year) are likely to be inhabited by low-income households. There will be some duplicated households here, since some of the inhabitants of the new housing will come from the 435,000 existing low-income households. Nonetheless, a rough estimate equal to 435,000 + (3,000/year x 6 years) = 453,000 (rounded to 450,000) seems appropriate.

\16\ Due to changes in technology and program requirements, homes weatherized prior to 1988 are assumed to be in need of re-weatherization. Homes weatherized with funds that were not administered by the state weatherization program are not included in these figures.

\17\ Economic Research Associates. (December 1995). ***A Reevaluation of Economic Opportunities through Missouri Building Codes and Energy Efficiency Improvements***, Missouri Division of Energy, Missouri Department of Natural Resources.

the calculation of homes in need of weatherization. Assuming no unduplicated fully weatherized homes treated by utilities in that time, roughly 420,000 low-income housing units remain to be weatherized in Missouri.\1\

If WAP production levels continue at roughly 2,500 units per year, if no weatherized house ever needs to be re-weatherized,\1\ and if no expansion in Missouri's low-income population occurs, these un-weatherized homes will all be treated with energy efficiency improvements by the year 2165, roughly 168 years. Clearly, an additional source of low-income energy efficiency funding is needed.

Age of Low-Income Housing Units in Missouri

Two additional ways exist to develop a surrogate for energy efficiency needs in low-income housing in Missouri. While, as mentioned above, no direct measurement exists of the number of energy *in*efficient low-income housing units in Missouri, some correlation can be drawn between energy inefficiency and the age of housing units. Table 7 sets out the number of Missouri households, at different levels of "being poor," distributed by the age of the housing units in which they live. As can be seen, while it is impossible to conclude with any specificity the actual *extent* of energy inefficiency, it *is* possible to see the potential that hundreds of thousands of low-income Missouri households live in old, and presumptively energy inefficient, housing units. Roughly 210,000 households living at or below 50 percent of median income live in housing that was constructed before 1940. Roughly 315,000 households living at or below 80 percent of median income live in housing that was constructed before 1940, more than 55 years ago.

Moreover, these figures do <u>not</u> refer to <u>all</u> housing units, but rather simply to housing units that are <u>affordable</u> (i.e., yield total shelter burdens at or below 30 percent of income) at those income levels.

Affordability of Housing Units

A different surrogate to be used to identify the need for energy efficiency improvements involves shelter burden. The starting point again is HUD's rule that a household which devotes in excess of 30 percent of income toward shelter costs is over-extended.\1\ Table 8 presents the number of Missouri households who are called upon to pay either more than 30

\18\ This is calculated as follows: 450,000 minus 31,000 weatherized homes. This yields roughly 420,000 units.

\19\ This is a clearly unreasonable assumption. Not only will technologies improve and the process of weatherization become more sophisticated, the existing weatherization measures will ultimately reach the end of their useful lives and need to be replaced as well.

\20\ As discussed above, shelter costs include rent/mortgage payments plus all utilities except telephone service.

percent of their income or more than 50 percent of their income toward their shelter costs. As this Table shows, more than 350,000 Missouri households living at or below 80 percent of median income pay more than 30 percent of their income, and nearly 160,000 households at those income levels pay more than 50 percent of their income toward their total shelter costs.

Given the discussion above as to home energy burdens, it is clear that home energy bills contribute to the lack of shelter affordability. A review of monthly Fair Market Rents (FMRs),[\1\] and the extent to which utility bills contribute to those monthly shelter costs, is set forth in Table 9.[\1\] This Table shows utility bills in relation to total shelter costs in the two major Missouri cities for which data is available. These bills represent roughly 35 to 40 percent of total shelter costs. In contrast, Fannie Mae[\1\] has reported that utility bills should represent no more than 20 percent of total shelter costs. To the extent that energy efficiency can reduce these bills, overall shelter affordability will improve.

Finally, Table 10 presents the number of Missouri units that are "affordable" but which have some type of physical problem associated with them. As can be seen, more than one-in-four affordable units for Missouri households at 0 - 30 percent of median income (26%), three-in-ten affordable units for Missouri households at 31 - 50 percent of median income (30%), and one-in-four affordable units for Missouri households at 51 - 80 percent of median income (23%) have some type of physical problem. If one engages in the assumption that households with "physical problems" are likely to have energy efficiency problems as well, the extent of the acute need for low-income energy efficiency improvements in Missouri is evident.

Again, these households do not refer to all housing units, but rather simply to housing units that are affordable (*i.e.*, yield total shelter burdens at or below 30 percent of income) at those income levels.

Utility Benefits from Low-Income Energy Efficiency

In addition to looking at energy efficiency from the household perspective, it is beneficial to examine the benefits of a low-income energy efficiency program from the perspective of

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[\21\] FMRs concededly do not include mortgage payments. FMRs set by HUD are based on area rents at the 40th percentile.

[\22\] Roger Colton (1994). ***The Role of Utility Costs in Setting Fair Market Rents For Section 8 Housing***, presented in, *Section 8 Housing Assistance Payments Program--Fair Market Rent (FMR) Schedules for Use in the Rental Certificate Programs, Loan Management and Property Disposition Programs, Moderate Rehabilitation Program and Rental Voucher Program*, HUD Docket No. N-94-3754 (October 1994) (presented on behalf of ten Legal Services Corporation offices) (looking at data from 100 cities in 38 states and the District of Columbia).

[\23\] The Federal National Mortgage Association (FNMA).

energy service providers. Extensive research has found that low-income energy efficiency programs result in substantial non-energy savings to utilities. These non-energy savings include reductions in working capital expense, uncollectible accounts, credit and collection expenses, and the like.\1\ The results of one of the most recent studies are summarized in Table 11. Table 11 shows the results of the Pennsylvania Low-Income Usage Reduction Program (LIURP) for all Pennsylvania utilities. The Table presents pre-treatment and post-treatment payment patterns for the low-income households to whom energy efficiency was delivered. A payment of less than 100 percent means that the low-income household was not even paying the current month's utility bill. In contrast, a payment *exceeding* 100 percent means that the low-income household was not only paying the current bill, but was paying off its arrears as well.

As Table 11 shows, for every Pennsylvania utility but one, the delivery of energy efficiency substantially improves the payment patterns of the treated low-income households. Indeed, the general impact of the delivery of energy efficiency was a *substantial* increase in the payment coverage of the household energy bill. In most cases the low-income household moved from a situation where that customer was falling further and further behind by failing to pay the current bill to a situation where the household was paying the entire current bill and beginning to retire the arrears.

Summary

A distribution fee is necessary to fund two types of programs in Missouri. First, there is a need for residential energy efficiency initiatives, including distributed technologies. Not only will these energy efficiency investments reduce energy waste and help clean-up the environment, they will generate economic benefits and promote affordable homeownership as well. Second, there is a need to provide cost-effective energy affordability assistance. This assistance will include the provision of cash assistance as well as the provision of low-income energy efficiency investments.

THE COST OF A PUBLIC PURPOSE DISTRIBUTION FEE IN MISSOURI

Having documented the need for a "distribution fee" in Missouri, the next question to be addressed is the cost which creating such a charge would impose on Missouri ratepayers. Three different sets of assumptions are used in the Tables below. Tables 12 and 13 are based on the assumption that a "distribution fee" is imposed on end-use consumption involving electricity and natural gas. Table 14 is based on the assumption that a distribution fee is imposed only on end-use consumption involving electricity. Finally, Tables 15 and 16 are based on the assumption that a "distribution fee" is based on all fuels. In each of these three

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\24\ Roger Colton (1995). ***Energy Efficiency and the Low-Income Consumer: Planning, Designing and Financing***, at Chapter 7, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA (summarizing existing utility research examining non-energy benefits).

sets of assumptions, the impacts are assessed of levying a distribution fee: (1) on residential consumption alone, and (2) on residential, commercial and industrial consumption combined.

Overview of the Alternative Scenarios

Tables 12, 13, 15 and 16 below are each set forth in four parts. The four parts assume differing levels of funding. Tables 12 through 16 begin with a base case funding scenario of roughly $80 million. In addition to this base case scenario, alternative funding levels of $100, $120 million, and $160 million are considered. Table 14, the Table which includes the electric-only analysis, has a fifth part that examines a $40 million funding scenario. More particularly:

- Table 12 assumes that an electric/natural gas distribution fee in Missouri is imposed only on residential ratepayers.

- Table 13 assumes that, in the alternative, an electric/natural gas distribution fee in Missouri is imposed on all end-use consumption for industrial, commercial and residential customers.

- Table 14 assumes that an electric-only distribution fee is imposed in Missouri. The Table considers a charge on residential consumption alone as well as a charge on all end-use electric consumption for industrial, commercial and residential customers.

- Table 15 assumes that a distribution fee in Missouri is imposed on residential consumption for all fuels.

- Table 16 assumes that a distribution fee in Missouri is imposed on all fuels for residential, commercial and industrial customers.

The Tables are intended to generate three pieces of data on a state-specific basis for Missouri: (a) the per unit of energy cost of a distribution fee of the specified amounts for each fuel type; (b) the *total* cost allocated to each fuel type arising out of a distribution fee of the specified amounts; and (c) the difference caused by allocating program costs only to residential versus allocating program costs to aggregate residential, commercial and industrial end-use.

The Basis of the Funding Levels

Four funding levels are considered in this analysis. A scenario based on 100 percent of the LIHEAP/WAP appropriation is used as the base case. Two specific program elements, however, are included in the distribution fee which makes reliance on this federal low-income assistance program inappropriate as the exclusive funding touchstone:

- o Non-low-income residential energy efficiency program are recommended to be funded through the distribution fee; and

- o Non-heating bill affordability assistance is recommended to be funded through the distribution fee.

To test the impacts of increasing dollars to fund these additional program components,\1\ three additional scenarios were added. Because the ability to deliver energy efficiency is limited by the capacity of the existing network of weatherization service providers, it was deemed appropriate to use multipliers of the LIHEAP/WAP appropriation as the means to test the rate impact of different levels of a distribution fee.\1\ The use of LIHEAP/WAP as the basis from which to make funding estimates should not detract from the observation that, as explained in detail above, the wires charge revenue considered in this report is to be used for the following three purposes:

- o Residential energy efficiency generally, including renewable energy strategies;

- o Cost-effective bill affordability programs, including efforts directed toward both heating and non-heating bill components; and

- o Low-income energy efficiency.

Methodology

The methodology employed in Tables 12 through 16 begins by estimating the funds desired to be generated through the distribution fee. The estimates flow from employing the LIHEAP/WAP multiplier described above.\1\

\25\ In contrast, the electric-only analysis adds a fifth scenario to provide a basis for evaluating the impacts should the assistance provided through an electric-only distribution fee be scaled back to reflect a decision to limit the use of the funds only to electric energy efficiency measures or electric bill affordability assistance.

\26\ Given the spread between the high and low dollar figure studied, clearly no funding *recommendation* is being made by this report. Instead, the purpose of the report is to consider the rate impacts assuming different levels of funding. The purpose is present illustrations of potential high, low and intermediate funding levels.

\27\ The 1986 LIHEAP appropriations was the highest appropriation for the nation as a whole. In 1986, Missouri received $89,335,293 in LIHEAP funds. U.S. Department of Health and Human Services, ***Low Income Home Energy Assistance Program, Report to Congress for Fiscal Year 1986***, at Table C-4, page 67 (July 1987). The highest Missouri WAP appropriation occurred in 1996, when Missouri received $5.778 million. (Correspondence, Missouri Department of Natural Resources to FSC).

The funds estimated through these various scenarios are then distributed via an allocator. In the scenario where the funds are distributed solely to the residential class, the funds are divided by the total number of mmBtu consumed by the residential customer class in Missouri to derive a cost per Btu. That cost per Btu is then multiplied by the Btu's per unit of fuel to derive a per unit of fuel cost (*e.g.*, cost per MCF, cost per kWh). The cost per Btu is further multiplied by the number of Btu consumed within each fuel class at the end-use level to determine the total dollars to be derived from each fuel source. The effect of this methodology is to assign a responsibility to each fuel source equal to the proportion of end use residential energy supplied by that fuel source on a per Btu basis.

The same process is used for the section that distributes the cost over all residential, commercial and industrial end-use consumption. The total dollars desired are divided by the total end use consumption from those three customer classes. The per Btu cost is then multiplied by the number of Btu in each type of fuel unit to derive a per unit of fuel cost, and multiplied by the total number of Btu consumed at the end use level to derive the total contribution which each fuel type would make to the bottom line. This results in an allocation based not on the proportion of end use fuel type within only the residential class, but by the proportion of end use fuel type within all customer classes combined.

The $80 million scenario is set forth in Tables 12A, 13A, 14A, 15A and 16A; the $100 million scenario is set forth in Tables 12B, 13B, 14B, 15B and 16B; the $120 million scenario is set forth in Tables 12C, 13C, 14C, 15C and 16C; and the $160 million scenario is set forth in Tables 12D, 13D, 14D, 15D and 16D. Table 14E reflects the electric-only $40 million scenario.[28]

Results

Allocating Costs Only to Residential Natural Gas and Electric Customers

A distribution fee designed to generate $80 million[29] imposed only on the residential natural gas and electric customer class would result in a price increase of the following for natural gas and electric users in Missouri:

- roughly 3.9 cents per CCF for natural gas users. Assuming a consumption of roughly 1,100 CCF per year, this results in an annual bill increase of roughly $43, or about $3.60 per month.

- roughly 13.2 one-hundredths of a cent per kWh for electricity users. Assuming

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[28] There is no corresponding Table E in other sets of Tables.

[29] For all of the reasons outlined in the text above, the $80 million is calculated as 100 percent of the highest historical LIHEAP/WAP appropriations in Missouri (1997$).

a consumption of 9,000 kWh per year, this results in an annual bill increase of $12, or about 98 cents per month.

In contrast, a distribution fee designed to generate $160 million[1] imposed only on the residential class would result in a price increase of the following for natural gas and electricity in Missouri:

- roughly 7.8 cents per CCF for natural gas users. Again, assuming an annual consumption of roughly 1,100 CCF, this results in an annual bill increase of roughly $86, or about $7.10 per month.

- roughly 2.6 tenths of a cent per kWh for electricity. Again, assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of about $23.40, or roughly $1.95 a month.

Clearly, the costs of generating $100 and $120 million[1] from the residential class alone fall somewhere in between. The precise costs for these two scenarios are set forth in Tables 12B and 12C respectively.

Allocating Costs to Residential, Commercial and Industrial Natural Gas and Electric Customers

A distribution fee designed to generate $80 million imposed on the combined residential, commercial and industrial customer base would result in a price increase of the following for natural gas and electric residential fuel users in Missouri:

- roughly 1.7 cents per CCF for natural gas users. Assuming a consumption of roughly 1,100 CCF per year, this results in an annual bill increase of roughly $19, or about $1.60 per month for the average residential consumer.

- roughly 5.8 one-hundredths of a cent per kWh for electricity users. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of $4.50, or about 38 cents per month for the average residential customer.

In contrast, a distribution fee designed to generate $160 million imposed on the combined residential, industrial and commercial classes would result in a price increase of the following for residential natural gas and electricity users in Missouri:

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[30] For all of the reasons outlined in the text above, the $160 million is calculated as 200 percent of the highest historical LIHEAP/WAP appropriations in Missouri (1997$).

[31] These are the 125% and 150% scenarios respectively.

- roughly 3.4 cents per CCF for natural gas users. Assuming an annual consumption of roughly 1,100 CCF, this results in an annual bill increase of roughly $38, or about $3.15 per month for the average residential customer.

- roughly 11.7 hundredths of a cent per kWh for electricity. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of about $9.90, or just over 80 cents a month for the average residential consumer.

Clearly, the costs of generating $100 and $120 million from the combined residential, commercial and industrial classes fall somewhere in between. The precise costs for these latter two scenarios are set forth in Tables 13B and 13C respectively.

Allocating Costs only to Electric Consumption

A distribution fee designed to generate $80 million imposed only on electric consumption would result in a price increase of the following for residential electric users in Missouri:

- roughly 1.3 tenths of one cent per kWh if spread over all electric classes (residential, commercial, industrial). Assuming an annual consumption of roughly 9000 kWh, this results in an annual bill increase of roughly $11.70, or about 98 cents per month.

- roughly 3.3 tenths of a cent per kWh if spread over only residential consumption. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of $29.70 or about $2.50 per month.

In contrast, a distribution fee designed to generate $160 million imposed only on electric consumption would result in a price increase of the following for residential electric users in Missouri:

- roughly 2.7 tenths of one cent per kWh if spread over all electric classes (residential, commercial, industrial). Assuming an annual consumption of roughly 9000 kWh, this results in an annual bill increase of roughly $23.40, or about $1.95 per month.

- roughly 6.6 tenths of a cent per kWh for electricity. Again, assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of about $59.40, or roughly $4.95 a month.

Clearly, the costs of generating $100 and $120 million from electricity consumption alone fall somewhere in between. The precise costs for these two scenarios are set forth in Tables 14B

and 14C respectively.

In addition, this analysis examines the impact of generating only $40 million. A distribution fee designed to generate $40 million imposed only on electric consumption would result in a price increase of the following for residential electric users in Missouri:

- roughly 6.7 one-hundredths of one cent per kWh if spread over all electric classes (residential, commercial, industrial). Assuming a consumption of roughly 9000 kWh per year, this results in an annual bill increase of roughly $5.40, or about 45 cents per month.

- roughly 17 one-hundredths of a cent per kWh if spread over only residential consumption. Again, assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of about $14.40, of roughly $1.20 a month.

This analysis is set forth in Table 14E. This Table considers costs for a residential only scenario as well as for a scenario involving combined residential, industrial and commercial consumption.

Allocating Costs Only to Residential Customers: All Fuels

A distribution fee designed to generate $80 million imposed only on the residential customer class (all fuels) would result in a price increase of the following for natural gas and electric users in Missouri:

- roughly 3.5 cents per CCF for natural gas users. Assuming a consumption of roughly 1,100 CCF per year, this results in an annual bill increase of roughly $38.50, or about $2.30 per month.

- roughly 11 one-hundredths of a cent per kWh for electricity users. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of $9.90, or about 85 cents per month.

In contrast, a distribution fee designed to generate $160 million imposed only on the residential class (all fuels) would result in a price increase of the following for natural gas and electricity in Missouri:

- roughly 7.0 cents per CCF for natural gas users. Again, assuming an annual consumption of roughly 1,100 CCF, this results in an annual bill increase of roughly $77, or about $6.40 per month.

- roughly 24 one-hundredths of a cent per kWh for electricity. Again, assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of

about $20.70, or roughly $1.75 a month.

Clearly, the costs of generating $100 and $120 million from the residential class alone fall somewhere in between. The precise costs for these two scenarios are set forth in Tables 15B and 15C respectively.

Allocating Costs to Residential, Commercial and Industrial Customers: All Fuels

A distribution fee designed to generate $80 million imposed on the combined residential, commercial and industrial customer base (all fuels) would result in a price increase of the following for natural gas and electric residential fuel users in Missouri:\1\

- roughly 1.5 cents per CCF for natural gas users. Assuming a consumption of roughly 1,100 CCF per year, this results in an annual bill increase of roughly $16.60 or about $1.40 per month for the average residential consumer.

- roughly 5.1 one-hundredths of a cent per kWh for electricity users. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of $4.50, or about 40 cents per month for the average residential customer.

In contrast, a distribution fee designed to generate $160 million imposed on the combined residential, industrial and commercial classes would result in a price increase of the following for residential natural gas and electricity users in Missouri:

- roughly 3.0 cents per CCF for natural gas users. Assuming an annual consumption of roughly 1,100 CCF, this results in an annual bill increase of roughly $33, or about $2.80 per month for the average residential customer.

- roughly one tenth of a cent per kWh for electricity. Assuming a consumption of 9,000 kWh per year, this results in an annual bill increase of about $9.00, or roughly 75 cents a month for the average residential consumer.

Clearly, the costs of generating $100 and $120 million from the combined residential, commercial and industrial classes fall somewhere in between. The precise costs for these latter two scenarios are set forth in Tables 16B and 16C respectively.

A PROPOSED STRUCTURE FOR A MISSOURI DISTRIBUTION FEE

A proposed structure for a Missouri distribution fee should address four issues:

(1) What benefits should the distribution fee pay for;

\32\ Price impacts for bulk fuels are set forth in the corresponding Tables below.

(2) Who should bear the cost of the distribution fee;

(3) What should the value of the distribution fee be; and

(4) How can the distribution fee be made immune to bypass.

What Initiatives Should the Distribution Fee Pay For

For all of the reasons discussed in the first section of this paper, a distribution fee should be developed to pay for residential energy efficiency as well as cost-effective bill affordability programs. Residential energy efficiency should include renewable energy strategies. Cost-effective bill affordability measures should include: (a) low-income basic cash fuel assistance; (b) low-income crisis intervention assistance; and (c) low-income energy efficiency programs.

Energy efficiency programs should include not only direct investment programs involving partnerships with local Community Action Agencies (or other WAP sub-grantees),\1\ they should include innovative partnerships involving housing,\1\ financial institutions,\1\ community development financial institutions,\1\ and other public and private housing programs.\1\

Deciding on the Level of Distribution Fee Revenues

The value of the distribution fee to be collected should be based on the total amount of funds

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\33\ *See e.g.*, Roger Colton (1994). ***Energy Efficiency and the Low-Income Consumer: Planning, Designing and Financing***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA; Roger Colton (1994). ***Securitizing Utility Avoided Costs: Creating an Energy Efficiency "Product" for Private Investment in WAP***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

\34\ *See e.g.*, Roger Colton (1995). ***Funding Minority and Low-Income Energy Efficiency Programs in a Competitive Electric Industry***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

\35\ *See e.g.*, Roger Colton (1995). ***Energy Efficiency as a Credit Enhancement: Public Utilities and the Affordability of First-Time Homeownership***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

\36\ *See e.g.*, Roger Colton and M.Sheehan (1994). ***"Linked Deposits" as a Utility Investment in Energy Efficiency for Low-Income Housing***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

\37\ *See e.g.*, Roger Colton (1996). ***Changing Paradigms for Delivering Energy Efficiency to the Low-Income Consumer by Competitive Utilities: The Need for a Shelter-Based Approach***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA.

desired by the state. The cost per Btu, and thus the per unit of energy charge, should flow from this broader decision. Hence, for example, the state should decide whether it wishes to generate funding at the $80, $100, $120, or $160 million levels, rather than deciding whether to increase rates by 0.5%, 1.0%, 1.5% or some other factor. One difficulty with increasing rates by a uniform percentage is the inherent unfairness of the distribution of the levy. As shown by the Tables discussed above, a one percent increase in natural gas rates is not equal in burden to a one percent increase in electric rates on a per unit of energy basis. Moreover, it seems most reasonable to decide what end result is desired before addressing the mechanism (*i.e.*, the per unit of energy charge) to be used to achieve that result. This is not to say, of course, that the final dollar figure desired should not always be tempered by the impact which such fundraising has on rates. It is merely to state that the state should have an end-in-view as to total dollars desired before beginning the cost allocation process.

The value of a state's distribution fee depends upon several underlying decisions. The first issue was addressed above. The distribution fee should be sufficient to generate funds for residential energy efficiency generally (including distributed technologies) as well as cost-effective bill affordability programs. Both initiatives should be directed toward heating and non-heating energy use.

The Level of Energy Efficiency Revenues

The energy efficiency program funded through a distribution fee should involve both adequate scope and funding. Adequate "scope" of the energy efficiency program means that the state should seek to serve a wide-range of constituencies. Adequate "funding" means that the energy efficiency budget should increase until the program exhausts the available cost-effective measures, or until it exhausts the institutional capacity to deliver cost-effective measures, whichever comes first.

Determining the funding of energy efficiency programs (including solar investments) presents somewhat of a problem. While, in theory, a program should continue to fund energy efficiency measures until the marginal costs of those measures equal the marginal benefits, in reality, no such "full" funding is ever provided. In light of this, there seems to be no principled basis upon which to set an energy efficiency budget. Why should the State of Missouri, in other words, spend $8.0 million a year and not $9.0 million? Why should the State serve 5,000 households rather than 6,000 households?

One principle does seem appropriate to guide energy efficiency funding decisions. The extent of energy efficiency funding should be sufficient to ensure that there are no lost opportunities in any given year. Lost opportunities arise when the accomplishment of some given task precludes the future accomplishment of additional work at that same dwelling. Some of the lost opportunities involved with existing programs include:

WAP weatherization: To the extent that WAP invests $1,800 in a home that has the

potential for $3,000 of cost-effective conservation, there is a lost opportunity. It is highly unlikely that the home will be revisited to subsequently "finish" the remaining $1,200 of conservation improvements. Moreover, federal regulations generally prohibit WAP from retrofitting a home in which WAP dollars have previously been invested.

Housing developments: Decisions made by housing developers represent decisions that will hold for the useful life of the measures. Accordingly, if a developer installs a relatively inefficient furnace or hot water heater, or fails to install the most cost-effective level of insulation, it is not likely that the state or a utility will soon revisit that home to install more energy efficient measures. The opportunity to install high efficiency measures is lost at the time of the developer's initial decision.

Unused institutional capacity: Assume the institutional capacity of energy efficiency service providers is 8,000 homes per year in Missouri. These service providers might include local contractors, CAAs, CDCs and other profit or non-profit institutions. If the combined budget of energy efficiency programs funds only 6,000 homes a year, there is a lost opportunity to increase the energy efficiency in 2,000 homes. By assumption, the maximum capacity is 8,000 homes per year. That capacity thus cannot be pushed to 10,000 for a year to "make-up" the earlier lost opportunity.

The institutional capacity for delivering energy efficiency, of course, should include the capacity of the state's utilities in addition to the private non-utility contractors.

As can be seen, one component of an energy efficiency program funded through a distribution fee is a periodic inventory of the institutional capacity to deliver energy efficiency measures. The inventory should cover the planning period of the entity administering the distribution fee funds. If that entity develops three year energy efficiency plans, in other words, its inventory should include the existing and projected capacity to deliver energy efficiency services over that three year period. The budget for energy efficiency should thus be sufficient to fund full utilization of the inventoried capacity.[38]

In sum, the upper limit on the budget for delivering energy efficiency measures through a Missouri distribution fee should be the point at which the marginal costs of such measures equal the marginal benefits. In reality, however, energy efficiency programs rarely, if ever, spend to the margin. A substitute principle thus needs to be developed as a decision rule for the extent of energy efficiency funding. The proposed decision rule is that funding through the distribution fee[39] should be of sufficient magnitude to ensure that there is no unused

[38] The entity which administers the distribution fee then needs to make commitments to fully fund the institutional capacity over an announced time frame. This type of commitment is necessary for energy efficiency service providers to plan and develop their own capacity.

[39] Combined with WAP and other sources of revenues.

institutional capacity to deliver cost-effective energy efficiency services.

The Level of Bill Affordability Revenues

The amount of money needed to provide cost-effective bill affordability assistance should consider the need for basic cash fuel assistance grants, as well as crisis intervention. The necessary level of revenue depends upon four factors:

- **Defining the "energy bill" to be covered:** For all of the reasons outlined in the first section of this paper, a distribution fee should address both heating and non-heating components of low-income bills. This focus supplants and replaces the current focus on heating bills with a new focus on total home energy bills (excluding transportation).

- **Defining "low-income":** The state must next define what it means by "low-income." Historically, the cap for LIHEAP participation has been established by federal statute as being either 150 percent of the federal Poverty Level *or* 60 percent of median income, at the state's discretion. In contrast, most HUD programs define "low-income" as extending up to 80 percent of median income. Table 17 below presents statewide figures on how this decision affects the number of families[41] deemed to be "low-income" in Missouri. Based on the historical inadequacy of 150 percent of Poverty as an indicator of inability-to-pay,[41] the definition of "low-income" should be set at 200 percent of the federal Poverty Level.

- **Making assumptions as to participation levels:** The third factor that affects a determination of how much money to raise through a distribution fee involves the participation rate from amongst the eligible population. Nationwide, LIHEAP participation rates range from roughly 20 percent to roughly 40 percent of the eligible population. An assumed participation rate of 30 to 35 percent in low-income fuel assistance programs funded through a Missouri distribution fee would not be unreasonable.

- **Targeting assistance:** The final factor that affects how much money to raise through a distribution fee in Missouri involves the decision rule for targeting assistance. The most commonly used benchmark is to establish lowering low-

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[40] "Families" and "households" are not synonymous.

[41] While not having space to document the discussions in the literature, it should be noted that 150 percent of Poverty does not reach many of the "working poor" who do not qualify for public assistance, but who nonetheless lack the financial ability to pay ongoing household expenses. In addition, many Social Security recipients also fall over (not far over, but nevertheless over) the 150 percent of Poverty Level ceiling.

> income energy burdens (*i.e.*, energy bills as a percent of income) to the total population average as the "ideal." This goal, however, often involves expenditures beyond a magnitude that would be politically acceptable. Lowering total energy burdens to a range of 10 - 12 percent allows for reasonable success in making payments by low-income households while staying within reasonable budgetary constraints.\1\

As part of the decision on how much money to raise through a distribution fee, it would be appropriate, also, to establish a cap on administrative expenses for both the fuel assistance and energy efficiency components of the program. A cap based on existing LIHEAP statutory restrictions (10 percent) is not unreasonable.

How to Make the Distribution Fee Immune to Bypass

The recommendation inherent in this analysis is that a distribution fee be imposed "at the meter." This recommendation stands in contrast to some recommendations that propose to impose the distribution fee at the provider level. The primary goal of such proposals, it appears, is to try to force responsibility for some portion of the distribution fee back on the shareholders, as competitive energy providers choose not to pass on the charge in retail rates. That goal, standing alone, represents an insufficient reason to impose a distribution fee at the provider level.

Moreover, full responsibility for a distribution fee should not be subject to bypass, in whole or in part, by a customer switching fuels. For this reason, the distribution fee should not be imposed on a flat percentage of revenue (or a flat per unit of energy charge) basis. As the Tables discussed above show, imposing the distribution fee on a per Btu basis is not only "equitable" in that it assigns cost responsibility based on the proportion of fuel consumed, it creates the situation where a customer switching from one fuel to another does not change the proportionate responsibility he or she bears as a user of that fuel.

Proposals for a flat per customer charge are somewhat summarily rejected. Under such a scheme, each unit in a 50-unit multi-family building that is individually metered (50 customers) would pay the same distribution fee as the entire 50-unit building which is master-metered (one customer). There is little equity in such a proposal.

\42\ It would be reasonable, also, to vary the target energy burden by household size. Ten percent of income is more important to a household with eight persons than it is to a household with two persons. Thus, a matrix that sets the payment level for households at or below 50% of Poverty at 5%, for households at 50 - 99% of Poverty at 7%, and for households at 100% or more of Poverty at 9%, may well be reasonable.

How to Make the Distribution Fee Competitively Neutral

The proposed distribution fee for Missouri is competitively neutral. In this sense, the term "competitively neutral" means that the imposition of the distribution fee does not change the competitive position of fuels that would otherwise exist in the absence of such a charge. This competitive neutrality is enforced by imposing the distribution fee on a per Btu basis. As a result, there is no greater or lesser incentive to purchase one fuel rather than another because of the distribution fee. Nor is there any incentive to purchase from one supplier rather than another (within the same fuel type) as a result of the distribution fee.

Creation of a State Leveraging Incentive Fund

As part of the process of establishing a distribution fee, the state legislature should create and fund a state leveraging incentive fund akin to the LIHEAP leveraging incentive fund created at the national level. This incentive fund would encourage local communities to bring local resources to bear on energy efficiency and energy affordability issues. Whether through energy efficiency programs through volunteer house repairs,\1\ crisis assistance initiatives such as utility fuel funds, or some other mechanisms), the state should commit to encouraging (and rewarding) local initiatives.\1\

SUMMARY AND CONCLUSIONS

For all of the reasons outlined in this paper, a distribution fee is a necessary and appropriate public policy in Missouri. A summary of the various decisions that might comprise the design of a Missouri distribution fee is set forth in Appendix C below.

\43\ The "Florida Fix" program coordinated and promoted by the Florida Housing Coalition (Tallahassee) is an excellent example of such a volunteer partnership. Florida Fix involves local groups of volunteers working to repair low-income housing.

\44\ A broad ranging discussion of state and local fundraising initiatives can be found at Roger Colton (1996). ***Funding Fuel Assistance: State and Local Strategies to Help Pay Low-Income Home Energy Bills***, Fisher, Sheehan & Colton, Public Finance and General Economics: Belmont, MA. A listing of the programs described in that publication is attached as Appendix B.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 1 (PAGE 1 OF 3)
UNITS OF HOUSING AFFORDABLE AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME (HAMFI)
BY YEAR OF CONSTRUCTION

Year of Construction	81%+ Median Income		
	Renter	Owner	Total
Before 1940	24,157	65,411	89,568
1940 - 1949	1,578	24,910	26,488
1950 - 1959	2,574	54,978	57,552
1960 - 1979	13,483	224,640	238,123
1980 - 1990	12,560	137,638	150,198
SOURCE: CHAS Data Base: HUD: 1990.			

TABLE 1 (PAGE 2 OF 3)
MISSOURI HOUSING AFFORDABILITY AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME

Income Range	Housing Burden > 30%			Housing Burden > 50%		
	Renter	Owner	Total	Renter	Owner	Total
81 - 95% HAMFI	3,550	14,378	17,928	268	1,765	2,033
95%+ HAMFI	2,673	33,741	36,414	174	2,996	3,170
Source: CHAS Data Base: HUD: 1990.						

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 1 (PAGE 3 OF 3)
UNITS OF HOUSING AFFORDABLE AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME
WITH PHYSICAL PROBLEMS

	81%+ HAMFI		
	Renter	Owner	Total
Total Units	34,352	507,397	541,749
Units With Physical Problems	15,962	73,682	89,644
Source: CHAS Data Base: HUD: 1990			

TABLE 2
HEATING USAGE AS PERCENT OF TOTAL HOME ENERGY USAGE AND
HEATING BILLS AS PERCENTAGE OF TOTAL HOME ENERGY BILLS
NATIONAL DATA

	Usage (mmBtu)			Bills ($$$)		
	Total	Heating	Percent	Total	Heating	Percent
All Households	103.9	56.5	54.4%	$1,255	$406	32.4%
Low-Income Households	90.9	50.6	55.7%	$1,062	$364	34.3%
LIHEAP Recipients	98.7	59.9	60.7%	$1,067	$412	38.6%
SOURCE: Low-Income Home Energy Assistance Program Report to Congress for FY 1993, at 17 and 20 (Oct. 1994).						

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 3
AVERAGE WINTER NATURAL GAS HEATING BURDENS
VARIOUS MISSOURI LOW-INCOME POPULATIONS

	Average Winter Income	Average Winter Gas Bill	Bill as Income Percent
LIHEAP Recipients	$1,537	$210.94	13.7%
AFDC Recipients	$ 826	$210.94	24.1%
SSI Recipients	$1,221	$210.94	17.3%
Social Security:	$1,767	$210.94	11.9%

SOURCE:

R.Colton and M.Sheehan (1995). ***On the Brink of Disaster: A State-by-State Analysis of Natural Gas Winter Home Heating Bills***.

TABLE 4
WINTER GAS BILL AS PERCENTAGE OF INCOME:
LIHEAP RECIPIENTS BY INCOME RANGE

	AVERAGE WINTER NATURAL GAS BILL	**INCOME $0-1,999**	**INCOME $2-3,999**	**INCOME $4-5,999**	**INCOME $6-7,999**	**INCOME $8-9,999**	**INCOME $10-11,999**	**INCOME $12-14,999**	**INCOME $15,000+**
Missouri	$210.94	84.4%	28.1%	16.9%	12.1%	9.4%	7.7%	6.3%	5.6%

SOURCE:

R.Colton and M.Sheehan (1995). ***On the Brink of Disaster: A State-by-State Analysis of Natural Gas Winter Home Heating Bills***.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 5
NUMBER OF LIHEAP RECIPIENTS BY INCOME RANGE

	TOTAL STATE LIHEAP RECIPIENTS	INCOME $0-1,999	INCOME $2-3,999	INCOME $4-5,999	INCOME $6,-7,999	INCOME $8-9,999	INCOME $10-11,999	INCOME $12-14,999	INCOME $15,000+
Missouri	124,360	8,083	19,276	43,899	24,375	14,674	7,213	4,874	1,990

SOURCE:

R.Colton and M.Sheehan (1995). ***On the Brink of Disaster: A State-by-State Analysis of Natural Gas Winter Home Heating Bills***.

TABLE 6
UTILITY-BY-UTILITY NON-HEATING ELECTRIC BILL (500 KWH)
AS PERCENT OF INCOME, PUBLIC ASSISTANCE RECIPIENTS

State	Utility	Largest City Served	Typical Non-Htg Electric Bill (500 kWh)	Avg Public Assistance Income	Avg Non-Htg Electric Bill as Pct of Income	No. of Public Assistance HHs in Largest Community
Missouri	Citizens Electric Corp.	Perryville	$143.46	$703	20.4%	188
	Empire District Electric	Joplin	$105.60	$808	13.1%	1,812
	Kansas City Power and Light	Kansas City	$148.53	$824	18.0%	13,931
	Missouri Public Service	Raytown	$137.50	$1,434	9.6%	441
	St. Joseph Light & Power	St. Joseph	$102.93	$804	12.8%	2,286
	Union Electric	St. Louis	$151.47	$856	17.7%	22,417

SOURCE:

R.Colton, *The Other Part of the Year: Low-Income Households and their Need for Cooling, A State-by-State Analysis of Low-Income Summer Electric Bills* (1995).

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 7
UNITS OF HOUSING AFFORDABLE AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME (HAMFI)
BY YEAR OF CONSTRUCTION

Year of Construction	0 - 30% Median Income			31 - 50% Median Income			51 - 80% Median Income		
	Renter	Owner	Total	Renter	Owner	Total	Renter	Owner	Total
Before 1940	28,803	55,378	84,181	55,662	67,488	123,150	37,384	70,482	107,866
1940 - 1949	9,617	16,453	26,070	22,523	31,702	54,225	18,759	39,198	57,957
1950 - 1959	13,372	18,205	31,577	27,274	48,221	75,495	29,391	93,814	123,205
1960 - 1979	45,276	63,937	109,213	75,564	61,245	136,809	1-5,580	179,985	164,405
1980 - 1990	18,921	28,416	47,337	27,185	18,142	45,327	62,760	48,311	111,071
Source: CHAS Data Base: HUD: 1990									

TABLE 8
MISSOURI HOUSING AFFORDABILITY AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME

Income Range	Housing Burden > 30%			Housing Burden > 50%		
	Renter	Owner	Total	Renter	Owner	Total
0 - 30% HAMFI	101,021	63,640	164,661	76,075	38,030	114,105
31 - 50% HAMFI	65,458	41,996	107,454	16,624	14,301	30,925
51 - 80% HAMFI	34,883	44,501	79,384	2,410	8,093	10,503
Source: CHAS Data Base: HUD: 1990						

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 9
CONTRIBUTION OF UTILITY COSTS TO TOTAL SHELTER COSTS: SELECTED MISSOURI CITIES

State	City	FMR /a/	Monthly Winter Utility Bills for Selected Missouri Cities			Monthly Winter Utility Bill /b/	Percent of FMR Devoted to Utilities
			Natural Gas	Electricity	Water/Sewer		
Missouri	Kansas City	$489	$79	$60	$24	$163	33%
Missouri	St. Louis	$476	$98	$50	$26	$174	37%

SOURCE:

R.Colton (1994). ***The Role of Utility Costs in Setting Fair Market Rents For Section 8 Housing***, presented in, *Section 8 Housing Assistance Payments Program--Fair Market Rent (FMR) Schedules for Use in the Rental Certificate Programs, Loan Management and Property Disposition Programs, Moderate Rehabilitation Program and Rental Voucher Program*, HUD Docket No. N-94-3754.

NOTES:

/a/ Fair Market Rents (FMRs) include contract rent plus all utilities. Determined and published by HUD on annual basis.
/b/ May have minor differences from sum of individual columns due to rounding.

TABLE 10
UNITS OF HOUSING AFFORDABLE AT DIFFERENT LEVELS OF HUD-ADJUSTED MEDIAN FAMILY INCOME
WITH PHYSICAL PROBLEMS

	0 - 30% HAMFI			31 - 50% HAMFI			51 - 80% HAMFI		
	Renter	Owner	Total	Renter	Owner	Total	Renter	Owner	Total
Total Units	116,069	182,757	298,826	208,208	226,769	434,977	253,844	431,810	685,654
Units With Physical Problems	31,837	44,957	76,794	88,918	42,683	131,601	97,868	62,084	159,952

Source: CHAS Data Base: HUD: 1990

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 11
BILL PAYMENT IMPACT FOR CUSTOMERS WITH ARREARAGES: LIURP: PENNSYLVANIA

1992 LIURP	Heating Jobs		Water Heating Jobs		Baseload Jobs	
	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period	Percent of Bill Paid Pre-Period	Percent of Bill Paid Post-Period
Duquesne	Not Applicable		91%	100%	78%	106%
Met Ed	78%	107%	79%	107%		
Pennelec	92%	95%	96%	99%		
Penn Power	Not Applicable		95%	93%		
PP&L	51%	95%	55%	105%		
PECO Electric	74%	118%	78%	109%		
UGI Electric	95%	105%	Not Applicable			
West Penn	126%	102%	129%	106%		
Columbia Gas	69%	133%				
Equitable	Not Applicable					
NFG	96%	125%				
PECO Gas	68%	133%				
PG&W	96%	106%				
Peoples	99%	106%				
T.W. Phillips	Not Available					
UGI Gas	89%	115%				

SOURCE: Pennsylvania PUC Evaluation of 1992 LIURP Program Results (1995).

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 12A
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $80 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$47,829,385	$31,847,465	$79,676,850
Price per Fuel Unit /a/	$0.38886	$0.00132	
Average Annual Residential Bill Impact /b/	$42.77	$11.70	
Average Monthly Residential Bill Impact	$3.56	$0.98	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 12B
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $100 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$59,786,731	$39,809,332	$99,596,063
Price per Fuel Unit /a/	$0.48607	$0.00165	
Average Annual Residential Bill Impact /b/	$53.46	$14.40	
Average Monthly Residential Bill Impact	$4.46	$1.20	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 12C
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $120 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$71,744,077	$47,771,198	$119,515,275
Price per Fuel Unit /a/	$0.58329	$0.00199	
Average Annual Residential Bill Impact /b/	$64.15	$17.10	
Average Monthly Residential Bill Impact	$5.35	$1.43	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 12D
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $160 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$95,658,769	$63,694,931	$159,353,700
Price per Fuel Unit /a/	$0.77771	$0.00265	
Average Annual Residential Bill Impact /b/	$85.55	$23.40	
Average Monthly Residential Bill Impact	$7.13	$1.95	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 13A
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $80 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$44,827,856	$34,848,994	$79,676,850
Price per Fuel Unit /a/	$0.17175	$0.00058	
Average Annual Residential Bill Impact /b/	$18.89	$4.50	
Average Annual Residential Bill Impact	$1.57	$0.38	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 13B
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $100 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$56,034,820	$43,561,242	$99,596,062
Price per Fuel Unit /a/	$0.21469	$0.00073	
Average Annual Residential Bill Impact /b/	$23.61	$6.30	
Average Monthly Residential Bill Impact	$1.97	$0.53	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 13C
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $120 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$67,241,784	$52,273,491	$119,515,275
Price per Fuel Unit /a/	$0.25763	$0.00088	
Average Annual Residential Bill Impact /b/	$28.34	$7.20	
Average Monthly Residential Bill Impact	$2.36	$0.60	

NOTES:

/a/ Fuel unit: electricity = Kwh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 13D
CHARGE NEEDED ON MISSOURI RESIDENTIAL CONSUMPTION
TO GENERATE $160 MILLION

	Natural Gas	Electricity	Total
Total Dollars	$89,655,712	$69,697,988	$159,353,700
Price per Fuel Unit /a/	$0.34351	$0.00117	
Average Annual Residential Bill Impact /b/	$37.79	$9.90	
Average Monthly Residential Bill Impact	$3.15	$0.83	

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 14A
CHARGE NEEDED ON MISSOURI ELECTRIC CONSUMPTION
TO GENERATE $80 MILLION

	All Classes	Residential Only
Total Dollars	$79,676,850	$79,676,850
Price per Fuel Unit /a/	$0.00133	$0.00331
Average Annual Residential Bill Impact /b/	$11.70	$29.70
Average Monthly Residential Bill Impact	$0.98	$2.48

NOTES:

/a/ Fuel units: electricity = kWh.
/b/ Assumed annual electric consumption: 9,000 kWh.

TABLE 14B
CHARGE NEEDED ON MISSOURI ELECTRIC CONSUMPTION
TO GENERATE $100 MILLION

	All Classes	Residential Only
Total Dollars	$99,596,063	$99,596,063
Price per Fuel Unit /a/	$0.00167	$0.00414
Average Annual Residential Bill Impact /b/	$14.40	$36.90
Average Monthly Residential Bill Impact	$1.20	$3.08

NOTES:

/a/ Fuel units: electricity = kWh.
/b/ Assumed annual electric consumption: 9,000 kWh.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 14C
CHARGE NEEDED ON MISSOURI ELECTRIC CONSUMPTION
TO GENERATE $120 MILLION

	All Classes	Residential Only
Total Dollars	$119,515,275	$119,515,275
Price per Fuel Unit /a/	$0.00200	$0.00497
Average Annual Residential Bill Impact /b/	$18.00	$44.10
Average Monthly Residential Bill Impact	$1.50	$3.68

NOTES:

/a/ Fuel units: electricity = kWh.
/b/ Assumed annual electric consumption: 9,000 kWh.

TABLE 14D
CHARGE NEEDED ON MISSOURI ELECTRIC CONSUMPTION
TO GENERATE $160 MILLION

	All Classes	Residential Only
Total Dollars	$159,353,700	$159,353,700
Price per Fuel Unit /a/	$0.00267	$0.00662
Average Annual Residential Bill Impact /b/	$23.40	$59.40
Average Monthly Residential Bill Impact	$1.95	$4.95

NOTES:

/a/ Fuel units: electricity = kWh.
/b/ Assumed annual electric consumption: 9,000 kWh.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 14E
CHARGE NEEDED ON MISSOURI ELECTRIC CONSUMPTION
TO GENERATE $40 MILLION

	All Classes	Residential Only
Total Dollars	$39,838,425	$39,838,425
Price per Fuel Unit /a/	$0.00067	$0.00166
Average Annual Residential Bill Impact /b/	$5.40	$14.40
Average Monthly Residential Bill Impact	$0.45	$1.20

NOTES:

/a/ Fuel units: electricity = kWh.
/b/ Assumed annual electric consumption: 9,000 kWh.

TABLE 15A
CHARGE NEEDED ON ALL RESIDENTIAL CONSUMPTION IN MISSOURI
TO GENERATE $80 MILLION

	Natural Gas	Electric	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$42,975,309	$28,615,352	$731,940	$34,854	$7,319,396	$79,676,850
Price per Fuel Unit /a/	$0.34939	$0.00119	$0.04937	$0.03458	$0.03020	
Average Annual Residential Bill Impact /b/	$38.42	$9.90				
Average Monthly Residential Bill Impact	$3.20	$0.83				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 15B
CHARGE NEEDED ON ALL RESIDENTIAL CONSUMPTION IN MISSOURI
TO GENERATE $100 MILLION

	Natural Gas	Electric	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$53,719,136	$35,769,190	$914,924	$43,568	$9,149,245	$99,596,063
Price per Fuel Unit /a/	$0.43674	$0.00149	$0.06171	$0.04322	$0.03775	
Average Annual Residential Bill Impact /b/	$48.04	$12.60				
Average Monthly Residential Bill Impact	$4.00	$1.05				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 15C
CHARGE NEEDED ON ALL RESIDENTIAL CONSUMPTION IN MISSOURI
TO GENERATE $120 MILLION

	Natural Gas	Electric	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$64,462,963	$42,923,027	$1,097,909	$52,281	$10,979,094	$119,515,275
Price per Fuel Unit /a/	$0.52409	$0.00178	$0.07403	$0.05187	$0.04530	
Average Annual Residential Bill Impact /b/	$57.64	$15.30				
Average Monthly Residential Bill Impact	$4.80	$1.28				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 15D
CHARGE NEEDED ON ALL RESIDENTIAL CONSUMPTION IN MISSOURI
TO GENERATE $160 MILLION

	Natural Gas	Electricity	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$85,950,618	$57,230,703	$1,463,879	$69,709	$14,638,791	$159,353,700
Price per Fuel Unit /a/	$0.69879	$0.00238	$0.09874	$0.06916	$0.06040	
Average Annual Residential Bill Impact /b/	$76.86	$20.70				
Average Monthly Residential Bill Impact	$6.41	$1.73				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 16A
CHARGE NEEDED ON ALL CUSTOMER CLASS CONSUMPTION IN MISSOURI
TO GENERATE $80 MILLION

	Natural Gas	Electricity	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$39,469,202	$30,683,198	$4,430,678	$45,211	$5,048,582	$79,626,850
Price per Fuel Unit /a/	$0.15122	$0.00051	$0.02098	$0.02243	$0.01306	
Average Annual Residential Bill Impact /b/	$16.63	$4.50				
Average Monthly Residential Bill Impact	$1.39	$0.38				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 16B
CHARGE NEEDED ON ALL CUSTOMER CLASS CONSUMPTION IN MISSOURI
TO GENERATE $100 MILLION

	Natural Gas	Electricity	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$49,305,542	$38,329,929	$5,534,872	$56,478	$6,306,742	$99,533,563
Price per Fuel Unit /a/	$0.18891	$0.00064	$0.02620	$0.02802	$0.01631	
Average Annual Residential Bill Impact /b/	$20.78	$5.40				
Average Monthly Residential Bill Impact	$1.73	$0.45				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 16C
CHARGE NEEDED ON ALL CUSTOMER CLASS CONSUMPTION IN MISSOURI
TO GENERATE $120 MILLION

	Natural Gas	Electric	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$59,166,650	$45,995,914	$6,641,846	$67,774	$7,568,090	$119,440,275
Price per Fuel Unit /a/	$0.22669	$0.00077	$0.03145	$0.03362	$0.01958	
Average Annual Residential Bill Impact /b/	$24.93	$6.30				
Average Monthly Residential Bill Impact	$2.08	$0.53				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

APPENDIX A:
MISSOURI DISTRIBUTION FEE DATA AND TABLES

TABLE 16D
CHARGE NEEDED ON ALL CUSTOMER CLASS CONSUMPTION IN MISSOURI
TO GENERATE $160 MILLION

	Natural Gas	Electric	Fuel Oil	Kerosene	LPG	Total
Total Dollars	$78,938,404	$61,366,396	$8,861,356	$90,422	$10,097,123	$159,353,700
Price per Fuel Unit /a/	$0.30245	$0.00103	$0.01495	$0.04485	$0.02612	
Average Annual Residential Bill Impact /b/	$33.26	$9.00				
Average Monthly Residential Bill Impact	$2.77	$0.75				

NOTES:

/a/ Fuel unit: electricity = kWh. natural gas = mcf. fuel oil, kerosene, LPG = gallons.
/b/ Assumed annual electric consumption: 9,000 kWh. Assumed annual natural gas consumption: 1,100 therms.

TABLE 17
NUMBER OF LOW-INCOME HOUSEHOLDS IN MISSOURI
AT DIFFERENT MEASURES OF "LOW-INCOME"

Number of Families					
Percent of federal Poverty Level /a/			Percent of Median Income /b/		
0 - 100%	0 - 150%	0 - 200%	0 - 30%	0 - 50%	0 - 80%
254,052	531,809	630,233	237,752	464,629	813,121

Table of Program Suggestions

1. Utility bill checkoffs for fuel funds
2. Electronic funds transfer (EFT) billing
3. Early payment agreements
4. Contributions of utility refunds
5. Recapture of unclaimed deposits
6. Recapture of unclaimed utility refunds
7. Ratepayer assistance trust fund
8. Franchise fees--rental payments
9. Rate discounts
10. "One Church--One Family"
11. Contributions in lieu of taxes
12. Universal Service Fund
13. Earned Income Tax Credit promotion
14. State Earned Income Tax Credit
15. Promotion of circuit breaker property tax relief
16. State tax credits
17. Sales tax relief on home energy
18. Title IV-A: Emergency Assistance/Special Needs
19. Utility allowances in assisted housing: annual
20. Utility allowances in assisted housing: monthly
21. Bulk fuels: cash prices
22. Bulk fuels: across-the-board discount
23. Bulk fuels: margin over rack program
24. Bulk fuels: summer fill program
25. Bulk fuels: winter shutoff protections

APPENDIX C:
SUMMARY OF RECOMMENDATIONS
STRUCTURE OF DISTRIBUTION FEE IN MISSOURI

1. A DISTRIBUTION FEE SHOULD FUND THREE INITIATIVES.

a. Low-income cash fuel assistance.

b. Low-income energy efficiency assistance.

c. Non-low-income energy efficiency, including investments in distributed technologies such as solar space and water heating.

2. WHO PAYS FOR THE DISTRIBUTION FEE.

a. All customer classes (residential, industrial, commercial) should pay the distribution fee.

b. The "distribution fee" should be imposed on all fuel sources.

i. Natural gas, electricity, propane, fuel oil, propane.

ii. The responsibility should be apportioned in proportion to usage of each fuel.

3. THE VALUE OF A DISTRIBUTION FEE SHOULD CONSIDER THREE FACTORS.

a. A "distribution fee" should include a component for both:

i. Low-income fuel assistance

(1) Define who is poor;

(2) Determine percent who will participate;

(3) Targeting assistance: affordable percentage of income.

ii. Non-low-income energy efficiency, including solar investments.

(1) Exhaust the institutional capacity;

(2) Eliminate lost opportunities.

b. A "distribution fee" should fund assistance directed toward total home energy bills, including non-heat electric, not simply home heating.

c. There should be an administrative dollar cap.

4. HOW TO MAKE THE DISTRIBUTION FEE NON-BYPASSABLE.

a. The distribution fee should be imposed "at the meter," not at the provider level.

b. The charge should be calculated on a per Btu basis.

i. Not a flat percentage basis.

ii. Not on a flat per customer basis.

5. MISCELLANEOUS "OTHER" ISSUES.

a. There should be a state-funded leveraging incentive fund.

i. Akin to federal LIHEAP leveraging incentive fund.